

**PUBLIC VERSION**

**UNITED STATES INTERNATIONAL TRADE COMMISSION  
WASHINGTON, D.C. 20436**

**In the Matter of**

**CERTAIN AUTOMATED TELLER  
MACHINES, ATM MODULES,  
COMPONENTS THEREOF, AND  
PRODUCTS CONTAINING THE SAME**

**Inv. No. 337-TA-989**

**FINAL INITIAL DETERMINATION**

**Administrative Law Judge David P. Shaw**

Pursuant to the notice of investigation, 81 Fed. Reg. 13419 (Mar. 14, 2016), this is the Initial Determination in *Certain Automated Teller Machines, ATM Modules, Components Thereof, and Products Containing the Same*, United States International Trade Commission Investigation No. 337-TA-989.

It is held that a violation of section 337 (19 U.S.C. § 1337) has occurred with respect to U.S. Patent No. 8,523,235.

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The following abbreviations may be used in this Initial Determination:

- ALJ - Administrative Law Judge
- CPX - Complainants' Physical Exhibit
- CX - Complainants' Exhibit
- Dep. - Deposition
- EDIS - Electronic Document Imaging System
- JPX - Joint Physical Exhibit
- JX - Joint Exhibit
- P.H. - Prehearing
- RPX - Respondents' Physical Exhibit
- RWS - Rebuttal Witness Statement
- RX - Respondents' Exhibit
- Tr. - Transcript
- WS - Witness Statement

**PUBLIC VERSION****I. Background****A. Institution of the Investigation; Procedural History**

By publication of a notice in the *Federal Register* on March 14, 2016, pursuant to subsection (b) of section 337 of the Tariff Act of 1930, as amended, the Commission instituted this investigation to determine:

[W]hether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain automated teller machines, ATM modules, components thereof, and products containing the same by reason of infringement of one or more of claims 1-3 and 5 of the '551 patent [U.S. Patent No. 7,891,551]; claims 1 and 6 of the '655 patent [U.S. Patent No. 7,950,655]; claims 1-4, 6, and 7 of the '165 patent [U.S. Patent No. 8,152,165]; and claims 1-3, 6, 8, and 9 of the '235 patent [U.S. Patent No. 8,523,235], and whether an industry in the United States exists as required by subsection (a)(2) of section 337.

81 Fed. Reg. 13419 (Mar. 14, 2016).

The complainants are Nautilus Hyosung Inc. of Seoul, Republic of Korea and Nautilus Hyosung America Inc. of Irving, Texas. The named respondents are Diebold, Incorporated of North Canton, Ohio and Diebold Self-Service Systems of North Canton, Ohio. *Id.* The Office of Unfair Import Investigation was not named as a party to the investigation. *Id.*

Initially, the target date for completion of this investigation was set at approximately fourteen and one-half months, *i.e.*, May 31, 2017. *See* Order No. 3 (Apr. 18, 2016). Thereafter, the administrative law judge set a new target date of July 14, 2017, and thus the due date for the Final Initial Determination on violation is March 14, 2017. *See* Order No. 33 (Feb. 27, 2017).

On July 27, 2016, the Commission determined not to review an initial

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determination terminating all asserted claims of U.S. Patent Nos. 7,891,551 and 8,152,165. Order No. 11 (June 30, 2016), *aff'd*, Notice of Commission Determination Not to Review an Initial Determination Terminating the Investigation in Part as to U.S. Patent Nos. 7,891,551 and 8,152,165 (July 27, 2016).

On August 16, 2016, the Commission determined not to review an initial determination terminating all asserted claims of U.S. Patent No. 7,950,655. Order No. 17 (July 21, 2016), *aff'd*, Commission Determination Not to Review an Initial Determination Terminating the Investigation in Part as to U.S. Patent No. 7,950,655 (Aug. 16, 2016).

Accordingly, the following claims remain at issue in this investigation: claims 1-3, 6, 8, and 9 of U.S. Patent No. 8,523,235. *See* Order No. 17 (July 21, 2016), *aff'd*, Commission Determination Not to Review an Initial Determination Terminating the Investigation in Part as to U.S. Patent No. 7,950,655 (Aug. 16, 2016).

On February 6, 2017, the administrative law judge issued an initial determination granting an “Unopposed Motion to Amend the Complaint and Notice of Investigation to Reflect a Corporate Name Change such that the name Diebold, Incorporated be amended to recite Diebold Nixdorf, Incorporated.” *See* Order No. 32 (Feb. 6, 2017), *aff'd*, Notice of Commission Determination Not to Review an Initial Determination Amending the Complaint and Notice of Investigation to Reflect a Corporate Name Change (Mar. 8, 2017).

A prehearing conference was held on November 1, 2016, with the evidentiary hearing in this investigation commencing immediately thereafter. The hearing concluded on November 3, 2016. *See* Order No. 5 (May 2, 2016); Order No. 27 (Oct. 11, 2016); P.H. Tr. 1-18; Tr. 1-772. The parties were requested to file post-hearing briefs not to

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exceed 200 pages in length, and to file reply briefs not to exceed 75 pages in length. P.H. Tr. 8. On November 21, 2016, the parties filed a joint outline of the issues to be decided in the Final Initial Determination. *See* Joint Outline of the Issues to Be Decided (“Joint Outline”) (EDIS Doc. ID No. 595606).

**B. The Parties**

The complainants are Nautilus Hyosung Inc. (“NHS”) of Seoul, Republic of Korea and Nautilus Hyosung America Inc. (“NHA”) of Irving, Texas. NHS is a corporation organized under the laws of South Korea. *See* Complaint, ¶ 2.1. According to the complaint, “NHS is a global technology company that is a leader in the design, development, manufacture and support of a wide range of self-service banking solutions including ATMs and modules thereof.” *See id.* NHA is a wholly-owned subsidiary of NHS, organized under Delaware law. *See id.*, ¶ 2.2.

The named respondents in this investigation were initially Diebold, Incorporated of North Canton, Ohio and Diebold Self-Service Systems of North Canton, Ohio. *Id.* As noted above, on February 6, 2017, the administrative law judge issued an initial determination granting an “Unopposed Motion to Amend the Complaint and Notice of Investigation to Reflect a Corporate Name Change such that the name Diebold, Incorporated be amended to recite Diebold Nixdorf, Incorporated.” *See* Order No. 32 (Feb. 6, 2017), *aff’d*, Notice of Commission Determination Not to Review an Initial Determination Amending the Complaint and Notice of Investigation to Reflect a Corporate Name Change (Mar. 8, 2017).

According to the complaint, Diebold, Incorporated offers a broad range of ATMs, ATM modules, and components thereof. *See* Complaint, ¶ 3.1. According to the

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complaint, Diebold Self-Service Systems is a wholly-owned subsidiary of Diebold, Incorporated. *See* Complaint, ¶ 3.3.

The complaint alleges that Diebold, Incorporated, or others on its behalf, “manufactures the Accused Products in Germany or another foreign country, and then imports them into the United States, sells them for importation into the United States, sells them after importation into the United States, and/or engages in repair, service, and support related activities regarding the Accused Products.” *See* Complaint, ¶ 3.2. The complaint alleges that “Diebold Self-Service Systems, or others on its behalf, manufactures the Accused Products in Germany or another foreign country, and then imports them into the United States, sells them for importation into the United States, sells them after importation into the United States, and/or engages in repair, service, and support related activities regarding the Accused Products imports all or a substantial portion of the products accused in the investigation.” *See* Complaint, ¶ 3.4.

The Office of Unfair Import Investigation was not named as a party to the investigation. *Id.*

**C. The Accused Products and Domestic Industry Products**

Complainants argue that the products at issue are “‘one-throat,’ mixed-media depositing ATMs—i.e. ATMs that can receive and process both cash and checks in a single, mixed bundle, inserted at once.” *See* Compl. Br. at 4.

Complainants argue that the Accused Diebold Products (hereinafter, “Accused Products”) are Diebold ATMs including “the Diebold 7700 with ActivMedia, Diebold 7780 with ActivMedia, and Diebold 7790 with ActivMedia and Diebold 9900 with ActivMedia sidecar.” Compl. Br. at 5. Complainants argue that “Diebold imports the

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‘CCDMv2’ module (including, e.g., its head unit) from Wincor (now principally owned by Diebold),” and that “importation of this module comprises contributory infringement of the ‘235 patent.” Compls. Br. at 5 citing CX-0330 (Diebold SEC Filing).

As to the domestic industry products, complainants argue: “Hyosung ATMs using CCiM that embodies Hyosung’s invention include MX7600, MX7700, MX7800, MX8200QT, MX8700QT, and MX8800 ATMs.” Compls. Br. at 5.

**D. Technological Background**

United States Patent No. 8,523,235 (“the ‘235 patent), entitled “Cash and Cheque depositing Apparatus,” issued on September 3, 2013, to named inventors Jae Hoon Kwak and Woo Ho Lee. JX-0001 (‘235 Patent). The ‘235 patent issued from Application No. 11/588,357, filed on October 27, 2006. *Id.* The ‘235 patent relates to “a cash and cheque automatic depositing apparatus as an ATM (Automated Teller Machine) capable of performing banking transactions, and, more particularly, to a cash and cheque automatic depositing apparatus capable of automatically depositing a bundle of cashes and cheques inserted at once.” JX-0001 at col. 1, lns. 6-11. The ‘235 patent has a total of nine apparatus claims.

**II. Jurisdiction and Importation**

Complainants argue:

Subject matter jurisdiction is proper under section 337(a)(1)(B)(i) and (a)(2) of the Tariff Act of 1930; Diebold has submitted to the Commission’s personal jurisdiction by its participation in this Investigation. As to *in rem* jurisdiction, as discussed further below Diebold imports the accused CCDMv2 modules, including their “head units”; such importation is contributory infringement. *See, e.g.*, Cameron Tr. 423:23–424:16 (confirming importation); CPX-0006C (Diebold inventory spreadsheet); CX-0274C (Howard WS) at Q/A 562 *et seq.* The

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Commission has jurisdiction over such articles. *Suprema, Inc. v. Int'l Trade Comm'n*, 796 F.3d 1338, 1348 (Fed. Cir. 2015) (en banc); *Spansion, Inc. v. Int'l Trade Comm'n*, 629 F.3d 1331, 1353–54 (Fed. Cir. 2010); *Certain Table Saws Incorp'g Active Injury Mitigation Tech.*, Inv. No. 337-TA-965, slip op. at 10–11 (USITC Sept. 9, 2016) (init. determ. of Pender, ALJ); *Certain Ink Jet Cartridges with Printheads*, Inv. No. 337-TA-723, 2011 WL 3489151, at \*53–56 (USITC June 10, 2011) (init. determ.); *Certain Hardware Logic Emulation Sys.*, Inv. No. 337-TA-383, 1997 WL 665006, at \*92 (USITC Jul. 31, 1997) (init. determ.).

Compls. Br. at 5.

Complainants argue:

Diebold imports [ ] that it subsequently sells in the United States. *See, e.g.*, Cameron Tr. at 423:23-424:16 (confirming importation); CPX-0004C (Diebold Importation Spreadsheet); CPX-0052C (Diebold Importation Spreadsheet); CPX-0053C (Diebold Importation Spreadsheet); CPX-0054C (Diebold Importation Spreadsheet). [

] CPX-0006C (Diebold inventory spreadsheet). *See generally* CX-0274C (Howard WS) at Q/A 562 *et seq.* Diebold has been aware of the '235 patent since no later than February 9, 2016. *See* CX-0057C (Diebold Supp. Interrog. Resps. (Jul. 20, 2016)), Interrogs. 30–32. Any manufacture, use, sale, offer for sale, or importation of the Accused Products, or of the CCDMv2 modules, since was presumptively taken with knowledge that such acts were infringing. *See* CX-0274C (Howard WS) at Q/A 565.

Compls. Br. at 103-04.

Respondents argue that the Commission lacks jurisdiction over the accused products because they are not imported. *See* Resps. Br. at 4.

Concerning jurisdiction, respondents argue:

The Accused Products in this investigation are Diebold ATMs with ActivMedia technology sold in the United States. Specifically, Hyosung accused Diebold of infringement by the importation of the Diebold 7500, Diebold 7550, Diebold 7700, Diebold 7780, Diebold 7790, and Diebold 9900 (the “Accused Products”).

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The Commission has *in rem* jurisdiction when infringing articles are imported, sold for importation, or sold within the United States after importation by the owner, importer, or consignee. 19 U.S.C. § 1337(a)(1)(B). But the Commission only has jurisdiction over imported articles or components thereof to the extent those articles or components thereof infringe the asserted patent. It is well-established Commission law that for a violation under 19 U.S.C. § 1337(a)(1)(B)(i) based on patent infringement, the articles must infringe at the time of importation. *Certain Elec. Devices with Image Processing Sys., Components Thereof, and Associated Software*, Inv. No. 337-TA-724, Comm'n Op. at 13-14 (Dec. 21 2011) (“We also interpret the [statutory] phrase ‘articles that – infringe’ to reference the status of the articles at the time of importation. Thus, infringement, direct or indirect, must be based on the articles as imported to satisfy the requirements of section 337.”). This is true, as is the case here, of device claims where specific limitations are not met by the Accused Products that are imported. *Certain Products Containing Interactive Program Guide and Parental Control Technology* (“*Interactive Program Guide*”), Inv. No. 337-TA-845, Initial Determination at 39 (July 2, 2013), aff'd relevant part, Comm'n Op. at 12 (Dec. 11, 2013).

But the Accused Products have never been imported into the United States, by Diebold, or anyone else. On the contrary, they are assembled in the United States from hundreds of parts, many of which are off the shelf and domestically sourced. Thus, the Commission does not have *in rem* jurisdiction over the Accused Products and the jurisdiction of the Commission here is limited to the specific components Hyosung has identified as being imported by Diebold.

Resps. Br. at 4-5 (certain citations omitted).

With respect to importation, respondents argue:

As noted above, the Accused Products in this investigation are Diebold ATMs that are not imported into the United States. Hyosung argues that the Accused Products “principally utilize imported parts”, but this claim is not true. Diebold provided the sourcing location to the extent available for the constituent parts for all the Accused Products. Diebold witness Shannon Cameron walked through these documents in her witness statement, explaining how these sourcing documents show the source of each part for the Accused Products. Each sourcing document shows that the majority of parts for the Accused Products are domestically sourced. For example, the sourcing document for the Diebold 7780 reveals that 77% (365 of 472 parts) with known sourcing were sourced in the United States. Likewise, the Diebold 7790 uses 78% domestic parts (367 of 468).

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In fact, all of the Accused Products are principally made of domestically-sourced parts. Thus, Hyosung's allegation that the Accused Products "principally use[]" imported parts is false.

This is far from the situation in *Certain Multiple Mode Outdoor Grills and Parts Thereof*, where some respondents unsuccessfully argued that products imported in an unassembled state do not infringe an apparatus claim. Inv. No. 337-TA-895, Initial Determination at 60-63 (Sept. 24, 2014), *unreviewed in relevant part*, Comm'n Op. (Feb. 20, 2015). Here, only 23% of the parts of the Accused Products are imported.

Hyosung is required to point to imported components that infringe, directly or indirectly, as imported. *Certain Electronic Devices*, Inv. No. 337-TA-724, Comm'n Op. at 13-14 (Dec. 21, 2011) ("We also interpret the [statutory] phrase 'articles that – infringe' to reference the status of the articles at the time of importation. Thus, infringement, direct or indirect, must be based on the articles as imported to satisfy the requirements of section 337."). Importantly, Hyosung does not accuse any component or combination of components of the Accused Products of directly infringing the Kwak patent, which is fatal to Hyosung's allegations of direct infringement for several claims. Even taking the sum of the components that are foreign sourced, which are not necessarily imported by Diebold, the result falls well short of anything that resembles the Accused Product.

\* \* \*

Knowing it cannot substantiate a Section 337 violation based on direct infringement by the Accused Products, Hyosung resorts to a contributory infringement claim based on the importation of the CCDM V2 module. The CCDM V2 module is not merely imported in a disassembled state: it is imported in several components that make up only partial assembly of the functional device that is accused of contributory infringement. Moreover, the CCDM V2 as imported lacks the necessary components for it to operate to accept any notes, transfer notes, or deposit notes. The imported components lack the pieces needed to install the CCDM into the ATM, as well as the critical Mayfair software, that controls all relevant operations of the device, including whether to allow mixed-bundle deposits, and where to route checks and cash. The Mayfair software is locally sourced and installed in the United States.

Resps. Br. at 39-41 (certain citations and footnotes omitted).

\* \* \*

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Section 337(a)(1)(B) declares unlawful, *inter alia*, “[t]he importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of articles that . . . infringe a valid and enforceable United States patent.” 19 U.S.C. § 1337(a)(1)(B). Complainants have filed a complaint alleging a violation of this subsection, and the Commission therefore has subject matter jurisdiction. *See Amgen, Inc. v. United States Int’l Trade Comm’n*, 902 F.2d 1532, 1535-37 (Fed. Cir. 1990).

All respondents have appeared and participated in the investigation. The Commission therefore has personal jurisdiction over those respondents. *See e.g., Certain Liquid Crystal Display Modules, Products Containing Same, and Methods for Using the Same*, Inv. No. 337-TA-634, Final Initial and Recommended Determinations at 3 (June 12, 2009) (unreviewed).

As noted above, respondents argue that “the Commission does not have *in rem* jurisdiction over the Accused Products and the jurisdiction of the Commission here is limited to the specific components Hyosung has identified as being imported by Diebold.” Resps. Br. at 5. Respondents’ arguments concerning jurisdiction and importation are addressed in the infringement section of this initial determination (Section IV.B.2).

**PUBLIC VERSION****III. General Principles of Applicable Law****A. Claim Construction**

Claim construction begins with the plain language of the claim.<sup>1</sup> Claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art, viewing the claim terms in the context of the entire patent.<sup>2</sup> *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006).

In some instances, claim terms do not have particular meaning in a field of art, and claim construction involves little more than the application of the widely accepted meaning of commonly understood words. *Phillips*, 415 F.3d at 1314. “In such circumstances, general purpose dictionaries may be helpful.” *Id.*

In many cases, claim terms have a specialized meaning, and it is necessary to determine what a person of skill in the art would have understood the disputed claim language to mean. “Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to ‘those sources available to the public that show what a person of skill in the art would have understood disputed claim language to

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<sup>1</sup> Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vanderlande Indus. Nederland BV v. Int’l Trade Comm.*, 366 F.3d 1311, 1323 (Fed. Cir. 2004); *Vivid Tech., Inc. v. American Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

<sup>2</sup> Factors that may be considered when determining the level of ordinary skill in the art include: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

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mean.” *Phillips*, 415 F.3d at 1314 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)). The public sources identified in *Phillips* include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.* (quoting *Innova*, 381 F.3d at 1116).

In cases in which the meaning of a claim term is uncertain, the specification usually is the best guide to the meaning of the term. *Phillips*, 415 F.3d at 1315. As a general rule, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*), *aff’d*, 517 U.S. 370 (1996). The specification is, however, always highly relevant to the claim construction analysis, and is usually dispositive. *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptor, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Moreover, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Id.* at 1316.

Claims are not necessarily, and are not usually, limited in scope to the preferred embodiment. *RF Delaware, Inc. v. Pacific Keystone Techs., Inc.*, 326 F.3d 1255, 1263 (Fed. Cir. 2003); *Decisioning.com, Inc. v. Federated Dep’t Stores, Inc.*, 527 F.3d 1300, 1314 (Fed. Cir. 2008) (“[The] description of a preferred embodiment, in the absence of a clear intention to limit claim scope, is an insufficient basis on which to narrow the claims.”). Nevertheless, claim constructions that exclude the preferred embodiment are “rarely, if ever, correct and require highly persuasive evidentiary support.” *Vitronics*, 90

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F.3d at 1583. Such a conclusion can be mandated in rare instances by clear intrinsic evidence, such as unambiguous claim language or a clear disclaimer by the patentees during patent prosecution. *Elekta Instrument S.A. v. O.U.R. Sci. Int'l, Inc.*, 214 F.3d 1302, 1308 (Fed. Cir. 2000); *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319 (Fed. Cir. 2002).

If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence consists of all evidence external to the patent and the prosecution history, and includes inventor testimony, expert testimony, and learned treatises. *Phillips*, 415 F.3d at 1317. Inventor testimony can be useful to shed light on the relevant art. In evaluating expert testimony, a court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent. *Id.* at 1318. Extrinsic evidence may be considered if a court deems it helpful in determining the true meaning of language used in the patent claims. *Id.*

**B. Infringement****1. Direct Infringement**

Under 35 U.S.C. §271(a), direct infringement consists of making, using, offering to sell, or selling a patented invention without consent of the patent owner. The complainant in a section 337 investigation bears the burden of proving infringement of the asserted patent claims by a “preponderance of the evidence.” *Certain Flooring Products*, Inv. No. 337-TA-443, Comm’n Notice of Final Determination of No Violation of Section 337, 2002 WL 448690, at \*59, (Mar. 22, 2002); *Enercon GmbH v. Int’l Trade Comm’n*, 151 F.3d 1376 (Fed. Cir. 1998).

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Literal infringement of a claim occurs when every limitation recited in the claim appears in the accused device, *i.e.*, when the properly construed claim reads on the accused device exactly.<sup>3</sup> *Amhil Enters., Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1562 (Fed. Cir. 1996); *Southwall Tech. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed Cir. 1995).

If the accused product does not literally infringe the patent claim, infringement might be found under the doctrine of equivalents. “Under this doctrine, a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention.” *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 21 (1997) (citing *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 609 (1950)). “The determination of equivalence should be applied as an objective inquiry on an element-by-element basis.”<sup>4</sup> *Id.* at 40.

“An element in the accused product is equivalent to a claim limitation if the differences between the two are insubstantial. The analysis focuses on whether the element in the accused device ‘performs substantially the same function in substantially the same way to obtain the same result’ as the claim limitation.” *AquaTex Indus. v.*

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<sup>3</sup> Each patent claim element or limitation is considered material and essential. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991). If an accused device lacks a limitation of an independent claim, the device cannot infringe a dependent claim. See *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1552 n.9 (Fed. Cir. 1989).

<sup>4</sup> “Infringement, whether literal or under the doctrine of equivalents, is a question of fact.” *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1130 (Fed. Cir. 2011).

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*Techniche Solutions*, 419 F.3d 1374, 1382 (Fed. Cir. 2005) (quoting *Graver Tank*, 339 U.S. at 608); accord *Absolute Software*, 659 F.3d at 1139-40.<sup>5</sup>

Prosecution history estoppel can prevent a patentee from relying on the doctrine of equivalents when the patentee relinquished subject matter during the prosecution of the patent, either by amendment or argument. *AquaTex*, 419 F.3d at 1382. In particular, “[t]he doctrine of prosecution history estoppel limits the doctrine of equivalents when an applicant makes a narrowing amendment for purposes of patentability, or clearly and unmistakably surrenders subject matter by arguments made to an examiner.” *Id.* (quoting *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1344 (Fed. Cir. 2005)).

## **2. Indirect Infringement: Contributory Infringement**

Section 271(c) of the Patent Act provides: “Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer. 35 U.S.C. § 271(c).

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<sup>5</sup> “The known interchangeability of substitutes for an element of a patent is one of the express objective factors noted by *Graver Tank* as bearing upon whether the accused device is substantially the same as the patented invention. Independent experimentation by the alleged infringer would not always reflect upon the objective question whether a person skilled in the art would have known of the interchangeability between two elements, but in many cases it would likely be probative of such knowledge.” *Warner-Jenkinson*, 520 U.S. at 36.

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Section 271(c) “covers both contributory infringement of system claims and method claims.”<sup>6</sup> *Arris Group v. British Telecomm. PLC*, 639 F.3d 1368, 1376 (Fed. Cir. 2011) (footnotes omitted). To hold a component supplier liable for contributory infringement, a patent holder must show, *inter alia*, that (a) the supplier’s product was used to commit acts of direct infringement; (b) the product’s use constituted a material part of the invention; (c) the supplier knew its product was especially made or especially adapted for use in an infringement” of the patent; and (d) the product is not a staple article or commodity of commerce suitable for substantial noninfringing use. *Id.*

**C. Validity**

One cannot be held liable for practicing an invalid patent claim. *See Pandrol USA, LP v. AirBoss Railway Prods., Inc.*, 320 F.3d 1354, 1365 (Fed. Cir. 2003). Nevertheless, each claim of a patent is presumed to be valid, even if it depends from a claim found to be invalid. 35 U.S.C. § 282; *DMI Inc. v. Deere & Co.*, 802 F.2d 421 (Fed. Cir. 1986).

A respondent that has raised patent invalidity as an affirmative defense must overcome the presumption by “clear and convincing” evidence of invalidity. *Checkpoint Systems, Inc. v. United States Int’l Trade Comm’n*, 54 F.3d 756, 761 (Fed. Cir. 1995).

**1. Anticipation**

Anticipation under 35 U.S.C. § 102 is a question of fact. *z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1347 (Fed. Cir. 2007). Section 102 provides that,

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<sup>6</sup> “Claims which recite a ‘system,’ ‘apparatus,’ ‘combination,’ or the like are all analytically similar in the sense that their claim limitations include elements rather than method steps. All such claims can be contributorily infringed by a component supplier.” *Arris*, 639 F.3d at 1376 n.8.

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depending on the circumstances, a claimed invention may be anticipated by variety of prior art, including publications, earlier-sold products, and patents. *See* 35 U.S.C. § 102 (*e.g.*, section 102(b) provides that one is not entitled to a patent if the claimed invention “was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States”).

The general law of anticipation may be summarized, as follows:

A reference is anticipatory under § 102(b) when it satisfies particular requirements. First, the reference must disclose each and every element of the claimed invention, whether it does so explicitly or inherently. *Eli Lilly & Co. v. Zenith Goldline Pharms., Inc.*, 471 F.3d 1369, 1375 (Fed.Cir.2006). While those elements must be “arranged or combined in the same way as in the claim,” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed.Cir.2008), the reference need not satisfy an *ipsissimis verbis* test, *In re Bond*, 910 F.2d 831, 832-33 (Fed.Cir.1990). Second, the reference must “enable one of ordinary skill in the art to make the invention without undue experimentation.” *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 545 F.3d 1312, 1314 (Fed.Cir.2008); *see In re LeGrice*, 49 C.C.P.A. 1124, 301 F.2d 929, 940-44 (1962). As long as the reference discloses all of the claim limitations and enables the “subject matter that falls within the scope of the claims at issue,” the reference anticipates -- no “actual creation or reduction to practice” is required. *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1380-81 (Fed.Cir.2003); *see In re Donohue*, 766 F.2d 531, 533 (Fed.Cir.1985). This is so despite the fact that the description provided in the anticipating reference might not otherwise entitle its author to a patent. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562 (Fed.Cir.1991) (discussing the “distinction between a written description adequate to support a claim under § 112 and a written description sufficient to anticipate its subject matter under § 102(b)”).

*In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

**PUBLIC VERSION****2. Obviousness**

Under section 103 of the Patent Act, a patent claim is invalid “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”<sup>7</sup> 35 U.S.C. § 103. While the ultimate determination of whether an invention would have been obvious is a legal conclusion, it is based on “underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness.” *Eli Lilly and Co. v. Teva Pharmaceuticals USA, Inc.*, 619 F.3d 1329 (Fed. Cir. 2010).

The objective evidence, also known as “secondary considerations,” includes commercial success, long felt need, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 13-17 (1966); *Dystar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006). “[E]vidence arising out of the so-called ‘secondary considerations’ must always when present be considered en route to a determination of obviousness.” *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983). Secondary considerations, such as commercial success, will not always dislodge a determination of obviousness based on analysis of the prior art. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 426 (2007) (commercial success did not alter conclusion of obviousness).

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<sup>7</sup> The standard for determining whether a patent or publication is prior art under section 103 is the same as under 35 U.S.C. § 102, which is a legal question. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987).

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“One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent’s claims.” *KSR*, 550 U.S. at 419-20. “[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.*

Specific teachings, suggestions, or motivations to combine prior art may provide helpful insights into the state of the art at the time of the alleged invention. *Id.* at 420. Nevertheless, “an obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way.” *Id.* “Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* A “person of ordinary skill is also a person of ordinary creativity.” *Id.* at 421.

Nevertheless, “the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so.” *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007); *see KSR*, 550 U.S. at 416 (a combination of elements must do more than yield a predictable result; combining elements that work together in an unexpected and fruitful manner would not have been

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obvious).<sup>8</sup>

**3. Indefiniteness**

The definiteness requirement of 35 U.S.C. § 112 ensures that the patent claims particularly point out and distinctly claim the subject matter that the patentee regards to be the invention. *See* 35 U.S.C. § 112, ¶ 2; *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1366 (Fed. Cir. 2004). If a claim's legal scope is not clear enough so that a person of ordinary skill in the art could determine whether or not a particular product infringes, the claim is indefinite, and is, therefore, invalid. *Geneva Pharm., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1384 (Fed. Cir. 2003).<sup>9</sup>

Thus, it has been found that:

When a proposed construction requires that an artisan make a separate infringement determination for every set of circumstances in which the composition may be used, and when such determinations are likely to result in differing outcomes (sometimes infringing and sometimes not), that construction is likely to be indefinite.

*Halliburton Energy Servs. v. M-I LLC*, 514 F.3d 1244, 1255 (Fed. Cir. 2008).

The Supreme Court addressed the issue of indefiniteness, and stated that a finding of indefiniteness should not be found if the claims, “viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014).

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<sup>8</sup> Further, “when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.” *KSR*, 550 U.S. at 416 (citing *United States v. Adams*, 383 U.S. 39, 52 (1966)).

<sup>9</sup> Indefiniteness is a question of law. *IGT v. Bally Gaming Int'l, Inc.*, 659 F.3d 1109 (Fed. Cir. 2011).

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A patent is not indefinite if the claims, “viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). “If, after a review of the intrinsic and extrinsic evidence, a claim term remains ambiguous, the claim should be construed so as to maintain its validity.” *Certain Consumer Electronics And Display Devices With Graphics Processing And Graphics Processing Units Therein*, Inv. No. 337-TA-932, Order No. 20 (Apr. 2, 2015) (quoting *Phillips*, 415 F.3d at 1327).

The burden is on the accused infringer to come forward with clear and convincing evidence to prove invalidity. *See Young v. Lumenis, Inc.*, 492 F.3d 1336, 1344 (Fed. Cir. 2007) (“A determination that a patent claim is invalid for failing to meet the definiteness requirement in 35 U.S.C. § 112, ¶ 2 is a legal question reviewed de novo.”).

**D. Domestic Industry**

A violation of section 337(a)(1)(B), (C), (D), or (E) can be found “only if an industry in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established.” 19 U.S.C. § 1337(a)(2). Section 337(a) further provides:

(3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned—

- (A) significant investment in plant and equipment;
- (B) significant employment of labor or capital; or
- (C) substantial investment in its exploitation, including engineering, research and development, or licensing.

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19 U.S.C. § 1337(a)(3).

These statutory requirements consist of an economic prong (which requires certain activities)<sup>10</sup> and a technical prong (which requires that these activities relate to the intellectual property being protected). *Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-586, Comm'n Op. at 13 (May 16, 2008) (“*Stringed Musical Instruments*”). The burden is on the complainant to show by a preponderance of the evidence that the domestic industry requirement is satisfied. *Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-694, Comm'n Op. at 5 (July 22, 2011) (“*Navigation Devices*”).

With respect to the economic prong, and whether or not section 337(a)(3)(A) or (B) is satisfied, the Commission has held that “whether a complainant has established that its investment and/or employment activities are significant with respect to the articles protected by the intellectual property right concerned is not evaluated according to any rigid mathematical formula.” *Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Comm'n Op. at 27 (Feb. 17, 2011) (“*Printing and*

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<sup>10</sup> The Commission practice is usually to assess the facts relating to the economic prong at the time that the complaint was filed. See *Certain Coaxial Cable Connectors and Components Thereof and Products Containing Same*, Inv. No. 337-TA-560, Comm'n Op. at 39 n.17 (Apr. 14, 2010) (“We note that only activities that occurred before the filing of a complaint with the Commission are relevant to whether a domestic industry exists or is in the process of being established under sections 337(a)(2)-(3).”) (citing *Bally/Midway Mfg. Co. v. U.S. Int'l Trade Comm'n*, 714 F.2d 1117, 1121 (Fed. Cir. 1983)). In some cases, however, the Commission will consider later developments in the alleged industry, such as “when a significant and unusual development occurred after the complaint has been filed.” See *Certain Video Game Systems and Controllers*, Inv. No. 337-TA-743, Comm'n Op., at 5-6 (Jan. 20, 2012) (“[I]n appropriate situations based on the specific facts and circumstances of an investigation, the Commission may consider activities and investments beyond the filing of the complaint.”).

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*Imaging Devices*”) (citing *Certain Male Prophylactic Devices*, Inv. No. 337 TA-546, Comm’n Op. at 39 (Aug. 1, 2007)). Rather, the Commission examines “the facts in each investigation, the article of commerce, and the realities of the marketplace.” *Id.* “The determination takes into account the nature of the investment and/or employment activities, ‘the industry in question, and the complainant’s relative size.’” *Id.* (citing *Stringed Musical Instruments* at 26).

With respect to section 337(a)(3)(C), whether an investment in domestic industry is “substantial” is a fact-dependent inquiry for which the complainant bears the burden of proof. *Stringed Musical Instruments* at 14. There is no minimum monetary expenditure that a complainant must demonstrate to qualify as a domestic industry under the “substantial investment” requirement of this section. *Id.* at 25. There is no need to define or quantify an industry in absolute mathematical terms. *Id.* at 26. Rather, “the requirement for showing the existence of a domestic industry will depend on the industry in question, and the complainant’s relative size.” *Id.* at 25-26.

**IV. U.S. Patent No. 8,523,235**

United States Patent No. 8,523,235 (“the ‘235 patent), entitled “Cash and Cheque depositing Apparatus,” issued on September 3, 2013, to named inventors Jae Hoon Kwak and Woo Ho Lee. JX-0001 (‘235 Patent). The ‘235 patent issued from Application No. 11/588,357, filed on October 27, 2006. *Id.* The ‘235 patent relates to “a cash and cheque automatic depositing apparatus as an ATM (Automated Teller Machine) capable of performing banking transactions, and, more particularly, to a cash and cheque automatic depositing apparatus capable of automatically depositing a bundle of cashes and cheques

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inserted at once.” JX-0001 at col. 1, Ins. 6-11. The ‘235 patent has a total of nine apparatus claims.

Complainants assert independent apparatus claim 1 and dependent claims 2, 3, 6, 8, and 9 of the ‘235 patent. *See* Compls. Br. at 52-107.

As discussed below, the evidence shows that (1) the asserted claims are infringed by the accused products; (2) complainants have satisfied the technical prong of the domestic industry requirement; and (3) the asserted claims are not invalid.

Asserted claims 1, 2, 3, 6, 8, and 9 read as follows:

**1.** A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque, the apparatus comprising:

a bundle insertion unit configured to receive the bundle of banknotes from a user;

a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval;

a main transfer unit coupled to the bundle separator and configured to horizontally transfer the individual sheets of the banknotes along a main transfer path;

a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors;

an abnormal sheet branch transfer unit having an abnormal sheet branch transfer path branched from the main transfer path, the abnormal sheet branch transfer unit configured to transfer abnormal banknotes verified by the verifying unit;

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a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path;

an abnormal sheet unloading transfer unit coupled to the first gate, the abnormal sheet unloading unit having an abnormal sheet unloading transfer path and configured to return the abnormal banknotes to the user;

an authentic cheque transfer unit coupled to an end of the main transfer path, the authentic sheet transfer unit having an authentic cheque transfer path and configured to transfer at least one authentic cheque in the bundle of banknotes verified by the verifying unit;

an authentic cash transfer unit coupled to the end of the main transfer path, the authentic cash transfer unit having an authentic cash transfer path and configured to transfer authentic banknotes other than cheques verified by the verifying unit;

a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer unit to the authentic cash transfer path;

an authentic cheque storage cassette coupled to the authentic cheque transfer unit, the authentic cheque storage cassette configured to store therein the at least one authentic cheque transferred by the authentic cheque transfer unit;

an authentic cash storage cassette coupled to the authentic cash transfer unit and configured to store therein the authentic banknotes other than cheques transferred by the authentic cash transfer unit;

a cheque standby unit placed in the main transfer path between the first gate and the second gate, the cheque standby unit configured to hold the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque; and

a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal

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banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.

2. The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path.

3. The apparatus of claim 1, wherein the verifying unit includes:

- a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes;

- a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes;

- a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes; and

- an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque.

6. The apparatus of claim 1, further comprising:

- a memory configured to store various information acquired by the verifying unit;

- a communication controller configured to communicate with a host computer connected therewith;

- a central controller configured to control the memory, the depositing controller, and the communication controller;

- a user input unit configured to receive information from the user;

- a deposit display unit configured to display information to the user; and

- a receipt output unit configured to output a receipt to the user.

**PUBLIC VERSION****8. The apparatus of claim 1, further comprising:**

an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path,

wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit.

**9. The apparatus of claim 1, further comprising:**

an authentic cash temporary storage provided at a rear end side of the authentic cash transfer path and configured to stack and temporarily hold the authentic banknotes other than cheques transferred along the authentic cash transfer path,

wherein the authentic cash storage cassette is configured to store a bundle of the stack of authentic banknotes other than cheques held by the authentic cash temporary storage.

JX-0001 ('235 Patent) at col. 9, ln. 58 – col. 10, ln. 65; col. 10, ln. 66 – col. 11, ln. 15;  
col. 11, ln. 23 – col. 12, ln. 2; col. 12, lns. 12-32.

**A. Claim Construction**

As discussed below in detail, the parties dispute the construction of 27 terms, and agree as to 12. For most of the disputed terms, complainants seek the terms' plain and ordinary meaning. Respondents seek means-plus-function treatment for 16 terms.

**PUBLIC VERSION****1. Applicable Law**

Claim construction begins with the plain language of the claim.<sup>11</sup> Claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art, viewing the claim terms in the context of the entire patent.<sup>12</sup> *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006).

In some instances, claim terms do not have particular meaning in a field of art, and claim construction involves little more than the application of the widely accepted meaning of commonly understood words. *Phillips*, 415 F.3d at 1314. “In such circumstances, general purpose dictionaries may be helpful.” *Id.*

In many cases, claim terms have a specialized meaning, and it is necessary to determine what a person of skill in the art would have understood the disputed claim language to mean. “Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to ‘those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.’” *Phillips*, 415 F.3d at 1314 (quoting *Innova/Pure Water, Inc. v. Safari Water*

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<sup>11</sup> Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vanderlande Indus. Nederland BV v. Int’l Trade Comm.*, 366 F.3d 1311, 1323 (Fed. Cir. 2004); *Vivid Tech., Inc. v. American Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

<sup>12</sup> Factors that may be considered when determining the level of ordinary skill in the art include: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

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*Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)). The public sources identified in *Phillips* include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.* (quoting *Innova*, 381 F.3d at 1116).

In cases in which the meaning of a claim term is uncertain, the specification usually is the best guide to the meaning of the term. *Phillips*, 415 F.3d at 1315. As a general rule, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996). The specification is, however, always highly relevant to the claim construction analysis, and is usually dispositive. *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Moreover, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Id.* at 1316.

Claims are not necessarily, and are not usually, limited in scope to the preferred embodiment. *RF Delaware, Inc. v. Pacific Keystone Techs., Inc.*, 326 F.3d 1255, 1263 (Fed. Cir. 2003); *Decisioning.com, Inc. v. Federated Dep’t Stores, Inc.*, 527 F.3d 1300, 1314 (Fed. Cir. 2008) (“[The] description of a preferred embodiment, in the absence of a clear intention to limit claim scope, is an insufficient basis on which to narrow the claims.”). Nevertheless, claim constructions that exclude the preferred embodiment are “rarely, if ever, correct and require highly persuasive evidentiary support.” *Vitronics*, 90 F.3d at 1583. Such a conclusion can be mandated in rare instances by clear intrinsic

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evidence, such as unambiguous claim language or a clear disclaimer by the patentees during patent prosecution. *Elekta Instrument S.A. v. O.U.R. Sci. Int'l, Inc.*, 214 F.3d 1302, 1308 (Fed. Cir. 2000); *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319 (Fed. Cir. 2002).

If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence consists of all evidence external to the patent and the prosecution history, and includes inventor testimony, expert testimony, and learned treatises. *Phillips*, 415 F.3d at 1317. Inventor testimony can be useful to shed light on the relevant art. In evaluating expert testimony, a court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent. *Id.* at 1318. Extrinsic evidence may be considered if a court deems it helpful in determining the true meaning of language used in the patent claims. *Id.*

**2. A Person of Ordinary Skill in the Art**

Complainants argue: “As an initial matter, the parties do not materially dispute the level of skill for one of ordinary skill in the art. *See* CX-0274C (Howard WS) at Q/A 37–38 (defining as ‘A person with a Bachelor of Science degree, or its equivalent, in electrical engineering, mechanical engineering, electro-mechanical engineering, or a related field. Such a person would have approximately four years of related experience in the field of automated equipment.’).” Compls. Br. at 12.

Respondents argue:

The claim construction process calls for understanding the level of ordinary skill in the art of the claimed invention. Fortunately, in this case, any disagreement between the parties on the level of ordinary skill in the

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art does not affect any dispute in claim construction or elsewhere. At the time of the supposed invention of the Kwak patent, a person of ordinary skill in the art would be someone with a combination of experience and education in mechanical engineering or a related field, typically consisting of a minimum of a bachelor's degree in mechanical engineering or a related field and 4 years of experience in the field of mechanical engineering, including both coursework and experience relating to the control and/or automation of electromechanical systems. These requirements are not rigid, and superior qualifications with respect to either education or experience may compensate for a deficit in the other. Diebold's positions regarding claim construction, invalidity, non-infringement, and domestic industry would not change if Hyosung's definition were applied.

Resps. Br. at 6 (citations omitted).

The parties make it clear that there is no genuine dispute concerning the proposed level of skill for one of ordinary skill in the art. Complainants' proposed level of skill is more flexible in that it requires a bachelor of science degree, or its equivalent, in electrical engineering, mechanical engineering, electro-mechanical engineering, or a related field. Accordingly, as proposed by complainants, the administrative law judge finds that a person of ordinary skill in the art with respect to the '235 patent is a person who has a bachelor of science degree, or its equivalent, in electrical engineering, mechanical engineering, electro-mechanical engineering, or a related field. Such a person would have approximately four years of related experience in the field of automated equipment.

**3. Introduction**

As noted above, the parties dispute the construction of 27 claim terms, and agree as to 12. For most of the disputed terms, complainants seek the terms' plain and ordinary meaning. Respondents seek means-plus-function treatment for 16 claim terms. Eleven of those 16 terms include the word "unit," three terms include the word "controller" and

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two terms include the word “part.” Respondents’ arguments concerning those terms are essentially identical. *See* Resps. Br.at 6-12, 19-25. Those terms are as follows:

- “a bundle insertion unit” (claim 1)
- “a main transfer unit” (claim 1)
- “a verifying unit” (claim 1)
- “an abnormal sheet branch transfer unit” (claim 1)
- “an abnormal sheet unloading transfer unit” (claim 1)
- “an authentic cheque transfer unit” (claim 1)
- “an authentic cash transfer unit” (claim 1)
- “a cheque standby unit” (claim 1)
- “an auto-alignment unit” (claim 2)
- “a user input unit” (claim 6)
- “an authentic cheque incoming unit” (claim 8)
- “a depositing controller” (claim 1)
- “a communication controller” (claim 6)
- “a central controller” (claim 6)
- “plural banknotes detection part” (claim 3)
- “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” (claim 3)

The 27 disputed claim terms including the 16 listed above are discussed below individually.

**PUBLIC VERSION****4. “a bundle of banknotes including at least one cheque” and “banknotes” (claim 1)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>Complainants’ Construction</b>                            | <b>Respondents’ Construction</b> |
|--|----------------------------------|
| <b>“a bundle of banknotes including at least one cheque”</b> |                                  |
| “a bundle of cashes and cheques inserted at once”            | plain and ordinary meaning       |
| <b>“banknotes”</b>   |                                  |
| “cash and checks”  | “cash check, or both”            |

See Compls. Br. at 12-17; Resps. Br. at 25-32.

Complainants argue that the disputed claim term “a bundle of banknotes including at least one cheque” should be construed to mean “a bundle of cashes and cheques inserted at once.”<sup>13</sup> Compls. Br. at 12-16. Respondents argue that this claim term should be given its plain and ordinary meaning. Resps. Br. at 25-32.

Complainants argue that the disputed claim term “banknotes” should be construed to mean “cash and checks.” Compls. Br. at 16-17. Respondents argue that the claim term “banknotes” should be construed to mean “cash check, or both.” Resps. Br. at 25-32.

For the reasons discussed below, the administrative law judge has determined that (1) the claim term “a bundle of banknotes including at least one cheque” should be given its plain and ordinary meaning, *i.e.*, the bundle of banknotes must include at least one

<sup>13</sup> It is noted that the administrative law judge (1) uses the words “checks” and “cheques” interchangeably; and (2) uses the words “cashes” and “cash” interchangeably throughout this ID.

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check; and (2) the claim term “banknotes” should be construed to mean “cash, checks, or both cash and checks.”

**Plain Language and the Specification**

The disputed claim term “a bundle of banknotes including at least one cheque” is found only in the preamble of claim 1 in the entire specification of the ‘235 patent. The preamble recites: “A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque.” The plain language of the claim indicates that “a bundle of banknotes including at least one cheque” must contain at least one check.

As for the disputed claim term “banknotes,” independent claim 1 uses the term “banknotes” in various elements, to describe the flow of either cash or check through the transport paths. JX-0001 (‘235 Patent) at col. 10, lns. 1-25, 56-65. As discussed below, the specification shows that “banknotes” refer to cash, checks, or both cash and checks.

Both the claims and the specification illustrate how the patentee utilized the term “banknotes” to refer to cash or checks or both cash and checks. For example, ‘235 patent describes the operation of the device by disclosing in the specification:

Hereinafter, a preferable entire operation of the aforementioned configuration will be described. First of all, the user is asked to select a type of banknotes to be deposited between cash and cheque on the display 150 by using the user input unit 148. When the shutter of the bundle insertion opening 102 is opened, the user inserts a bundle of banknotes, e.g., cashes or cheques to be deposited at once

JX-0001 (‘235 Patent) at col. 7, lns. 10-17 (emphasis added). The ‘235 patent thus discloses that a preferred embodiment of the alleged invention is an apparatus that enables a user to insert a bundle of banknotes, for example cash or checks. The

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specification describes the operation of the alleged invention by describing how the invention works when “banknotes are cheques” and when “banknotes are cashes.” *Id.* at col. 3, lns. 43-47; col. 7, lns. 29-33, 39-46, ln. 65- col. 8, ln. 2; col. 8, lns. 42-45. In the specification, the term “cash” is used when referring to operations or capabilities related to the processing of only cash and the term “cheque” is used when referring to operations or capabilities related to the processing of only checks. *Id.* The ‘235 patent further discloses:

Such a configuration enables the user to insert mixed banknotes without dividing them into cash or cheque. That is, a user may insert a bundle of cash, a bundle of cheques or a mixed bundle of cash and cheques into cash and cheque automatic depositing apparatus 100 of the present invention.

*Id.* at col. 9, lns. 29-33 (emphasis added). Here, the specification explains how the user can insert three different types of bundles: (i) a bundle of cash; (ii) a bundle of checks; or (iii) a mixed bundle of cash and checks. *Id.*

Thus, the specification including the claims supports the construction of the claim term “banknotes” to mean “cash, checks, or both cash and checks.” Given this construction for “banknotes,” it follows that the plain and ordinary meaning of the claim term “a bundle of banknotes including at least one cheque” would include (1) a bundle of checks; and (2) a bundle of cash and checks.

**The Prosecution History**

The prosecution history provides support for the correct claim construction of “banknotes” to mean cash, checks, or both cash and checks. During prosecution of the patent application that led to the ‘235 patent, the examiner agreed that a “bundle of banknotes including at least one cheque,” could consist of a bundle of checks only, citing

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prior art reference U.S. Patent Application Publication No. 2006/0163027 to Hobmeier *et al.* JX-0002 ('235 Patent File History) at 000291; RX-0074 (Hobmeier); RX-0144C (Sturges WS) at Q/A 117-18.

In support of the examiner's finding that "Hobmeier discloses an automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque [sic]," the examiner cited paragraph 123 of Hobmeier. *Id.* Paragraph 123 of Hobmeier refers to check deposits as an alternative to cash deposits, stating only "[i]t should be further noted that the above-described embodiments are not only intended for processing, i.e. depositing, bank notes. It is also conceivable to provide the apparatus with a possibility for inputting and processing checks and/or coins." RX-0074 (Hobmeier) at ¶123. Thus, the prosecution history of the '235 patent provides further support for a construction of "bundle of banknotes, including at least one cheque" under which the bundle is either a bundle of checks or a bundle of mixed cash and checks (either of which satisfy the requirement that the bundle includes at least one check).

Moreover, an examination of the history of amendments to the preamble illustrates how the claims cover a bundle of checks or a mixed bundle of cash and checks. RX-0144C (Sturges WS) at Q/A 119. For instance, in the original claims, the preamble required "a bundle of banknotes such as cashes and cheques." *Id.*; JX-0002 ('235 Patent File History) at 000028. Then in April 2009, in response to a rejection, the applicant amended the preamble to recite "a bundle of banknotes and cheques." *Id.* at 000096, 0000101. In September of 2010, after a third rejection, the applicant further amended this phrase to recite the final language which is now at issue: "a bundle of banknotes including at least one cheque." *Id.* at 000198. These amendments show that the patentee

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avoided any language that would imply that the claims only covered inserting a mixed bundle of cash and checks. *Id.*

\* \* \*

Accordingly, the administrative law judge has determined that (1) the claim term “a bundle of banknotes including at least one cheque” should be given its plain and ordinary meaning, *i.e.*, the bundle of banknotes must include at least one check; and (2) the claim term “banknotes” should be construed to mean “cash, checks, or both cash and checks.”

**5. “a bundle insertion unit”**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a bundle insertion unit”</b>                                   |  |
|--|--|
| <b>Complainants’ Construction</b>                                  | <b>Respondents’ Construction</b>   |
| “a unit for the deposit or receipt of a bundle of cash and checks” | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: receive a bundle of banknotes from a user</p> <p>Structure: an insertion case, an opening, and a shutter for opening/closing the insertion case</p> |

*See* Compls. Br. at 18-20; Resps. Br. at 37-39.

Complainants argue that the disputed claim term “a bundle insertion unit” should be construed to mean “a unit for the deposit or receipt of a bundle of cash and checks.”

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Compls. Br. at 18-20. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 37-39.

Respondents argue:

The Kwak patent's use of the term "unit" to claim a wide variety of features—from "verifying" units that appear to have no moving parts to "transfer units" that seem to move paper, to "check standby" units that appear to halt movement—compels the application of the means-plus-function rules. The generic term "unit" has no specific structure whatsoever, and it is limited only by the specific functions assigned to by the functional language in the claims: verifying, transferring, and the like. Before *Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015) (en banc), a "strong presumption" that § 112 ¶ 6 did not apply arose if a claim lacked the word "means." *Williamson* abrogated that rule, holding that generic claim terms can be used as verbal constructs in a manner tantamount to using the word "means," thus invoking § 112 ¶ 6, because they typically do not connote sufficient structure. *Id.* at 1348-51 (finding that the term "distributed learning control module" invoked § 112 ¶ 6).

Here, the Kwak patent contains a number of claim terms that utilize the generic word "unit," including "a main transfer *unit*," "a user input *unit*," a "verifying *unit*," a "cheque standby *unit*," "an auto alignment *unit*," and "an authentic cheque incoming *unit*." These claim terms are fundamentally the same as the generic term "distributed learning control module" analyzed in *Williamson*, and therefore are governed by § 112, ¶ 6. See *Williamson*, 792 F.3d at 1350. In particular, the claim terms at issue replace "means" with the well-known, nonce word "unit" and then merely recite the function of the "unit." *Id.* In fact, "unit," like "module," has been found to be a nonce term. See *Stryker Corp. v. Davol Inc.*, 234 F.3d 1252, 1258-59 (Fed. Cir. 2000).

Resps. Br. at 6-7.

For the reasons discussed below, the administrative law judge has determined that the claim term "a bundle insertion unit" should be construed to mean "a unit for the deposit or receipt of a bundle of banknotes," wherein banknotes are cash, checks, or both cash and checks.

**PUBLIC VERSION****“Means-Plus-Function” Claiming:**

A means-plus-function claim results when a claim term is drafted in a way that invokes 35 U.S.C. § 112, ¶ 6.<sup>14</sup> *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2015) (en banc). “To determine whether § 112, para. 6 applies to a claim limitation, our precedent has long recognized the importance of the presence or absence of the word ‘means.’ ...we stated that the use of the word ‘means’ in a claim element creates a rebuttable presumption that § 112, para. 6 applies. Applying the converse, we stated that the failure to use the word “means” also creates a rebuttable presumption—this time that § 112, para. 6 does not apply.” *Id.* at 1348. *Williamson*, however, specifically overruled “the characterization of that presumption as ‘strong,’ the standard set in *Lighting World*.<sup>15</sup> *Williamson* explained:

Our consideration of this case has led us to conclude that such a heightened burden is unjustified and that we should abandon characterizing as “strong” the presumption that a limitation lacking the word “means” is not subject to § 112, para. 6. That characterization is unwarranted, is uncertain in meaning and application, and has the inappropriate practical effect of placing a thumb on what should otherwise be a balanced analytical scale. It has shifted the balance struck by Congress in passing § 112, para. 6 and has resulted in a proliferation of functional claiming untethered to § 112, para. 6 and free of the strictures set forth in the statute. Henceforth, we will apply the presumption as we have done prior to *Lighting World*, without requiring any heightened evidentiary showing and expressly overrule the characterization of that presumption as “strong.” We also overrule the strict requirement of “a showing that the limitation essentially is devoid of anything that can be construed as structure.”

---

<sup>14</sup> 35 U.S.C. § 112 was amended and subsections were renamed by the America Invents Act, Pub.L. No. 112-29 (“AIA”), which took effect on September 16, 2012 (after the ‘235 patent’s filing date). The parties used the pre-AIA version of § 112 in their briefs. This initial determination refers to the pre-AIA version of § 112.

<sup>15</sup> *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, (Fed.Cir.2004).

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*Id.* at 1349 (emphasis added). *Williamson* explained that the Federal Circuit will apply the standard prior to *Lighting World*, *i.e.*, “the failure to use the word ‘means’” “creates a rebuttable presumption” that “§ 112, para. 6 does not apply.” *Id.* at 1348.

*Williamson* further explained:

The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure. *Greenberg*, 91 F.3d at 1583. When a claim term lacks the word “means,” the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to “recite sufficiently definite structure” or else recites “function without reciting sufficient structure for performing that function.” *Watts*, 232 F.3d at 880. The converse presumption remains unaffected: “use of the word ‘means’ creates a presumption that § 112, ¶ 6 applies.” *Personalized Media*, 161 F.3d at 703.

*Id.* at 1349 (emphasis added). Thus, *Williamson* held that “the standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” Rebutting a presumption against means-plus-function treatment requires proof that one of ordinary skill in the art would be unable to understand the claim in structural terms.

The mere fact that a mechanism is defined in functional terms is not, by itself, sufficient to subject the claim to means-plus-function treatment under § 112, ¶ 6’s. *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996). Once a court determines that a limitation is a means-plus-function limitation, a two-step analysis is required. *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1333-34 (Fed. Cir. 2004). First, the construing court must define the particular function of the limitation in dispute. *Id.* at 1333. In so doing, “The court must construe the function of a means-plus-function limitation to include the limitations contained in the claim language, and only

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those limitations.” *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*, 296 F.3d 1106, 1113 (Fed. Cir. 2002) (noting that it is improper to narrow or broaden the scope of the function beyond the claim language). Second, after identifying the claimed function, the court must determine what structure disclosed in the specification corresponds to the claimed function. *Id.* To qualify as corresponding, the structure must (1) perform the claimed function and (2) the specification must clearly associate the structure with performance of the function. *Id.*

**Definiteness of Means-Plus-Function Limitations:**

Patent claims must clearly point out and claim material considered as the invention. 35 U.S.C. § 112, ¶ 2. Claims must, in view of the intrinsic evidence, “inform those skilled in the art about the scope of the invention with reasonable certainty.”

*Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014).

\* \* \*

The disputed claim term “a bundle insertion unit” is not a means-plus-function limitation. As discussed below, the claim term is construed to mean “a unit for the deposit or receipt of a bundle of banknotes,” wherein banknotes are cash, checks, or both cash and checks.

The plain language of claim 1 teaches that the “bundle” to be “inserted” in the bundle insertion unit is the bundle of banknotes discussed above. *See* CX-0274C (Howard WS) at Q/A 84. The “bundle insertion unit” is specifically configured to receive that “bundle.” JX-0001 (‘235 Patent) at col. 9, ln. 61-62. The claim further describes “return[ing]” notes to the user, but recites no opening or slot beyond the

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“bundle insertion unit.” *Id.* at col. 9, ln.58 – col. 10, ln. 65. A person of ordinary skill would conclude that the “bundle insertion unit” is the unit through which banknotes may be returned to the user. *See also* RX-0409C (Sturges RWS) at Q/A 136 (acknowledging that the CCDMv2 returns media from a cancelled transaction to the user through the input/output unit).

The ‘235 patent’s description and figures provide further support. *See* CX-0274C (Howard WS) at Q/A 85. The Abstract describes a “bundle insertion opening for allowing a user to deposit or receive therethrough a bundle of cashes and checks.” JX-0001 (‘235 Patent) at Abstract; CX-0274C (Howard WS) at Q/A 85. Figure 2 depicts element 102, which the specification identifies as the “bundle insertion opening.” JX-0001 (‘235 Patent) at Fig. 2; *see also id.* at col. 2, lns. 29-31. Reviewing the figure, one of ordinary skill in the art would confirm that bundle insertion opening 102 serves both for depositing media, and for a user to receive returned media. *See* CX-0274C (Howard WS) at Q/A 85. The description states that bundle insertion opening 102 “enables a user to deposit or receive a bundle of banknotes.” JX-0001 (‘235 Patent) at col. 3, lns. 34-39. A person of ordinary skill would understand that the “bundle insertion unit,” as used in the claim, requires not only an ability for receiving deposited notes, but also returning notes. *See* CX-0274C (Howard WS) at Q/A 85. Respondents’ expert Dr. Sturges conceded during expert discovery that one function of the “abnormal sheet unloading transfer unit’ is to return the abnormal banknotes to the user via the bundle insertion unit.” *See* CX-0274C (Howard WS) at Q/A 86.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning

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as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how “a bundle insertion unit” would have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a depositing module comprised of well-known components in the art that handle bundle insertion by an end-user, and further contains specific requirements of coupling to the bundle insertion unit. *See* CX-0274C (Howard WS) at Q/A 88-89; JX-0001 (‘235 Patent) at col. 9, ln. 63; *see generally Williamson*, 792 F.3d at 1348; *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1300-03 (Fed. Cir. 2014) (finding error in assigning means-plus-function treatment; “The fact that [the limitation] is defined partly in terms of its function does not detract from the definiteness of the structure it may connote.” (alteration marks omitted)); *EnOcean GmbH v. Face Int’l Corp.*, 742 F.3d 955, 958–60 (Fed. Cir. 2014) (holding means-plus-function treatment inappropriate where record shows that term “conveys known structure to the skilled person”); *Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, 1373-75 (Fed. Cir. 2012); *Advanced Marketing Sys., LLC v. CVS Pharmacy, Inc.*, No. 6:15-cv-134, 2016 WL 1741396, at \*19-20 (E.D. Tex. May 3, 2016) (finding that “data processor” conveyed sufficient structure to avoid means-plus-function treatment); *Cox Commc’ns Inc. v. Sprint Commc’ns Co.*, 2016 WL 1105706, at \*3-5 (rejecting argument that “processing system,” “signaling processor,” “call processor,” and “control system” were means-plus-function limitations).

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a bundle insertion unit” is a means-plus-function element, the ‘235 patent discloses the required structure. The parties agree that, under § 112, ¶ 6 treatment, the claimed

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function is “receiving a bundle of banknotes from a user.” *See* Resps. Br. at 37. The corresponding structure is an insertion opening (*i.e.*, element 102), including such elements as an insertion case, an opening, and a shutter for opening/closing the insertion case. *See* JX-0001 (‘235 Patent) at col. 3, lns. 34-39 (“The bundle insertion opening **102** enables a user to deposit or receive a bundle of banknotes such as cashes and cheques. Such a bundle insertion opening **102** may include an insertion case for holding a bundle of banknotes that have been inserted or will be returned, a shutter for opening/closing the insertion case, and the like.”); CX-0274C (Howard WS) at Q/A 87, 92-93.

**6. “a bundle separator”**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a bundle separator”</b>       |   |
|-----------------------------------|---|
| <b>Complainants’ Construction</b> | <b>Respondents’ Construction</b>  |
| plain and ordinary meaning        | <p>Function: separating the bundle of banknotes into individual sheets and automatically transferring the separate banknotes with predetermined time intervals.</p> <p>Structure: insufficient structure disclosed.</p> |

*See* Compls. Br. at 20-21; Resps. Br. at 18-19.

Complainants argue that the disputed claim term “a bundle separator” should be given its plain and ordinary meaning.” Compls. Br. at 20-21. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 18-19.

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For the reasons discussed below, the administrative law judge has determined that the claim term “a bundle separator” should be given its plain and ordinary meaning. The disputed term is not a means-plus-function limitation.

A person of ordinary skill in the art would find that this phrase denotes a particular structure, *i.e.*, the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art that handle separating media. The separation of media is a well-established technique, and bundle separators are used in many industries to perform the common function of separating individual sheets from a stack of sheets. A person of ordinary skill in the art would thus construe this term according to its plain and ordinary meaning. *See* CX-0274C (Howard WS) at Q/A 95.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how “a bundle separator” would have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components, such as driven rollers, in the art that handle separating individual media. *Id.* at Q/A 97-98. The claim also confers additional structure in the form of describing how the “bundle separator” interacts with other claimed elements. *Id.* As can be seen, claim 1 discloses that the bundle separator must be coupled to the bundle insertion unit, thus requiring well-known components to interface with the portion of the cash-and-check depositing module (discussed above) that handles bundle insertion. Further, as already discussed, bundle separating is a well-established technique in many applications, and bundle separators are used throughout

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many industries to separate individual sheets. Dr. Sturges admitted that evidence shows that “bundle separator” connotes structure. Sturges Tr. at 544.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a bundle separator” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, “a bundle separator” limitation has corresponding structure in the ‘235 specification. Under § 112, ¶ 6 treatment, the claimed function is “separating the bundle of banknotes received at the bundle insertion unit into individual sheets and transferring each of the individual sheets with a predetermined time interval.” The corresponding structure is “a separator (i.e., element 104) coupled to the bundle insertion unit.” *See* CX-0274C (Howard WS) at Q/A 96, 100-02; JX-0001 (‘235 Patent) at col. 2, lns. 32-34; Fig. 2; Abstract; col. 3, lns. 43-47; col. 7, lns. 19-25.

**7. “coupled to”**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“coupled to”</b>                                   |                                  |
|---|----------------------------------|
| <b>Complainants’ Construction</b>                     | <b>Respondents’ Construction</b> |
| “operatively connected either directly or indirectly” | plain and ordinary meaning       |

*See* Compls. Br. at 22; Resps. Br. at 37-39.

Complainants argue that the disputed claim term “coupled to” should be construed to mean “operatively connected either directly or indirectly.” Compls. Br. at

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22. Respondents argue that this claim term should be given its plain and ordinary meaning. Resps. Br. at 37-39.

As discussed below, the administrative law judge has determined that the claim term “coupled to” should be given its plain and ordinary meaning, and the plain and ordinary meaning of that claim term is “operatively connected either directly or indirectly.”

The language of claim 1 supports complainants’ proposed construction. Claim 1 teaches that the term “coupled to” emphasizes an operative connection, *i.e.*, so as to permit the coupled components to interoperate, and includes both direct and indirect physical connections. *See* CX-0274C (Howard WS) at Q/A 103-04. Claim 1 applies the “coupled to” relationship to two elements, the “abnormal sheet unloading transfer unit,” and the “first gate.” *See* JX-0001 (‘235 Patent) at col. 10, lns. 19-21, 31-35. These elements, although operatively connected, are not in direct physical connection. *See id.* at Fig. 2. Dr. Howard described how, in view of this, a person of ordinary skill in the art would embrace Hyosung’s proposal. *See* CX-274C (Howard WS.) at Q/A 104. Respondents’ proposed construction of plain and ordinary meaning, without more, does not explain the technical meaning of “coupled to.” *See id.* at Q/A 105.

**PUBLIC VERSION****8. “a main transfer unit”**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a main transfer unit”</b>     |   |
|-----------------------------------|---|
| <b>Complainants’ Construction</b> | <b>Respondents’ Construction</b>  |
| plain and ordinary meaning        | Function: horizontally transfer the individual sheets of the banknotes along the main transfer path<br><br>Structure: guide walls, transfer rollers, and a driver motor |

See Compls. Br. at 22-23; Resps. Br. at 10.

Complainants argue that the disputed claim term “a main transfer unit” should be given its plain and ordinary meaning. Compls. Br. at 22-23. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 6-10.

For the reasons discussed below, the administrative law judge has determined that the claim term “a main transfer unit” should be given its plain and ordinary meaning.

The disputed term is not a means-plus-function limitation. A person of ordinary skill would find that this phrase denotes a particular structure, *i.e.*, the structure in an ATM that transfers the media through the module. In general, the main transfer unit is the motorized pathway that carries inserted media one-by-one from the point where it was separated through the rest of the device. See CX-0274C (Howard WS) at Q/A 109-10.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning

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as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how “a main transfer unit” would necessarily have a structural meaning to a person of skill, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for transferring banknotes laterally within the module’s body. *Id.* at Q/A 112-13. The claim also confers additional structure in the form of describing how the “main transfer unit” interacts with other claimed elements. Claim 1 discloses that the bundle separator must be “coupled to” the main transfer unit, thus requiring well-known components to interface with the portion of the cash-and-check depositing module (discussed above) where the bundle will be separated into individual notes.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a main transfer unit” is a means-plus-function element, the ‘235 patent discloses the required structure. Under § 112, ¶ 6 treatment, the claimed function is “horizontally transferring the individual sheets of the banknotes along a main transfer path.” The corresponding structure is “main transfer path (i.e., element 106a) having guide walls, transfer rollers, and a driving motor.” *See* CX-0274C (Howard WS) at Q/A 111, 115, 116; JX-0001 (‘235 Patent) at col. 3, lns. 48-55; Fig. 2; col. 7, lns. 19-25; col. 8, lns. 12-14. The parties do not seem to be in disagreement as to either the corresponding structure or function. *See* Resps. Br. at 10.

**PUBLIC VERSION****9. “horizontally transfer the individual sheets of the banknotes along a main transfer path” (claim 1)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“horizontally transfer the individual sheets of the banknotes along a main transfer path”</b> |   |
|--|---|
| <b>Complainants’ Construction</b>  | <b>Respondents’ Construction</b>                                |
| plain and ordinary meaning   | “transfer in a direction perpendicular to the force of gravity” |

See Compls. Br. at 23-25; Resps. Br. at 16-18.

Complainants argue that the disputed claim term “horizontally transfer the individual sheets of the banknotes along a main transfer path” should be given its plain and ordinary meaning. Compls. Br. at 23-25. Respondents argue that this claim term should be construed to mean “transfer in a direction perpendicular to the force of gravity.” Resps. Br. at 16-18.

For the reasons discussed below, the administrative law judge has determined that the claim term “horizontally transfer the individual sheets of the banknotes along a main transfer path” should be given its plain and ordinary meaning.

A person of skill would understand that the act of horizontally transferring a sheet within such a module could include various deviations from horizontal. See CX-0274C (Howard WS) at Q/A 118-19. As described by Dr. Howard, respondents’ proposal is overly restrictive. *Id.* at Q/A 120. Its phrase “in a direction perpendicular to the force of gravity” has no support in the ‘235 patent. *Id.* The ‘235 patent describes main transfer unit 106 as “horizontally transfer[ring] the banknotes one by one;” the figures clearly depict that this “horizontal transfer” includes portions in other directions. See JX-0001

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(‘235 Patent) at col. 3, lns. 48-55. Figure 2 depicts main transfer unit 106 carrying banknotes “up” and “back,” so that they enter verifying unit 110, as well as carrying banknotes “down” and “back” so that they enter temporary standby unit 120. *See* JX-0001 (‘235 Patent) at Fig. 2. Respondents’ proposed construction would improperly exclude these teachings, and would purport to limit the claims to configurations in which the main transfer unit only runs in a single direction.

Further, reading the prosecution history of the ‘235 patent confirms that the term “horizontal” as used in the ‘235 patent need not be perfectly lateral across the machine, or lateral across the machine at all times. *See* CX-0274C (Howard WS) at Q/A 120. During prosecution, the examiner rejected the pending claims based on figure 2 of Hobmeier. *See* JX-0002 (‘235 Patent File History) at 000119-120; *see also* CX-0284 (Hobmeier). The examiner stated, “Hobmeier discloses . . . a main transfer unit . . . configured to horizontally transfer the individual sheets of the banknotes along a main transfer path.” JX-0002 (‘235 Patent File History) at 000119-120. Figure 2 of Hobmeier shows a main transport path that does not remain “perpendicular to the force of gravity,” as respondents contend. *See* CX-0284 (Hobmeier) at Fig. 2; *see also* CX-0274C (Howard WS) at Q/A 120. Further, respondents’ approach is inconsistent with the understanding that a person of skill in the art would apply based on his experience in the field. *Id.* Respondents have failed to provide any support or rationale for the assertion that “[t]he 235 patent claims require the entire main path to be horizontal.” *See* RX-0409C (Sturges RWS) at Q/A 237, 558, 560. Dr. Sturges’s attempt to inject this limitation finds no support in the patent. Further, he concludes that ‘235 patent teaches multiple main transfer paths, in order to exclude any portion he deems non-horizontal. *See* RX-0409C (Sturges RWS.) at

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Q/A 727; *see also* Sturges Tr. 563-564. Dr. Sturges’s analysis does not comport with the understanding of one of ordinary skill in the art. CX-0277C (Howard RWS) at Q/A 53-54. It is also inconsistent with claim 1, which requires that the check standby be “placed in” the main transfer path. *See* JX-0001 (‘235 Patent) at col.10, lns. 50-51. In the same way that a pebble “placed in” a sidewalk does not divide the sidewalk into two separate sections, the check standby unit’s position “placed in” the main transfer path does not justify Dr. Sturges’s attempt to exclude vertical portions of the “main transfer path” so as to support his hyper-restrictive interpretation of “horizontal.”

**10. “a verifying unit”**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a verifying unit”</b>         |   |
|-----------------------------------|---|
| <b>Complainants’ Construction</b> | <b>Respondents’ Construction</b>  |
| plain and ordinary meaning        | <p>Function (a): verify the authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes;</p> <p>Function (b): produce a verification result indicating the authenticity or abnormality of each of the banknotes;</p> <p>Function (c): perform tripartite detection of overlapping of the individual sheets using three different sensors.</p> <p>Structure: insufficient structure disclosed.</p> |

*See* Compls. Br. at 25-28; Resps. Br. at 6-12.

Complainants argue that the disputed claim term “a verifying unit” should be given its plain and ordinary meaning. Compls. Br. at 25-28. Respondents argue that this

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claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 6-12.

For the reasons discussed below, the administrative law judge has determined that the claim term “a verifying unit” should be given its plain and ordinary meaning.

The disputed term is not a means-plus-function limitation. A person of skill in the art would understand that the structure in an ATM that contains the sensors and apparatus to validate the media is the verifying unit. In general, the verifying unit refers to the portion or portions of the module that contain the necessary sensors and hardware for validation of banknotes. Further, note verification is a well-established technique, and verifying units are used in many industries to perform the common function of authenticating notes and/or detecting abnormalities in inserted media. One of ordinary skill would have appreciated that the reference to “three different sensors” necessarily denoted structure, as the universe of potential sensors to be used in this capacity is finite (including, *e.g.*, ultrasonic sensors, cameras, photosensors, Hall sensors, MICR heads). *See* CX-0274C (Howard WS) at Q/A 121-22.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how “a verifying unit” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for verifying banknotes. *See* CX-0274C (Howard WS) at Q/A 125. The claim also confers additional structure in the form of describing how the “verifying unit” must be “installed on the main transfer path.” *See* JX-0001 (‘235 Patent)

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at col. 10, ln. 4. To a person of skill in the art, this would further require well-known components to interface with the portion of the cash-and-check depositing module (discussed above) that transports media through the module. Further, note verification is a well-established technique, and verifying units are used in many industries to perform the common function of authenticating notes and/or detecting abnormalities in inserted media. One of ordinary skill would have appreciated that the reference to “three different sensors” necessarily denoted structure, as the universe of potential sensors to be used in this capacity is finite (including, *e.g.*, ultrasonic sensors, cameras, photosensors, Hall sensors, MICR heads).

During prosecution, applicants made express that they were not styling their claim in such a way as to merely claim according to an intended use, or function, for the “verifying unit.” *See* JX-0002 (‘235 Patent File History) at 000266 (adding “configured to verify” and “configured to produce” a verification result). The applicants wrote that, in view of these amendments, the limitations “no longer recite[ ] any limitations that amount to statements of intended use.” *Id.* at 000261 (“An agreement was reached that claims 1, 2, 4, 6 and 7, as amended herein, no longer recites any limitations that amount to statement of intended use.”).

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a verifying unit” is a means-plus-function element, the ‘235 patent discloses the required structure.

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Contrary to respondents' arguments, the limitation has corresponding structure in the '235 description. Under § 112, ¶ 6 treatment, the three claimed functions and corresponding structure are:

**First Function:** "verifying the authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes"

**Second Function:** "producing a verification result indicating the authenticity or abnormality of each of the banknotes"

**Third Function:** "performing tripartite detection of overlapping of the individual sheets using three different sensors"

**Corresponding structure (first function):** a CIS having scanning surfaces, a pressurizing device, and information reader (*i.e.*, element 110a); cash verifier and detection sensors including light emitting sensors, magnetic sensors, ultra violet sensors, and infrared sensors (*i.e.*, element 110b); MICR sensors having a magnetic recognition head and a pressurizing device (*i.e.*, element 110c); and plural notes detection sensors including CIS and MICR (*i.e.*, element 110d)

**Corresponding structure (second function):** a CIS having scanning surfaces, a pressurizing device, and information reader (*i.e.*, element 110a); cash verifier and detection sensors including light emitting sensors, magnetic sensors, ultra violet sensors, and infrared sensors (*i.e.*, element 110b); MICR sensors having a magnetic recognition head and a pressurizing device (*i.e.*, element 110c); and plural notes detection sensors including CIS and MICR (*i.e.*, element 110d)

**Corresponding structure (third function):** a CIS having scanning surfaces, a pressurizing device, and information reader (*i.e.*, element 110a); MICR sensors having a magnetic recognition head and a pressurizing device (*i.e.*, element 110c); and plural notes detection sensors including CIS and MICR (*i.e.*, element 110d).

See CX-0274C (Howard WS) at Q/A 123. Each function is recited in claim 1, and respondents do not substantively dispute these functions. *Id.* at Q/A 126-27; JX-0001 ('235 Patent) at col. 10, lns. 4-13. Dr. Howard described how the patent teaches

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corresponding structure of each of these functions, *i.e.*, use of a CIS having scanning surfaces, a pressurizing device, and information reader (*i.e.*, element 110a); MICR sensors having a magnetic recognition head and a pressurizing device (*i.e.*, element 110c); and plural notes detection sensors including CIS and MICR (*i.e.*, element 110d). *See* JX-0001 ('235 Patent) at Fig. 2, col. 3, ln. 63 – col. 4, ln. 9; col. 4, lns. 10-19; col. 4, lns. 30-37; col. 4, lns. 49-53; col. 4, ln. 60 – col. 5, ln. 6; col. 9, lns. 34-44; *see also* CX-0274C (Howard WS) at Q/A 128-29. Respondents' attempts to exclude some or all of these disclosures as structure for the "verifying unit" is improper, as the patent expressly describes each of these as performing overlap detection. *See* JX-0001 ('235 Patent) at col. 4, lns. 45-64; CX-0274C (Howard WS) at Q/A 129. This further demonstrates the terms' definiteness under a § 112, ¶ 6 treatment.

**11. "to perform tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors" (claim 1)**

Below is a chart showing the parties' proposed claim constructions.

| <b>"to perform tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors"</b> |  |
|--|--|
| <b>Complainants' Construction</b>  | <b>Respondents' Construction</b>   |
| plain and ordinary meaning   | "to detect whether two or more banknotes are overlapping in the main transfer unit using three different types of data sensed from three different types of sensors" |

*See* Compls. Br. at 28-30; Resps. Br. at 12-15.

Complainants argue that the disputed claim term "to perform tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors"

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should be given its plain and ordinary meaning. Compls. Br. at 28-30. Respondents argue that this claim term should be construed to mean “to detect whether two or more banknotes are overlapping in the main transfer unit using three different types of data sensed from three different types of sensors.” Resps. Br. at 12-15.

For the reasons discussed below, the administrative law judge has determined that the claim term “to perform tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors” should be given its plain and ordinary meaning.

A person of skill in the art would understand the phrase. *See* CX-0274C (Howard WS) at Q/A 130-31. Respondents’ proposal is inconsistent with the interpretation that a person of ordinary skill in the art would apply. *Id.* at Q/A 132. Diebold’s proposal unnecessarily incorporates the term “banknotes” into the term being interpreted; the term being interpreted uses the term “sheets” which, would have been readily understandable. Second, respondents’ proposal improperly includes a requirement of detecting overlap “using three different types of data sensed from three different types of sensors.” Reading the limitation either alone or in view of the specification and file history, the phrase does not require using three different types of data sensed from three different types of sensors to determine an overlap condition. The patent describes using three different sensors for overlap detection. *Id.*; JX-0001 (‘235 Patent) at col. 4, lns. 45-48 (plural notes detection sensor), col. 4, ln. 66 – col. 5, ln. 3 (CIS and MICR). Any one of these can determine overlap. *See* Howard Tr. 303. Even if the patent taught using all three for a single overlap determination, a person of ordinary skill in the art would not read such teaching as imposing a limitation on claim 1. *See* CX-0274C (Howard WS) at Q/A 132. Further,

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one of ordinary skill in the art would have understood that, if the patentee wanted to limit the claim so as to require the use of three different types of sensors to determine an overlap condition (as opposed to simply three different sensors), the patentee could have done so. *Id.*

Further, this limitation was added during prosecution to overcome various prior art references—Hobmeier, Ina, and Baker—none of which disclosed using more than one sensor to for a single overlap determination. *See* CX-0284 (Hobmeier), CX-0322 (Ina); CX-0323 (Baker). Thus, one of ordinary skill would not view the addition of “different sensors” to require, as respondents propose, different types of sensors. *See* CX-0274C (Howard WS) at Q/A 132.

As Dr. Howard further discussed at the hearing, U.S. Patent No. 7,637,422 (“the ‘422 patent”) (incorporated by reference at JX-0001 (‘235 Patent) at col. 5, lns. 5-6), like the ‘235 patent, indicates that overlapping notes may be detected by any one of a CIS, MICR, or plural notes detection sensor. *See* RX-0526 (‘422 Patent) col. 7, lns. 17-23; Howard Tr. 303. The patent further notes that the presence of plural cheque leaves can be detected by the CIS sensor detecting the size or similar attributes, the MICR detecting magnetic characteristics, or the plural cheque leave mechanism detecting the thickness of the media. *See* RX-0526 (‘422 Patent) col. 6, lns. 33-40. Lastly, the sensors “may be arranged in any order along the cheque moving path.” *Id.* at col. 7, lns. 31-34. Dr. Sturges offers no reason why one would read these disclosures as limiting or even describing the tripartite detection discussed in the ‘235 patent.

Further, respondents argue that a brief reference in an interview summary to “three different sensors,” and the absence of such disclosure in the prior art, supports

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their interpretation of the claim. *See* JX-0002 ('235 Patent File History) at 000357. The examiner's statement that none of the art "disclosed using more than one sensor" is not inconsistent with Hyosung's interpretation; nothing therein requires the "three different types of data sensed from three different types of sensors."

**12. "an abnormal sheet branch transfer unit" (claim 1)**

Below is a chart showing the parties' proposed claim constructions.

| <b>"an abnormal sheet branch transfer unit"</b> |   |
|---|---|
| <b>Complainants' Construction</b>               | <b>Respondents' Construction</b>  |
| plain and ordinary meaning                      | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: transfer the abnormal banknotes verified by the verifying unit.</p> <p>Structure: guide walls, transfer rollers, and a driving motor</p> |

*See* Compls. Br. at 30-31; Resps. Br. at 37-39.

Complainants argue that the disputed claim term "an abnormal sheet branch transfer unit" should be given its plain and ordinary meaning. Compls. Br. at 30-31.

Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 37-39.

The administrative law judge has determined that the claim term "an abnormal sheet branch transfer unit" should be given its plain and ordinary meaning. A person of skill in the art would understand that a structure in an ATM that transfers media that are not suitable for deposit due to being abnormal (*i.e.*, that have failed verification) through

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the module is an abnormal sheet branch transfer unit. In general, an abnormal sheet branch transfer unit is the motorized pathway that carries abnormal media that failed verification. *See* CX-0274C (Howard WS) at Q/A 133-34.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “an abnormal sheet branch transfer unit” would necessarily have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for transferring media detected as abnormal down a branch path within the module. *Id.* at Q/A 137. The claim also confers additional structure in the form of describing how the “abnormal sheet branch transfer unit” interacts with other claimed elements. Claim 1 emphasizes that the abnormal sheet branch transfer unit must have “an abnormal sheet branch transfer path branched from the main transfer path.” *See* JX-0001 (‘235 Patent) at col. 10, lns. 14-18. This confirms structural requirements for the “abnormal sheet branch transfer unit,” including by requiring well-known components to interface with the portion of the cash-and-check depositing unit that transports media through the module. *See* CX-0274C (Howard WS) at Q/A 137.

During prosecution, applicants made express that they were not styling their claim in such a way as to merely claim according to an intended use. *Id.* Applicants modified their claim to add the phrase “configured to transfer.” *See* JX-0002 (‘235 Patent File History) at 000266. The applicants expressly wrote that, in view of these amendments, the limitations “no longer recite[ ] any limitations that amount to statements of intended

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use.” *Id.* at 261. This further confirms that the limitation is structural in nature. *See also id.* at Office Action of Oct. 17, 2012, at 000290-303; Amdmt. of Feb. 12, 2013, at 000359-360; Notice of Allowance, at 000378-380 (subsequent history, raising no functional claiming issues).

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “an abnormal sheet branch transfer unit” is a means-plus-function element, the ‘235 patent discloses the required structure. The parties are in agreement that, if § 112, ¶ 6 applies the claimed function is “transferring abnormal banknotes verified by the verifying unit” and the structure is “guide walls, transfer rollers, and a driving motor for transfer paths.” *See Resps. Br.* at 37-39; CX-0274C (Howard WS) at Q/A 135.

**13. “an abnormal sheet unloading transfer unit” (claim 1)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“an abnormal sheet unloading transfer unit”</b> |  |
|--|--|
| <b>Complainants’ Construction</b>                  | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning                         | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: to return the abnormal banknotes to the user via the bundle insertion unit.</p> <p>Structure: guide walls, transfer rollers, and a driving motor.</p> |

*See Compls. Br.* at 31-32; *Resps. Br.* at 37-39.

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Complainants argue that the disputed claim term “an abnormal sheet unloading transfer unit” should be given its plain and ordinary meaning. Compls. Br. at 31-32.

Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 37-39.

The administrative law judge has determined that the claim term “an abnormal sheet unloading transfer unit” should be given its plain and ordinary meaning. A person of ordinary skill in the art would understand that a structure in an ATM that transfers media that are not suitable for deposit due to being abnormal (i.e., that have failed verification) back to the user is an abnormal sheet unloading transfer unit. In general, an abnormal sheet unloading transfer unit is the motorized pathway that carries abnormal media that failed verification to the insertion unit for return to the user. *See* CX-0274C (Howard WS) at Q/A 152-53.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “an abnormal sheet unloading transfer unit” would necessarily have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for transferring media detected as abnormal to a location where they can be unloaded (i.e., returned to the user). *Id.* at Q/A 156. The claim also confers additional structure in the form of describing how the “abnormal sheet branch unloading transfer unit” interacts with other claimed elements. The claim emphasizes that the abnormal sheet unloading unit must be “coupled to the first gate,” and must have “an abnormal sheet unloading

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transfer path,” further confirming structure for this term. *Id.*; JX-0001 (‘235 Patent) at col. 10, lns. 22-25.

During prosecution, applicants made it clear that they were not wording their claim merely to claim an intended use. *See* CX-0274C (Howard WS) at Q/A 156. Applicants modified their claim to add the phrase “configured to transfer.” *See* JX-0002 (‘235 Patent File History) at 000266. The applicants expressly wrote that, in view of these amendments, the limitations “no longer recite[ ] any limitations that amount to statements of intended use.” *Id.* at 000261. This further confirms that the limitation is structural in nature. *See also id.* at Office Action of Oct. 17, 2012, at 000290-303; Amdmt. of Feb. 12, 2013, at 000359-360; Notice of Allowance, at 000378-380 (subsequent history, raising no functional claiming issues).

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “an abnormal sheet unloading transfer unit” is a means-plus-function element, the ‘235 patent discloses the required structure. The parties are in agreement that, if § 112, ¶ 6 applies, the claimed function is “returning the abnormal banknotes to the user” and the structure is “guide walls, transfer rollers, and a driving motor for transfer paths.” *See* Resps. Br. at 37-39; CX-0274C (Howard WS) at Q/A 154.

**14. “an authentic cheque transfer unit” (claim 1)**

Below is a chart showing the parties’ proposed claim constructions.

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| <b>“an authentic cheque transfer unit”</b> |   |
|--|---|
| <b>Complainants’ Construction</b>          | <b>Respondents’ Construction</b>  |
| plain and ordinary meaning                 | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: transfer at least one authentic cheque verified by the verifying unit.</p> <p>Structure: guide walls, transfer rollers, and a driving motor.</p> |

See Compls. Br. at 32-34; Resps. Br. at 37-39.

Complainants argue that the disputed claim term “an authentic cheque transfer unit” should be given its plain and ordinary meaning. Compls. Br. at 32-34.

Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 37-39.

The administrative law judge has determined that the claim term “an authentic cheque transfer unit” should be given its plain and ordinary meaning. A person of ordinary skill in the art would understand that a structure in an ATM that transfers media that are checks suitable for deposit (*i.e.*, verified checks) through the rest of the device is the authentic check transfer unit. In general, an authentic check transfer unit is the motorized pathway that carries verified checks for deposit. See CX-0274C (Howard WS) at Q/A 164-65.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the

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phrase “an authentic cheque transfer unit” would necessarily have a structural meaning to a skilled artisan, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for transferring media detected as authentic cheques to a location where they can be stored (*i.e.*, the authentic cheque storage cassette). *See id.* at Q/A 168. The claim also confers additional structure in the form of describing how the “abnormal sheet branch unloading transfer unit” interacts with other claimed elements. The claim emphasizes that the authentic cheque transfer unit must be “coupled to an end of the main transfer path,” and must have “an authentic cheque transfer path,” further confirming structure for this term. *See* JX-0001 (‘235 Patent) at col. 10, lns. 26-30.

During prosecution, applicants made it clear that they were not wording their claim merely to claim an intended use. *See* CX-0274C (Howard WS) at Q/A 168. Applicants modified their claim to add the phrase “configured to transfer.” *See* JX-0002 (‘235 Patent File History) at 000266. The applicants expressly wrote that, in view of these amendments, the limitations “no longer recite[ ] any limitations that amount to statements of intended use.” *Id.* at 000261. This further confirms that the limitation is structural in nature. *See also id.* at Office Action of Oct. 17, 2012, at 000290-303; Amdmt. of Feb. 12, 2013, at 000359-360; Notice of Allowance, at 000378-380 (subsequent history, raising no functional claiming issues).

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “an authentic cheque transfer unit” is a means-plus-function element, the ‘235 patent discloses the required structure. The parties are in agreement that, if § 112, ¶ 6 applies,

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the claimed function is “transferring at least one authentic cheque in the bundle of banknotes verified by the verifying unit” and the structure is “guide walls, transfer rollers, and a driving motor for transfer paths.” *See* Resps. Br. at 37-39 ; CX-0274C (Howard WS) at Q/A 166.

**15. “an authentic cash transfer unit” (claim 1)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“an authentic cash transfer unit”</b> |  |
|--|--|
| <b>Complainants’ Construction</b>        | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning               | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: transfer authentic banknotes other than cheques verified by the verifying unit.</p> <p>Structure: guide walls, transfer rollers, and a driving motor.</p> |

*See* Compls. Br. at 34-35; Resps. Br. at 37-39.

Complainants argue that the disputed claim term “an authentic cash transfer unit” should be given its plain and ordinary meaning. Compls. Br. at 34-35. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 37-39.

The administrative law judge has determined that the claim term “an authentic cash transfer unit” should be given its plain and ordinary meaning. A person of ordinary skill in the art would understand that a structure in an ATM that transfers media that are cash suitable for deposit (*i.e.*, verified cash) through the rest of the device is the authentic

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cash transfer unit. In general, an authentic cash transfer unit is the motorized pathway that carries verified cash for deposit. *See* CX-0274C (Howard WS) at Q/A 173-74.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “an authentic cash transfer unit” would necessarily have a structural meaning to a skilled artisan, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for transferring media detected as authentic banknotes other than cheques to a location where they can be stored (i.e., the authentic cash storage cassette). *See id.* at Q/A 177. The claim also confers additional structure in the form of describing how the authentic cash transfer unit must be “coupled to an end of the main transfer path,” and must have “an authentic cash transfer path,” further confirming structure for this term. *See* JX-0001 (‘235 Patent) at col. 10, lns. 31-35.

During prosecution, applicants made it clear that they were not wording their claim merely to claim an intended use. *See* CX-0274C (Howard WS) at Q/A 177. Applicants modified their claim to add the phrase “configured to transfer.” *See* JX-0002 (‘235 Patent File History) at 000266. The applicants expressly wrote that, in view of these amendments, the limitations “no longer recite[ ] any limitations that amount to statements of intended use.” *Id.* at 000261. This further confirms that the limitation is structural in nature. *See also id.* at Office Action of Oct. 17, 2012, at 000290-303; Amdmt. of Feb. 12, 2013, at 000359-360; Notice of Allowance, at 000378-380 (subsequent history, raising no functional claiming issues).

**PUBLIC VERSION****Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “an authentic cash transfer unit” is a means-plus-function element, the ‘235 patent discloses the required structure. The parties are in agreement that, if § 112, ¶ 6 applies, the claimed function is “transferring authentic banknotes other than cheques verified by the verifying unit” and the structure is “guide walls, transfer rollers, and a driving motor for transfer paths.” *See* Resps. Br. at 37-39; CX-0274C (Howard WS) at Q/A 175.

16. **“a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer path to the authentic cash transfer path”**

Below is a chart showing the parties’ proposed claim constructions.

|  |  |
|--|--|
| <b>“a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer path to the authentic cash transfer path”</b> |  |
| <b>Complainants’ Construction</b>  | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning   | “gate positioned at the rear end of the main transfer path which selectively routes verified cheques to an authentic cheque transfer path and routes verified cash to an authentic cash transfer path” |

*See* Compls. Br. at 35; Resps. Br. at 32-34.

Complainants argue that the disputed claim term “a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer path to the authentic cash transfer path” should be given its plain and ordinary meaning.

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Compls. Br. at 35. Respondents argue that this claim term should be construed to mean “gate positioned at the rear end of the main transfer path which selectively routes verified cheques to an authentic cheque transfer path and routes verified cash to an authentic cash transfer path.” Resps. Br. at 32-34.

The administrative law judge has determined that while the claim term “a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer path to the authentic cash transfer path” is lengthy, it should nonetheless be given its plain and ordinary meaning.

A person of ordinary skill in the art would find the phrase understandable, and requiring no further elaboration. *See CX-0274C (Howard WS) at Q/A 183.*

Respondents’ proposed construction as inconsistent with the interpretation of a person of ordinary skill because it unnecessarily inserts the phrase “verified cash” in a manner unsupported by the specification. *See CX-0274C (Howard WS) at Q/A 182-84.*

### 17. “a cheque standby unit”

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a cheque standby unit”</b>    |  |
|-----------------------------------|--|
| <b>Complainants’ Construction</b> | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning        | Function: hold the at least one authentic cheque to return the at least one authentic cheque to the user responsive to user instructions cancelling depositing of the at least one authentic cheque.<br>Structure: Insufficient structure disclosed. |

*See Compls. Br. at 35-37; Resps. Br. at 6-12.*

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Complainants argue that the disputed claim term “a cheque standby unit” should be given its plain and ordinary meaning. Compls. Br. at 35-37. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 6-12.

For the reasons discussed below, the administrative law judge has determined that the claim term “a cheque standby unit” should be given its plain and ordinary meaning. A person of ordinary skill in the art would understand that a structure in an ATM that temporarily holds checks pending the customer confirming the deposit is the cheque standby unit. In general, a cheque standby unit is the escrow that temporarily holds checks. *See* CX-0274C (Howard WS) at Q/A 185-86.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “a cheque standby unit” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components for holding cheques in a standby configuration pending user confirmation of the deposit. *Id.* at Q/A 189. The claim also confers additional structure in the form of describing how the “cheque standby unit” must be “placed in the main transfer path between the first gate and the second gate.” *See* JX-0001 (‘235 Patent) at col. 10, lns. 50-55.

During prosecution, applicants made it clear that they were not wording their claim merely to claim an intended use. *See* CX-0274C (Howard WS) at Q/A 189. Applicants modified their claim to add the phrase “configured to hold.” *See* JX-0002

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(‘235 Patent File History) at 000267. The applicants wrote that, in view of these amendments, the limitations “no longer recite[ ] any limitations that amount to statements of intended use.” *Id.* at 000261. This further confirms that the limitation is structural in nature. *See also id.* at Office Action of Oct. 17, 2012, at 000290-303; Amdmt. of Feb. 12, 2013, at 000359-360; Notice of Allowance, at 000378-380 (subsequent history, raising no functional claiming issues).

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a cheque standby unit” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 description, and so survives a definiteness challenge. Under § 112, ¶ 6 treatment, the claimed function is “holding the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque,” and the corresponding structure is “stacking and temporary storage of media.” *See CX-0274C (Howard WS) at Q/A 187, 190–93.* Respondents do not substantively disagree as to the function being claimed. A person of ordinary skill in the art would find corresponding structure in the ‘235 patent. *Id.* at Q/ a 192. Figure 2 of the ‘235 patent teaches a cheque standby unit 120 that temporarily stores at least one authentic cheque by holding it in position on the belt. *See JX-0001 (‘235 Patent) at Fig. 2.* A person of ordinary skill in the art would also understand the stacking and temporary storage of media in figure 2. *Id.* at col. 2, lns. 65-66; col. 3, lns. 36-37; col. 5, lns. 40-54. That further demonstrates the term’s definiteness under a § 112, ¶ 6 treatment.

**PUBLIC VERSION****18. “placed in the main transfer path between the first gate and the second gate”**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“placed in the main transfer path between the first gate and the second gate”</b> |  |
|--|--|
| <b>Complainants’ Construction</b>  | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning   | “formed on the main transfer path after the first gate and before the second gate” |

*See* Compls. Br. at 37; Resps. Br. at 34-36.

Complainants argue that the disputed claim term “placed in the main transfer path between the first gate and the second gate” should be given its plain and ordinary meaning.” Compls. Br. at 37. Respondents argue that this claim term should be construed to mean “formed on the main transfer path after the first gate and before the second gate.” Resps. Br. at 34-36.

As discussed below, the administrative law judge has determined that the claim term “placed in the main transfer path between the first gate and the second gate” should be given its plain and ordinary meaning.

A person of ordinary skill would find the phrase readily understandable, and requiring no elaboration. *See* CX-0274C (Howard WS) at Q/A 194-95. Respondents’ proposal is inconsistent with the interpretation that a person of ordinary skill in the art would apply, at least because it improperly inserts the confusing term “formed,” which is both unnecessary and unsupported by the limitation. *See id.* at Q/A 196. At the hearing, respondents’ expert Dr. Sturges opined that the patent requires a main transfer path that is divided into two, perfectly horizontal sections. *See* Sturges Tr. 562-563. To the contrary,

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the '235 patent makes clear that the cheque standby unit (the structure being addressed by this limitation) is “placed in” (not “formed on”) a singular main transfer path, which has both horizontal and vertical sections. *Id.*

**19. “a depositing controller”**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a depositing controller?”</b> |   |
|-----------------------------------|---|
| <b>Complainants’ Construction</b> | <b>Respondents’ Construction</b>  |
| plain and ordinary meaning        | <p>Function: (i) transfer the authentic banknotes to the main transfer path but the transfer abnormal banknotes to the abnormal sheet branch transfer path based on verification result;</p> <p>(ii) transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.</p> <p>Structure: Insufficient structure defined</p> |

*See* Compls. Br. at 38-39; Resps. Br. at 19-22.

Complainants argue that the disputed claim term “a depositing controller” should be given its plain and ordinary meaning.” Compls. Br. at 38-39. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 19-22.

For the reasons discussed below, the administrative law judge has determined that the claim term “a depositing controller” should be given its plain and ordinary meaning.

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A person of ordinary skill would find the phrase understandable, and requiring no elaboration. *See* CX-0274C (Howard WS) at Q/A 200-01.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how a “depositing controller” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for controlling the mechanical operations of the module. *Id.* at Q/A 204. For example, the claim describes, in specific terms, a precise algorithm that must be used to control the operation of the device. *Id.* That is, the depositing controller must “transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result,” and must also “transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.” *See* JX-0001 (‘235 Patent) at col. 10, lns. 56-65. At the hearing, Dr. Sturges acknowledged that this amounted to a recitation of steps, and that the “depositing controller” is not just any processor, but a processor specifically for performing these steps. *See* Sturges Tr. 550, 552-553 (“Yes, I would agree with that, sure.”); *see also* Howard Tr. 234-235 (discussing the steps the depositing controller would need to perform). Such recitation of steps provides more than sufficient structure to inform a person of skill as to the structure required for the “depositing controller.” *See* CX-0274C (Howard WS) at Q/A 204.

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Further, claim 1 recites how the controller is “connected to” other structural elements, further establishing structure. *Id.*

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a depositing controller” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 patent, and so survives definiteness review. Under § 112, ¶ 6 treatment, the two claimed functions and corresponding structure are:

**First Function:** “transferring the authentic banknotes to the main transfer path but transferring abnormal banknotes to the abnormal sheet branch transfer path based on verification result”

**Second Function:** “transferring each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result”

**Corresponding structure (first function):** depositing controller (*i.e.*, element 140), carrying out the algorithm described in the claim

**Corresponding structure (second function):** depositing controller (*i.e.*, element 140), carrying out the algorithm described in the claim.

*See* CX-0274C (Howard WS) at Q/A 202. This extends directly from claim 1, as discussed above, as well as from the written description, which teaches a depositing controller 140 for performing each of the functions identified. *See* JX-0001 (‘235 Patent) at col. 6, lns. 35-48, lns. 52-57, Figs. 1 and 2. A person of ordinary skill in the art would not need to refer to any algorithm to understand the structure being used to perform these functions, but it should be noted for completeness that the claim language itself teaches such an algorithm, as do the cited specification sections. *See* CX-0274C (Howard WS) at

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Q/A 207. Further, the '235 patent describes the actions that the various components controlled by the "depositing controller" must undertake, and in so doing further discloses the algorithm required for this term. *See* JX-0001 ('235 Patent) at col. 7, lns. 49-60 (describing how the first gate (controlled by the depositing controller as described at col. 6, lns. 38-40) appropriately directs authentic & abnormal notes); col. 8, lns. 16-23, 42-48 (describing how the second gate (also controller by the depositing controller) appropriately directs cash and cheques).

**20. "individual sheets in the banknotes" (claim 1)**

Below is a chart showing the parties' proposed claim constructions.

| <b>"individual sheets in the banknotes"</b> |                                  |
|---|----------------------------------|
| <b>Complainants' Construction</b>           | <b>Respondents' Construction</b> |
| plain and ordinary meaning                  | indefinite                       |

*See* Compls. Br. at 40; Resps. Br. at 102.

Complainants argue that the disputed claim term "individual sheets in the banknotes" should be given its plain and ordinary meaning. Compls. Br. at 40.

Respondents argue that this claim term is indefinite. Resps. Br. at 102.

The administrative law judge has determined that the claim term "individual sheets in the banknotes" should be given its plain and ordinary meaning.

A person of skill in the art would understand the phrase. *See* CX-0274C (Howard WS) at Q/A 212-13. A person of ordinary skill in the art would have no difficulty concluding that the reference to "individual sheets in the banknotes determined to be a cheque" to mean each of the banknote sheets that has been determined, upon use of the

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claimed apparatus, to be authentic cheques. *See* JX-0001 ('235 Patent) at col. 10, lns. 61-63 (describing “transfer[ring] each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path”). That is the meaning that a person of ordinary skill in the art would readily apply, and is the plain and ordinary meaning of the term at issue. For the same reasons, such a person would have no difficulty determining the scope of the limitation. *See* CX-0274C (Howard WS) at Q/A 214.

**21. “an auto-alignment unit” (claim 2)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“an auto-alignment unit”</b>   |   |
|-----------------------------------|---|
| <b>Complainants’ Construction</b> | <b>Respondents’ Construction</b>  |
| plain and ordinary meaning        | Function: align the banknotes while transferring the banknotes on the main transfer path.<br>Structure: Insufficient structure disclosed. |

*See* Compls. Br. at 40-41; Resps. Br. at 6-12.

Complainants argue that the disputed claim term “an auto-alignment unit” should be given its plain and ordinary meaning. Compls. Br. at 40-41. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 6-12.

For the reasons discussed below, the administrative law judge has determined that the claim term “an auto-alignment unit” should be given its plain and ordinary meaning. A person of ordinary skill in the art would understand that the structure in an ATM that aligns the banknotes while they traverse the main transfer path is the auto-alignment unit. In general, an auto-alignment unit refers to the portion or portions of the module

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containing driven rollers and sensors for aligning banknotes. *See* CX-0274C (Howard WS) at Q/A 215-16.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “an auto-alignment unit” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for aligning banknotes. *Id.* at Q/A 219. The claim also confers additional structure in the form of describing how the “auto-alignment unit” must be “provided on the main transfer path.” *See* JX-0001 (‘235 Patent) at col. 10, ln. 66 – col. 11, ln. 2. To a person of skill in the art, this would further confirm the structural requirements for the “auto-alignment unit,” including by requiring well-known components to interface with the portion of the cash-and-check depositing module that transfers the banknotes. *See* CX-0274C (Howard WS) at Q/A 219. Dr. Sturges agreed that the evidence demonstrates that the term “alignment unit” connotes structure. *See* Sturges Tr. at 542.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “an auto-alignment unit” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 description, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “aligning the banknotes while transferring the banknotes on the main transfer path,” and the corresponding structure is “alignment unit

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(i.e., element 108), with rollers to align and transfer.” *See* CX-0274C (Howard WS) at Q/A 217. There seems to be no substantive dispute between the parties as to the claimed function. *Id.* at Q/A 221. As to the corresponding structure, figure 2 of the ‘235 patent teaches an auto-alignment unit 108 that aligns the banknotes while transferring the banknotes on the main transfer path. *Id.* at Q/A 222; JX-0001 (‘235 Patent) at Fig. 2; *see also id.* at col. 2, lns. 36-39; col. 3, lns. 48-55, col. 3, lns. 56-62. Further, inasmuch as the alignment unit in the ‘235 patent performs alignment while notes are being transferred, a person of ordinary skill would also understand that the structures commonly associated with transfer paths in the ‘235 patent were used to perform the function, *e.g.*, rollers to align and transfer. *See id.* at Fig. 2, col. 1, lns. 48-50; col. 2, lns. 44-47; col. 3, lns. 49-55; CX-0274C (Howard WS) at Q/A 222. This further demonstrates the term’s definiteness under § 112, ¶ 6 treatment.

**22. “plural banknotes detection part” (claim 3)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“plural banknotes detection part”</b> |  |
|--|--|
| <b>Complainants’ Construction</b>        | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning               | Function: detect overlapped individual sheets based on a thickness of banknotes<br>Structure: insufficient structure disclosed |

*See* Compls. Br. at 42-43; Resps. Br. at 22-23.

Complainants argue that the disputed claim term “plural banknotes detection part” should be given its plain and ordinary meaning. Compls. Br. at 42-43. Respondents

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argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 22-23.

The administrative law judge has determined that the claim term “plural banknotes detection part” should be given its plain and ordinary meaning. A person of ordinary skill in the art would understand that the structure in an ATM that contains the sensors and apparatus that sense more than one media passing through the module at a time is the plural banknotes detection part. In general, the plural banknotes detection part refers to the portion or portions of the module that contain the necessary sensors and hardware capable of identifying plural banknotes. See CX-0274C (Howard WS) at Q/A 227-28.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “plural banknotes detection part” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for the detection of plural banknotes. *Id.* at Q/A 231. The claim also confers additional structure in the form of describing how the “plural banknotes detection part” interacts with other claimed elements. *Id.* Claim 1 discloses that “verifying unit” (which includes the additional limitations recited in claim 3) must be “installed on the main transfer path.” JX-0001 (‘235 Patent) at col. 11, lns. 3-15. To a person of skill in the art, this would further confirm the structural requirements for the “plural banknotes detection part,” including by requiring well-known components to interface with the portion of the cash-and-check

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depositing module that transfers the banknotes. *See* CX-0274C (Howard WS) at Q/A 231. As such, § 112, ¶ 6 treatment is unwarranted.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “plural banknotes detection part” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 description, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “detecting overlapping individual sheets based on a thickness of the banknotes,” and the corresponding structure is “plural notes detection sensors, e.g., an infrared sensor that detects thickness, a magnetic sensor, a light emitting sensor, a UV sensor.” *Id.* at Q/A 229. There is no substantive dispute between the parties as to the claimed function. *Id.* at Q/A 232-33. As to the corresponding structure, figure 2 of the ‘235 patent teaches plural notes detection part 110d. *See* JX-0001 (‘235 Patent) at Fig. 2; *see also id.* at col. 3, ln. 63 – col. 4, ln. 9; col. 4, lns. 10-19; col. 4, lns. 30-37 (“the detection sensors may include at least one among a light emitting sensor, a magnetic sensor, a UV sensor, an infrared sensor and the like”); col. 4, lns. 45-48 (“[T]he infrared sensor detects . . . characteristics thereof such as thickness . . . .”); col. 4, ln. 60 – col. 5, ln. 6; col. 9, lns. 34-44.

The ‘235 patent describes the light emitting sensor, magnetic sensor, UV sensor, and infrared sensor as species of “detection sensors.” *Id.* at col. 4, lns. 34-48. Thus a person of ordinary skill would understand the ‘235 patent’s instruction that the plural banknotes detection part 110d “detects whether or not two or more banknotes are overlapped” to mean that it does so using, *e.g.*, one or more of the previously-described

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“detection sensors.” *See id.* at col. 4, lns. 60–64. Further, one of ordinary skill would understand the ‘235 patent’s instruction that such be performed “preferably . . . by way of detecting a thickness of the banknotes” to clearly refer to the species of “detection sensors” expressly described as detecting thickness, *i.e.*, the infrared sensors described above. *See* CX-0274C (Howard WS) at Q/A 234. Further, a person of ordinary skill would understand that a CIS, MICR, or pressurizing device may also detect a thickness of potentially-overlapping notes. *Id.* This further demonstrates the terms’ definiteness under a § 112, ¶ 6 treatment. *See also id.* at Q/A 235.

**23. “based on a thickness of the banknotes” (claim 3)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“based on a thickness of the banknotes”</b> |  |
|--|--|
| <b>Complainants’ Construction</b>              | <b>Respondents’ Construction</b>                           |
| plain and ordinary meaning                     | “based on a measurement of the thickness of the banknotes” |

*See* Compls. Br. at 44; Resps. Br. at 36-37.

Complainants argue that the disputed claim term “based on a thickness of the banknotes” should be given its plain and ordinary meaning. Compls. Br. at 44.

Respondents argue that this claim term should be construed to mean “based on a measurement of the thickness of the banknotes.” Resps. Br. at 36-37.

For the reasons discussed below, the administrative law judge has determined that the claim term “based on a thickness of the banknotes” should be given its plain and ordinary meaning.

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A person of ordinary skill in the art would understand the term's meaning, requiring no elaboration. *See* CX-0274C (Howard WS) at Q/A 236-37. Respondents' proposal is inconsistent with the interpretation that person of ordinary skill in the art would apply, at least because it improperly inserts an extensive set of requirements that are not present in the claim. For example, respondents' proposed construction unnecessarily replaces the reference to "banknotes" with a reference to "sheets," which is not the understanding that a person of ordinary skill in the art would apply. Respondents' proposed construction also unnecessarily adds the requirement that "a measurement" of the thickness be taken, while the claim requires only that it be based on the thickness of banknotes. Dr. Sturges admitted that sensors, such as in infrared sensor, are capable of measuring thickness through signal attenuation. *See* RX-0409C (Sturges RWS) at Q/A 24 ("[T]he signal is dampened slightly by the presence of the sheet between the emitter and receiver."); *see also* RX-0410C (Langhuber RWS) at Q/A 32 ("Depending on the attenuation of the signal received, the CCDM V2 is able to tell if there is a single piece of media or more than one piece of media.") Respondents' construction would disallow, for example, an infrared sensor that detects two overlapped notes by measuring the attenuation in the strength of a signal as it passes through overlapped notes versus a single note. *See* CX-0274C (Howard WS) at Q/A 238.

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24. **“a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” (claim 3)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes”</b> |  |
|---|--|
| <b>Complainants’ Construction</b>   | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning  | Function: verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes.<br><br>Structure: a light emitting sensor, a magnetic sensor, an UV sensor, or an infrared sensor. |

See Compls. Br. at 44-46; Resps. Br. at 23-25.

Complainants argue that the disputed claim term “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” should be given its plain and ordinary meaning.” Compls. Br. at 44-46.

Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 23-25.

The administrative law judge has determined that the claim term “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” should be given its plain and ordinary meaning. A person of skill in this art would understand that the structure in an ATM that contains the sensors and apparatus to validate the authenticity of cash is the cash verifying part. In general, the cash verifying part refers to the portion or portions of the module that contains the necessary sensors and hardware for validation of cash. See CX-0274C (Howard WS) at Q/A 239-40.

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Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for verifying banknotes’ authenticity/abnormality based on previously-known sensors. *Id.* at Q/A 243. The claim also confers additional structure in the form of describing how the “plural banknotes detection part” interacts with other claimed elements. As can be seen, claim 1 emphasizes that “verifying unit” (which includes the additional limitations recited in claim 3) must be “installed on the main transfer path.” *See* JX-0001 (‘235 Patent) at col. 11, lns. 3-15. To a person of skill in the art, this would further confirm the structural requirements for the “cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes,” including by requiring well-known components to interface with the portion of the cash-and-check depositing module that transfers the banknotes. *See* CX-0274C (Howard WS) at Q/A 243. Thus, § 112, ¶ 6 treatment is unwarranted.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” is a means-plus-function element, the ‘235 patent discloses the required structure. Under § 112, ¶ 6 treatment, the claimed function

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is “verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes,” and the corresponding structure is “a cash verifier, and detection sensors including light emitting sensors, magnetic sensors, ultraviolet sensors, and infrared sensors.” *See id.* at Q/A 245. There seems to be no substantive dispute between the parties as to the claimed function. *See id.* at Q/A 244-245. As to the corresponding structure, figure 2 of the ‘235 patent teaches cash verifying unit 110b. *See* JX-0001 (‘235 Patent) at Figs. 1 and 2, col. 4, lns. 30-48; col. 7, lns. 33-35; col. 9 lns. 15-22; CX-0274C (Howard WS) at Q/A 246. The ‘235 patent specifically describes the use of this cash verifier and detection sensors including light emitting sensors, magnetic sensors, ultraviolet sensors, and infrared sensors. *See id.*; CX-0274C (Howard WS) at Q/A 246-47.

**25. “a communication controller” (claim 6)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a communication controller”</b> |  |
|-------------------------------------|--|
| <b>Complainants’ Construction</b>   | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning          | Function: communicate with a host computer.<br>Structure: Insufficient structure disclosed |

*See* Compls. Br. at 46-47; Resps. Br. at 19-21.

Complainants argue that the disputed claim term “a communication controller” should be given its plain and ordinary meaning. Compls. Br. at 46-47. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 19-21.

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The administrative law judge has determined that the claim term “a communication controller” should be given its plain and ordinary meaning. A person of ordinary skill in the art would find this phrase readily understandable, and requiring no further elaboration. *See* CX-0274C (Howard WS) at Q/A 248-49.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “a communication controller” would necessarily have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for communicating with other computers. *Id.* at Q/A 252. The claim also confers additional structure in the form of describing how the “plural communication controller” interacts with other claimed elements. As can be seen, claim 6 emphasizes that the “communication controller” must be “connected” to the “host computer.” *See* JX-0001 (‘235 Patent) at col. 11, ln. 23 – col. 12, ln. 2. To a person of skill in the art, this would further confirm the structural requirements for the “communication controller.” *See* CX-0274C (Howard WS) at Q/A 252. For these reasons, means-plus-function treatment is unwarranted.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a communication controller” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 patent, and so survives definiteness review. Under

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§ 112, ¶ 6 treatment, the claimed function is “communicating with a host computer,” and the corresponding structure is “a communication controller (*i.e.*, element 146) having a transmitter and a receiver.” *See id.* at Q/A 250. There seems to be no dispute as to the claimed function. *Id.* at Q/A 253–54. As to the structure, the patent teaches the use of a communication controller (*i.e.*, element 146) having a transmitter and a receiver. *Id.* at Q/A 255; *see, e.g.*, JX-0001 (‘235 Patent) col. 6, lns. 58-67; Figs. 1 and 2. A person of ordinary skill in the art would not need to refer to any algorithm to understand the structure being used to perform this function, but for completeness that the claim language itself teaches such an algorithm, as do the cited specification sections. *See* CX-0274C (Howard WS) at Q/A 255. This further demonstrates the term’s definiteness under § 112, ¶ 6 treatment.

**26. “a central controller” (claim 6)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a central controller”</b>     |  |
|-----------------------------------|--|
| <b>Complainants’ Construction</b> | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning        | Function: control the memory, depositing controller, and communication controller.<br>Structure: Insufficient structure disclosed. |

*See* Compls. Br. at 47-48; Resps. Br. at 19-22.

Complainants argue that the disputed claim term “a central controller” should be given its plain and ordinary meaning. Compls. Br. at 47-48. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 19-22.

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For the reasons discussed below, the administrative law judge has determined that the claim term “a central controller” should be given its plain and ordinary meaning.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. A person of ordinary skill in the art would find the phrase readily understandable, and requiring no further elaboration. *See* CX-0274C (Howard WS) at Q/A 260-61. Dr. Howard described how the phrase “a central controller” would necessarily have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for providing basic control to memories, depositing controllers, and the communication controller. *See* CX-0274C (Howard WS) at Q/A 264.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a central controller” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 patent, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “controlling the memory, the depositing controller, and the communication controller;” the corresponding structure is “a central controller (*i.e.*, element 144).” *Id.* at Q/A 262. There seems to be no dispute as to the claimed function. *Id.* at Q/A 265–66. As to the structure, the patent teaches the use of a communication controller (*i.e.*, element 146) having a transmitter and a receiver. *See* JX-0001 (‘235 Patent) at col. 7, lns. 1-2; Fig. 1; CX-0274C (Howard WS) at Q/A 267. A person of

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ordinary skill in the art would not need to refer to any algorithm to understand the structure being used to perform this function; but, for completeness, the claim language itself teaches such an algorithm, as do the cited specification sections. *See* CX-0274C (Howard WS) at Q/A 267. The term is definite under § 112, ¶ 6 treatment.<sup>16</sup>

**27. “a user input unit” (claim 6)**

Below is a chart showing the parties’ proposed claim constructions.

| <b>“a user input unit”</b>        |  |
|-----------------------------------|--|
| <b>Complainants’ Construction</b> | <b>Respondents’ Construction</b>   |
| plain and ordinary meaning        | Function: receive information from the user.<br>Structure: a key panel or a touch panel. |

*See* Compls. Br. at 48-49; Resps. Br. at 10-11.

Complainants argue that the disputed claim term “a user input unit” should be given its plain and ordinary meaning. Compls. Br. at 48-49. Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 6-12.

The administrative law judge has determined that the claim term “a user input unit” should be given its plain and ordinary meaning. A person of ordinary skill would find this understand that the structure in an ATM that user interacts with to perform a deposit is the user input unit. In general, the user input unit refers to the portion or

<sup>16</sup> Respondents argue that claim term “depositing controller” is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. They argue that “insufficient structure” is defined. *See* Resps. Br. at 21. However, this claim term is not one of the 27 disputed claim terms, but respondents nonetheless argue that it is indefinite. *See* Joint Outline at 2-5. In any event, this claim term is discussed in the validity section of this ID. *See id.* at 5.

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portions of the module that contains the touchscreen monitor and/or keypad for user input. *See* CX-0274C (Howard WS) at Q/A 269-70.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “a user input unit” would necessarily have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for permitting a user to provide input. *See* CX-0274C (Howard WS) at Q/A 271, 273.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a user input unit” is a means-plus-function element, the ‘235 patent discloses the required structure. Under § 112, ¶ 6 treatment, the claimed function is “receiving information from the user;” the claimed structure is “a key panel and/or a touch panel.” *See id.* at Q/A 271. There seems to be no dispute as to the claimed function. *Id.* at Q/A 274–75. A person of ordinary skill in the art would find corresponding structure in the ‘235 patent. *Id.* at Q/A 276. As can be seen, the patent teaches the use of a key panel and/or touch panel. *See* JX-0001 (‘235 Patent) at col. 7, lns. 3-5; Fig. 1; CX-0274C (Howard WS) at Q/A 276. The parties do not seem to be in disagreement as to either the corresponding structure or function. *See* Resps. Br. at 10-11.

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Below is a chart showing the parties’ proposed claim constructions.

| <b>“an authentic cheque incoming unit”</b> |   |
|--|---|
| <b>Complainants’ Construction</b>          | <b>Respondents’ Construction</b>  |
| plain and ordinary meaning                 | Function: temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path.<br><br>Structure: Insufficient structure disclosed. |

See Compls. Br. at 49-50; Resps. Br. at 6-12.

Complainants argue that the disputed claim term “an authentic cheque incoming unit” should be given its plain and ordinary meaning. Compls. Br. at 49-50.

Respondents argue that this claim term is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. Resps. Br. at 6-12.

The administrative law judge has determined that the claim term “an authentic cheque incoming unit” should be given its plain and ordinary meaning. A person of ordinary skill in the art would understand that the structure in an ATM that collects checks and temporarily holds is the authentic cheque incoming unit. In general, an authentic cheque incoming unit is the portion or portions of the module that collect the checks prior to placing them into storage. See CX-0274C (Howard WS) at Q/A 296-97.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the claim term “an authentic cheque incoming unit” would necessarily have a structural

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meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for accepting incoming checks. The claim also emphasizes that the “authentic cheque incoming unit” must be “disposed at a rear end side of the authentic cheque transfer path.” *See* JX-0001 (‘235 Patent) at col. 12, lns. 13-14. To a person of skill in the art, this would further confirm the structural requirements for the “authentic cheque incoming unit,” including by requiring well-known components to interface with the portion of the cash-and-check depositing module (discussed above) that transfers cheques verified by the verifying unit. *See* CX-0274C (Howard WS) at Q/A 300. For these reasons, means-plus-function treatment is unwarranted.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “an authentic cheque incoming unit” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 patent, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “temporarily holding an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path;” the corresponding structure is “authentic cheque incoming unit 128, and stacking and temporary storage of media.” *Id.* at Q/A 298. There seems to be no dispute as to the claimed function. *Id.* at Q/A 301–02. As to the structure, the patent teaches an authentic cheque incoming unit 128, and stacking and temporary storage of media. *See* JX-0001 (‘235 Patent) at Fig. 2; col. 2, lns. 65-66; col. 3, lns. 36-37; col. 5, lns. 40-54; col. 8, lns.

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16-24; col. 6, lns. 4-7; col. 8, lns. 32-41; CX-0274C (Howard WS) at Q/A 303-04. This further demonstrates the term's definiteness under a § 112, ¶ 6 treatment.

29. **“configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” (claim 8)**

Below is a chart showing the parties' proposed claim constructions.

| <b>“configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit”</b> |                                  |
|---|----------------------------------|
| <b>Complainants' Construction</b>   | <b>Respondents' Construction</b> |
| plain and ordinary meaning  | indefinite                       |

See Compls. Br. at 50-51; Resps. Br. at 102-03.

Complainants argue that the disputed claim term “configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” should be given its plain and ordinary meaning. Compls. Br. at 50-51. Respondents argue that this claim term is indefinite. Resps. Br. at 102-03.

The administrative law judge has determined that the claim term “configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” should be given its plain and ordinary meaning. A person of ordinary skill in the art would find this phrase understandable, and requiring no further elaboration. See CX-0274C (Howard WS) at Q/A 308-09. A person of ordinary skill in the art would

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understand that the limitation describes storing each sheet that the authentic cheque incoming unit holds, *i.e.*, that when the condition of an authentic cheque being held in the authentic cheque incoming unit occurs, the device is configured to store said sheet. *See id.* at Q/A 310.

**30. Agreed Claim Constructions**

Each of the parties provided a table showing the claim terms that are not disputed and their proposed constructions.

Complainants argue: “The parties agree to the following constructions:

|  |   |
|--|---|
| “transfer each of the individual sheets with a predetermined time interval”  | (plain and ordinary meaning)  |
| “abnormal banknotes verified by the verifying unit”  | “banknotes verified as abnormal during the verification process”  |
| “abnormal sheet unloading transfer path”   | (plain and ordinary meaning)  |
| “abnormal sheet branch transfer path”  | (plain and ordinary meaning)  |
| “a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path” | “a first gate configured to selectively route the banknotes verified as abnormal to the abnormal sheet branch transfer path or the banknotes verified as authentic to the main transfer path” |
| “responsive to receiving user instructions cancelling depositing of the at least one authentic cheque”                                     | (plain and ordinary meaning)  |
| “connected to the first gate, the second gate and the verifying unit”  | “operatively connected to the first gate, the second gate, and the verifying unit”  |
| “configured to align the banknotes while transferring the banknotes on the main transfer path”   | (plain and ordinary meaning)  |
| “host computer”  | (plain and ordinary meaning)  |
| “a deposit display unit”   | (plain and ordinary meaning)  |
| “a receipt output unit”  | (plain and ordinary meaning)  |
| “disposed at the rear end side of the authentic cheque transfer path”  | (plain and ordinary meaning)  |

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See Compls. Br. at 51.

Respondents argue: “In the interest of streamlining the issues of this Investigation for the ALJ, Diebold has agreed to the constructions proposed by Hyosung for several of the claim terms. Below is a chart illustrating the claim constructions that are agreed to by the parties and the claim terms that need no construction.” Resps. Br. at 37. The table is reproduced below.

| <b>Agreed Constructions</b>  |   |
|--|---|
| “abnormal banknotes verified by the verifying unit”  | banknotes verified as abnormal during the verification process”   |
| “transfer each of the individual sheets with a predetermined time interval”  | Plain and ordinary meaning  |
| “abnormal sheet branch transfer path”  | Plain and ordinary meaning  |
| “abnormal sheet unloading transfer path”   | Plain and ordinary meaning  |
| “a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path” | “a first gate configured to selectively route the banknotes verified as abnormal to the abnormal sheet branch transfer path or the banknotes verified as authentic to the main transfer path” |
| “responsive to receiving user instructions cancelling depositing of the at least one authentic cheque”                                     | Plain and ordinary meaning  |
| “connected to the first gate, the second gate and the verifying unit”  | operatively connected to the first gate, the second gate, and the verifying unit  |
| “configured to align the banknotes while transferring the banknotes on the main transfer path”   | Plain and ordinary meaning  |
| “host computer”  | Plain and ordinary meaning  |
| “disposed at the rear end side of the authentic cheque transfer path”  | Plain and ordinary meaning  |
| “a deposit display unit”   | Plain and ordinary meaning  |
| “a receipt output unit”  | Plain and ordinary meaning  |
| <b>Claim Term That Needs No Construction</b>   |   |

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|   |  |
|---|--|
| “coupled to”                                    | Plain and ordinary meaning   |
| <b>Agreed Proposed Functions and Structures</b> |  |
| “bundle insertion unit”                         | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: receive a bundle of banknotes from a user</p> <p>Structure: an insertion case, an opening, and a shutter for opening/closing the insertion case</p>   |
| “an abnormal sheet branch transfer unit”        | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: transfer the abnormal banknotes verified by the verifying unit.</p> <p>Structure: guide walls, transfer rollers, and a driving motor</p>              |
| “an abnormal sheet unloading transfer unit”     | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: to return the abnormal banknotes to the user via the bundle insertion unit.</p> <p>Structure: guide walls, transfer rollers, and a driving motor.</p> |
| “an authentic cheque transfer unit”             | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: transfer at least one authentic cheque verified by the verifying unit.</p> <p>Structure: guide walls, transfer rollers, and a driving motor.</p>      |
| “an authentic cash transfer unit”               | <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: transfer authentic banknotes other than</p>   |

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|  |  |
|--|--|
|  | <p>cheques verified by the verifying unit.</p> <p>Structure: guide walls, transfer rollers, and a driving motor.</p> |
|--|--|

See Resps. Br. at 37-39.

**B. Infringement Analysis of the '235 Patent**

As discussed above, complainants assert independent apparatus claim 1 and dependent claims 2, 3, 6, 8, and 9 of the '235 patent. See Compls. Br. at 52-107.

Complainants argue: "Diebold directly infringes claims 1, 2, 3, 6, 8, and 9 by making, using, and selling the ATM products identified below. Diebold also contributorily infringes those same claims via its importation of CCDMv2 modules, including, e.g., the upper units, lower units, cassettes, thereof." Compls. Br. at 51.

**1. Applicable Law**

**a. Direct Infringement**

Under 35 U.S.C. §271(a), direct infringement consists of making, using, offering to sell, or selling a patented invention without consent of the patent owner. The complainant in a section 337 investigation bears the burden of proving infringement of the asserted patent claims by a "preponderance of the evidence." *Certain Flooring Products*, Inv. No. 337-TA-443, Comm'n Notice of Final Determination of No Violation of Section 337, 2002 WL 448690, at \*59, (Mar. 22, 2002); *Enercon GmbH v. Int'l Trade Comm'n*, 151 F.3d 1376 (Fed. Cir. 1998).

Literal infringement of a claim occurs when every limitation recited in the claim appears in the accused device, *i.e.*, when the properly construed claim reads on the

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accused device exactly.<sup>17</sup> *Amhil Enters., Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1562 (Fed. Cir. 1996); *Southwall Tech. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed Cir. 1995).

If the accused product does not literally infringe the patent claim, infringement might be found under the doctrine of equivalents. “Under this doctrine, a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention.” *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 21 (1997) (citing *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 609 (1950)). “The determination of equivalence should be applied as an objective inquiry on an element-by-element basis.”<sup>18</sup> *Id.* at 40.

“An element in the accused product is equivalent to a claim limitation if the differences between the two are insubstantial. The analysis focuses on whether the element in the accused device ‘performs substantially the same function in substantially the same way to obtain the same result’ as the claim limitation.” *AquaTex Indus. v. Techniche Solutions*, 419 F.3d 1374, 1382 (Fed. Cir. 2005) (quoting *Graver Tank*, 339 U.S. at 608); *accord Absolute Software*, 659 F.3d at 1139-40.<sup>19</sup>

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<sup>17</sup> Each patent claim element or limitation is considered material and essential. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991). If an accused device lacks a limitation of an independent claim, the device cannot infringe a dependent claim. See *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1552 n.9 (Fed. Cir. 1989).

<sup>18</sup> “Infringement, whether literal or under the doctrine of equivalents, is a question of fact.” *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1130 (Fed. Cir. 2011).

<sup>19</sup> “The known interchangeability of substitutes for an element of a patent is one of the express objective factors noted by *Graver Tank* as bearing upon whether the accused

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Prosecution history estoppel can prevent a patentee from relying on the doctrine of equivalents when the patentee relinquished subject matter during the prosecution of the patent, either by amendment or argument. *AquaTex*, 419 F.3d at 1382. In particular, “[t]he doctrine of prosecution history estoppel limits the doctrine of equivalents when an applicant makes a narrowing amendment for purposes of patentability, or clearly and unmistakably surrenders subject matter by arguments made to an examiner.” *Id.* (quoting *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1344 (Fed. Cir. 2005)).

**b. Indirect Infringement: Contributory Infringement**

Section 271(c) of the Patent Act provides: “Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer. 35 U.S.C. § 271(c).

Section 271(c) “covers both contributory infringement of system claims and method claims.”<sup>20</sup> *Arris*, 639 F.3d at 1376 (footnotes omitted). To hold a component

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device is substantially the same as the patented invention. Independent experimentation by the alleged infringer would not always reflect upon the objective question whether a person skilled in the art would have known of the interchangeability between two elements, but in many cases it would likely be probative of such knowledge.” *Warner-Jenkinson*, 520 U.S. at 36.

<sup>20</sup> “Claims which recite a ‘system,’ ‘apparatus,’ ‘combination,’ or the like are all analytically similar in the sense that their claim limitations include elements rather than method steps. All such claims can be contributorily infringed by a component supplier.” *Arris*, 639 F.3d at 1376 n.8.

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supplier liable for contributory infringement, a patent holder must show, *inter alia*, that (a) the supplier's product was used to commit acts of direct infringement; (b) the product's use constituted a material part of the invention; (c) the supplier knew its product was especially made or especially adapted for use in an infringement" of the patent; and (d) the product is not a staple article or commodity of commerce suitable for substantial noninfringing use. *Id.*

**2. Accused Products and Importation**

Complainants argue: "Diebold directly infringes claims 1, 2, 3, 6, 8, and 9 by making, using, and selling the ATM products identified below. Diebold also contributorily infringes those same claims via its importation of CCDMv2 modules including, e.g., [ ]." Compls. Br. at 52 (citations omitted).

Complainants argue:

The Diebold Accused Products are the ActivMedia versions of Diebold's 77xx products (7700, 7780, 7790) and its Diebold 9900 ActivMedia sidecar. The evidence establishes how Diebold assembles each of the accused ActivMedia ATM products—the ATMs discuss above—at issue in this case at its facility in Greensboro, NC. Diebold sells such products assembled in its Greensboro facility to various customers in the United States, and delivers the same products to such customers.

Diebold acquires [ ]

[ ] in Greensboro, at which point Diebold is engaged in the manufacture (and, subsequently, sale) of a patented article. Diebold sells Accused Products assembled in its Greensboro facility to various customers in the United States, and delivers Accused Products to such customers.

Compls. Br. at 52-53 (citations omitted).

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As noted by complainants, the Diebold Accused Products (hereinafter, “Accused Products”) are the ActivMedia versions of Diebold’s 77xx products (7700, 7780, 7790) and its Diebold 9900 ActivMedia sidecar. *See* Compl. Br. at 4-5, 52-53; CX-0274C (Howard WS) at Q/A 313; CX-0182C (Diebold 7500 Spec Sheet) at NH\_989-00068619; CX-0185C (Diebold 7700 Spec Sheet) at NH\_989-00068621. The evidence shows how Diebold assembles each of the accused ActivMedia ATM products (the ATMs discussed above) at issue in this investigation at its facility in Greensboro, North Carolina. *See* Cameron Tr. 423, 427. Diebold sells such products assembled in its Greensboro facility to various customers in the United States, and delivers the same products to such customers. *See* CX-0274C (Howard WS) at Q/A 350; CX-0269C (Cameron Dep. Tr.) 32, 98-100, 130-131; *see also* CPX-0007C (Spreadsheet, Cameron Ex. 6); CPX-0009C (Spreadsheet, Cameron Ex. 8); CX-0270C (Neiding Dep. Tr.) 85-91; CX-0119C (Spreadsheet (Neiding Dep. Ex. 2)) and CPX-0002C (ActiveMedia spreadsheet); CX-0120C (Spreadsheet, Neiding Ex. 3); CX-0121C (Spreadsheet, Neiding Ex. 4); CX-0122C (Spreadsheet, Neiding Ex. 5); CX-0128C (Spreadsheet, Neiding Ex. 11).

Diebold [ ], imports them into the United States, and incorporates them into the accused ATM products at its facility in Greensboro, at which point Diebold is engaged in the manufacture (and, subsequently, sale) of the Accused Products. *See* CX-0274C (Howard WS) at Q/A 351; Cameron Tr. 418 (agreeing that [ ] of Diebold 77XX’s sold in 2015 included a CCDMv2); 420 ([ ] of Diebold 77XX’s sold in 2016 included a CCDMv2); CX-0269C (Cameron Dep. Tr.) at 17, 69-70. Diebold sells Accused Products assembled in its

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Greensboro facility to various customers in the United States, and delivers Accused Products to such customers. *See* Cameron Tr. 418-420.

**Respondents' Arguments Concerning Jurisdiction and Importation**

Respondents argue that the Commission lacks jurisdiction over the accused products because they are not imported. *See* Resps. Br. at 4.

With respect to jurisdiction, respondents argue:

The Accused Products in this investigation are Diebold ATMs with ActivMedia technology sold in the United States. Specifically, Hyosung accused Diebold of infringement by the importation of the Diebold 7500, Diebold 7550, Diebold 7700, Diebold 7780, Diebold 7790, and Diebold 9900 (the "Accused Products").

The Commission has *in rem* jurisdiction when infringing articles are imported, sold for importation, or sold within the United States after importation by the owner, importer, or consignee. 19 U.S.C. § 1337(a)(1)(B). But the Commission only has jurisdiction over imported articles or components thereof to the extent those articles or components thereof infringe the asserted patent. It is well-established Commission law that for a violation under 19 U.S.C. § 1337(a)(1)(B)(i) based on patent infringement, the articles must infringe at the time of importation. *Certain Elec. Devices with Image Processing Sys., Components Thereof, and Associated Software*, Inv. No. 337-TA-724, Comm'n Op. at 13-14 (Dec. 21 2011) ("We also interpret the [statutory] phrase 'articles that – infringe' to reference the status of the articles at the time of importation. Thus, infringement, direct or indirect, must be based on the articles as imported to satisfy the requirements of section 337."). This is true, as is the case here, of device claims where specific limitations are not met by the Accused Products that are imported. *Certain Products Containing Interactive Program Guide and Parental Control Technology ("Interactive Program Guide")*, Inv. No. 337-TA-845, Initial Determination at 39 (July 2, 2013), *aff'd* relevant part, Comm'n Op. at 12 (Dec. 11, 2013).

But the Accused Products have never been imported into the United States, by Diebold, or anyone else. On the contrary, they are assembled in the United States from hundreds of parts, many of which are off the shelf and domestically sourced. Thus, the Commission does not have *in rem* jurisdiction over the Accused Products and the jurisdiction of

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the Commission here is limited to the specific components Hyosung has identified as being imported by Diebold.

Resps. Br. at 4-5 (certain citations omitted).

Concerning importation, respondents argue:

As noted above, the Accused Products in this investigation are Diebold ATMs that are not imported into the United States. Hyosung argues that the Accused Products “principally utilize imported parts”, but this claim is not true. Diebold provided the sourcing location to the extent available for the constituent parts for all the Accused Products. Diebold witness Shannon Cameron walked through these documents in her witness statement, explaining how these sourcing documents show the source of each part for the Accused Products. Each sourcing document shows that the majority of parts for the Accused Products are domestically sourced. For example, the sourcing document for the Diebold 7780 reveals that 77% (365 of 472 parts) with known sourcing were sourced in the United States. Likewise, the Diebold 7790 uses 78% domestic parts (367 of 468). In fact, all of the Accused Products are principally made of domestically-sourced parts. Thus, Hyosung’s allegation that the Accused Products “principally use[]” imported parts is false.

This is far from the situation in *Certain Multiple Mode Outdoor Grills and Parts Thereof*, where some respondents unsuccessfully argued that products imported in an unassembled state do not infringe an apparatus claim. Inv. No. 337-TA-895, Initial Determination at 60-63 (Sept. 24, 2014), *unreviewed in relevant part*, Comm’n Op. (Feb. 20, 2015). Here, only 23% of the parts of the Accused Products are imported.

Hyosung is required to point to imported components that infringe, directly or indirectly, as imported. *Certain Electronic Devices*, Inv. No. 337-TA-724, Comm’n Op. at 13-14 (Dec. 21, 2011) (“We also interpret the [statutory] phrase ‘articles that – infringe’ to reference the status of the articles at the time of importation. Thus, infringement, direct or indirect, must be based on the articles as imported to satisfy the requirements of section 337.”). Importantly, Hyosung does not accuse any component or combination of components of the Accused Products of directly infringing the Kwak patent, which is fatal to Hyosung’s allegations of direct infringement for several claims. Even taking the sum of the components that are foreign sourced, which are not necessarily imported by Diebold, the result falls well short of anything that resembles the Accused Product.

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Knowing it cannot substantiate a Section 337 violation based on direct infringement by the Accused Products, Hyosung resorts to a contributory infringement claim based on the importation of the CCDM V2 module. The CCDM V2 module is not merely imported in a disassembled state: it is imported in several components that make up only partial assembly of the functional device that is accused of contributory infringement. Moreover, the CCDM V2 as imported lacks the necessary components for it to operate to accept any notes, transfer notes, or deposit notes. The imported components lack the pieces needed to install the CCDM into the ATM, as well as the critical Mayfair software, that controls all relevant operations of the device, including whether to allow mixed-bundle deposits, and where to route checks and cash. The Mayfair software is locally sourced and installed in the United States.

Resps. Br. at 39-41 (certain citations and footnotes omitted).

\* \* \*

Contrary to respondents' arguments, respondents' importation of CCDMv2 modules establishes Commission jurisdiction. As discussed below, respondents' importation of CCDMv2 modules is an act of contributory infringement. Its subsequent manufacture, offer for sale, and sale of finished ATMs containing those modules are acts of direct infringement. Such action is sufficient to invoke Commission jurisdiction over both the imported CCDMv2 modules and the ATMs that contain them.

Both the Commission and the Federal Circuit have recognized the Commission's authority to block importation of goods found to be contributorily infringing, as well as to block subsequent post-importation sale of directly-infringing goods that incorporate those contributorily-infringing products. *See Suprema, Inc. v. Int'l Trade Comm'n*, 796 F.3d 1338, 1347-1349, 1352 (Fed. Cir. 2015) (en banc).

In *Suprema*, the Federal Circuit provided its reasoned discussion concerning importation and post-importation activities:

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Moreover, *Suprema* has not shown that the phrase “articles that infringe” has a clearly established usage limited to product claims or to direct or contributory infringement, much less a usage that excludes induced infringement of a method claim. To the contrary, various forms of shorthand references to devices that infringe have often been used without such narrowed meaning. We therefore cannot conclude that Congress, in using the Section 337 phrase, did so with an unambiguous meaning for how it applies to § 271.

Citing the present-tense use of the verb “infringe” in the phrase “articles that infringe,” the panel suggested that Section 337 must exclude inducement of post-importation infringement because the acts that complete infringement have not all taken place at the time of importation. *Suprema*, 742 F.3d at 1358. It is true that the direct infringement required for inducement, *see Limelight Networks, Inc. v. Akamai Techs., Inc.*, — U.S. —, 134 S.Ct. 2111, 2117 & n. 3, 189 L.Ed.2d 52 (2014), will typically not have taken place at the time of the importation that induces it. Yet we cannot conclude that Congress unambiguously excluded such induced infringement on the basis of the panel’s reasoning.

For contributory infringement, as for inducement, direct infringement is necessary and will typically take place later than the accused indirect infringer’s act. *See Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 341, 81 S.Ct. 599, 5 L.Ed.2d 592 (1961). The panel recognized that Section 337 could fairly reach contributory infringement. *See, e.g., Suprema*, 742 F.3d at 1361, n. 4. As that recognition confirms, Section 337’s present-tense language is readily susceptible to being read as satisfied by the indirect infringer’s own acts, including importation that is part of inducement or contribution. *See National Presto Indus., Inc. v. West Bend Co.*, 76 F.3d 1185, 1194–96 (Fed.Cir.1996) (inducing act must occur after patent issues to support inducement liability; not enough that induced act occurs after issuance); *Standard Oil Co. v. Nippon Shokubai Kagaku Kogyo Co., Ltd.*, 754 F.2d 345, 348 (Fed.Cir.1985) (“[L]iability [arises] as of the time the [inducing] acts were committed, not at some future date determined by the acts of others.”) (emphasis omitted).

Reading the statute unambiguously to require that infringement occur at the time of importation would have produced absurd results under the pre-1994 version of § 271(a). Such a reading would mean that Congress, when it enacted the language at issue in 1988, excluded even the ordinary case of direct infringement. At that time (before 1994), § 271(a) did not define importing a patented invention (or the offer to sell a patented invention) an infringing act. Section 271(a) only covered making, using, and selling, and those actions had to occur in the United States. 35 U.S.C. § 271(a) (1988). At least for ordinary importations involving goods that enter the United

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States for a later use or sale, none of the activities encompassed by the former § 271(a) would have occurred in the United States at the time of importation. If Congress meant to forbid the Commission from looking past the time of importation in defining Section 337's reach, Section 337 would not have reached even garden-variety direct infringement. Even if Section 337(a)(1)(B)'s clause covering post-importation sales allowed assessment of infringement after importation, Section 337 would not have covered the ordinary case of post-importation use without post-importation sales. We cannot attribute that result to Congress.

The panel also reasoned that Section 337's remedial provision allowing for an exclusion order demonstrates that Section 337's "focus is on the infringing nature of the articles *at the time of importation.*" *Suprema*, 742 F.3d at 1358–59 (emphasis added). Section 337 refers to the Commission's authority to issue an exclusion order against "the articles concerned." *Id.* at 1359 (quoting Section 337(d)(1)). The panel asserted that the "articles concerned" "would be, of course, the aforementioned 'articles that ... infringe a valid and enforceable United States patent.'" *Id.* (quoting Section 337(a)(1)(B)(i)). The panel thus interpreted Section 337 subsections (d)(1) and (a)(1)(B)(i) as referring to the same "articles."

The panel's reasoning evidences a misunderstanding of enforcement statutes like Section 337. The "articles" of subsections (a) and (d)(1) are not the same. Subsection (a) defines unfair trade acts. When the Commission determines that one of these unfair trade acts has occurred, it provides injunctive relief to prevent future unfair trade acts according to subsection (d)(1). An exclusion order issued under subsection (d)(1) does not affect the articles that gave rise to the unfair trade act, *e.g.*, the "articles that infringe." Those articles have already been imported, and thus cannot be excluded from entry into the U.S. Rather, like all forms of injunctive relief, an exclusion order prevents future illegal acts from occurring by, for example, preventing similar articles from entering the U.S.

Accordingly, we hold that Congress has not directly answered whether goods qualify as "articles that infringe" when the Commission has found that an importer used such goods, after importation, to directly infringe at the inducement of the goods' seller.

*Suprema*, 796 F.3d at 1347-1349 (footnotes omitted) (emphasis added).

The Federal Circuit provided additional reasoning:

The technical interpretation adopted by the panel weakens the Commission's overall ability to prevent unfair trade acts involving infringement of a U.S. patent. The panel's interpretation of Section 337

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would eliminate relief for a distinct unfair trade act and induced infringement. There is no basis for curtailing the Commission's gap-filling authority in that way. Indeed, the practical consequence would be an open invitation to foreign entities (which might for various reasons not be subject to a district court injunction) to circumvent Section 337 by importing articles in a state requiring post-importation combination or modification before direct infringement could be shown.

*Suprema*, 796 F.3d at 1352 (emphasis added).

The Federal Circuit concluded: "We hold that the Commission's interpretation that the phrase 'articles that infringe' covers goods that were used by an importer to directly infringe post-importation as a result of the seller's inducement is reasonable." *Suprema*, 796 F.3d at 1352-1353. Thus, it is clear that the Commission has the authority to block importation of goods found to be contributorily infringing, as well as to block subsequent post-importation sale of directly-infringing goods that incorporate those contributorily-infringing products.

### **3. Direct Infringement**

As discussed above, complainants assert independent apparatus claim 1 and dependent claims 2, 3, 6, 8, and 9 of the '235 patent. *See* Compls. Br. at 52-107.

Asserted claims 1, 2, 3, 6, 8, and 9 of the '235 patent read as follows:

1. A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque, the apparatus comprising:
  - a bundle insertion unit configured to receive the bundle of banknotes from a user;
  - a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval;

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a main transfer unit coupled to the bundle separator and configured to horizontally transfer the individual sheets of the banknotes along a main transfer path;

a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors;

an abnormal sheet branch transfer unit having an abnormal sheet branch transfer path branched from the main transfer path, the abnormal sheet branch transfer unit configured to transfer abnormal banknotes verified by the verifying unit;

a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path;

an abnormal sheet unloading transfer unit coupled to the first gate, the abnormal sheet unloading unit having an abnormal sheet unloading transfer path and configured to return the abnormal banknotes to the user;

an authentic cheque transfer unit coupled to an end of the main transfer path, the authentic sheet transfer unit having an authentic cheque transfer path and configured to transfer at least one authentic cheque in the bundle of banknotes verified by the verifying unit;

an authentic cash transfer unit coupled to the end of the main transfer path, the authentic cash transfer unit having an authentic cash transfer path and configured to transfer authentic banknotes other than cheques verified by the verifying unit;

a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer unit to the authentic cash transfer path;

an authentic cheque storage cassette coupled to the authentic cheque transfer unit, the authentic cheque storage cassette configured to store therein the at least

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one authentic cheque transferred by the authentic cheque transfer unit;

an authentic cash storage cassette coupled to the authentic cash transfer unit and configured to store therein the authentic banknotes other than cheques transferred by the authentic cash transfer unit;

a cheque standby unit placed in the main transfer path between the first gate and the second gate, the cheque standby unit configured to hold the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque; and

a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.

**2.** The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path.

**3.** The apparatus of claim 1, wherein the verifying unit includes:

a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes;

a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes;

a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes; and

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an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque.

**6.** The apparatus of claim 1, further comprising:

a memory configured to store various information acquired by the verifying unit;

a communication controller configured to communicate with a host computer connected therewith;

a central controller configured to control the memory, the depositing controller, and the communication controller;

a user input unit configured to receive information from the user;

a deposit display unit configured to display information to the user; and

a receipt output unit configured to output a receipt to the user.

**8.** The apparatus of claim 1, further comprising:

an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path,

wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit.

**9.** The apparatus of claim 1, further comprising:

an authentic cash temporary storage provided at a rear end side of the authentic cash transfer path and configured to stack and temporarily hold the authentic banknotes other than cheques transferred along the authentic cash transfer path,

wherein the authentic cash storage cassette is configured to store a bundle of the stack of authentic banknotes other than cheques held by the authentic cash temporary storage.

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JX-0001 ('235 Patent) at col. 9, ln. 58 – col. 10, ln. 65; col. 10, ln. 66 – col. 11, ln. 15; col. 11, ln. 23 – col. 12, ln. 2; col. 12, lns. 12-32.

**a. Independent Claim 1**

For the reasons discussed below, complainants have shown that the accused products infringe asserted independent claim 1.

**Limitation 1[preamble]. “A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque”**

As discussed above in the claim construction section, the administrative law judge determined that (1) the claim term “banknotes” should be construed to mean “cash, checks, or both cash and checks”; and (2) the claim term “a bundle of banknotes including at least one cheque” should be given its plain and ordinary meaning, *i.e.*, the bundle of banknotes must include at least one check. Thus, an apparatus that processes a bundle of checks or a mixed bundle including at least one check would satisfy the limitation. Under the correct claim construction of the disputed terms, the Accused Products practice this limitation. The evidence shows that the Accused Products satisfy this limitation. For example, documentary evidence shows that the Accused Products are ATMs equipped with functionality, such as a CCDMv2 module, for receiving a bundle of banknotes including at least one check. *See* CX-0274C (Howard WS) at Q/A 361-63; CX-0117C (Wincor Nixdorf CCDM V2 Service Manual); CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005346.

Additionally, the Accused Products are ATMs with functionality for receiving and depositing a mixed bundle of cash and checks. That is, they are equipped to receive

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[  
]. See CX-0274C Howard  
WS at Q/A 358-60; CX-0163C (Wincor Nixdorf CCDMv2 Service Manual) at  
989DBITC0004711; CX-0163C (Wincor CCDMv2 Service Manual) at  
989DBITC0004715; CX-0117C (Wincor CCDMv2 Service Manual) at WN019256; CX-  
0115C (Wincor CCDMv2 OEM Service Manual) at 989DBITC0005333. Respondents'  
witnesses confirm this aspect of the Accused Products' operation. See Dunlap Tr. 380;  
CX-0268C (Dunlap Dep. Tr.) at 88.

**Limitation 1[a]. "a bundle insertion unit configured to receive the bundle of banknotes from a user"**

As discussed above in the claim construction section, the administrative law judge determined that the claim term "a bundle insertion unit" should be construed to mean "a unit for the deposit or receipt of a bundle of banknotes," wherein banknotes are cash, checks, or both cash and checks. Under this correct claim construction of the disputed term, the Accused Products practice this limitation.

The Accused Products practice this limitation because they include an [ ], which is configured to receive a bundle of mixed banknotes from a user. Each Accused Product has an [ ] that allows a user to deposit a bundle of cash, checks, or both cash and checks. See CX-0274C (Howard WS) at Q/A 368. The document bundles entered into the [

]. See CX-0186C (Diebold ActivMedia Spec Sheet) at NH\_989-00068616; CX-0182C (Diebold 7500 Spec Sheet) at NH\_989-00068619; CX-0185C (Diebold 7700 Spec Sheet) at NH\_989-00068621; CX-0164C (MMA Module

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Overview) at 989DBITC0004350. Depictions of the transport paths that inserted media takes through the CCDMv2 show the media bundle being received at the [ ]. *See e.g.*, CX-0274C (Howard WS) at Q/A 365; CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005348 and 5426; CX-0163C (Wincor Nixdorf CCDM V2 Service Manual) at 989DBITC0004773; CX-0164C (MMA Module Overview) at 989DBITC0004350.

The evidence cited above also demonstrates that the Accused Products satisfy that limitation under Hyosung's proposed construction. *See* CX-0274C (Howard WS) at Q/A 367.

In the event the Commission agrees with respondents that the disputed claim term "a bundle insertion unit" is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy limitation 1[a]. The Accused Products' [ ] (discussed above) performs the same function using the same structures identified in the '235 patent corresponding to this limitation. *See* CX-0274C (Howard WS) at Q/A 369. The cash slot in the [ ] of the CCDMv2 performs the function of "receiving the bundle of banknotes from a user," using the structure (or equivalent, insubstantially-different structure) identified in the '235 patent, including an [ ]. *See* CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005346 and 5348.

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**Limitation 1[b]. “a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a bundle separator” should be given its plain and ordinary meaning. Additionally, the administrative law judge has determined that the claim term “coupled to” should be given its plain and ordinary meaning, and the plain and ordinary meaning of that claim term is “operatively connected either directly or indirectly.”

The Accused Products practice this limitation. The Accused Products each include a [redacted]. After a bundle of mixed banknotes is inserted into [redacted], the bundle separator centers the bundle and separates the bundle, [redacted]. See CX-0190C (Opteva Project); CX-0164C (MMA Module Overview) at 1; CX-0163C (Wincor Nixdorf CCDM V2 Service Manual) at 989DBITC000479. The bundle separator is coupled to the bundle insertion unit (*i.e.*, [redacted]). See CPX-0005C (ActivMedia Overview) at 989DBITC0071434.

Additionally, the transfer of notes occurs [redacted] and maintains a [redacted]. The documentary evidence, such as CX-0138C (Wincor Nixdorf CCDM V2 Description & Device Specification) at 989DBITC003862, Dr. Howard’s testing (CX-0274C (Howard WS) at Q/A 371), and respondents’ witnesses confirm this fact. See Hagen Tr. 438-440; *see also* CX-0271C (Hagen Dep. Tr.) at 31-33.

Further, to the extent [redacted] of the Accused Products is held not to literally practice this limitation under respondents’ construction, the

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limitation is practiced by equivalence, *i.e.*, [ ] performs the same function (separating the bundle of banknotes into individual sheets and transferring each individual sheet with a predetermined time interval) in the same way ([ ] with the same result ([ ] as required by the limitation under respondents' interpretation. *See* CX-0274C (Howard WS) at Q/A 374.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms "bundle separator" and "bundle insertion unit" are means-plus-function elements, the evidence nonetheless shows that the Accused Products satisfy limitation 1[b].

Should § 112, ¶ 6 apply, the Accused Products' separation unit performs the same function using the same structure as the structures identified above in the '235 patent corresponding to this limitation. The separation unit in the [ ] of the CCDMv2 performs the function of "separating the bundle of banknotes received at the bundle insertion unit into individual sheets and transferring each of the individual sheets with a predetermined time interval" and does so using the structure (or equivalent, insubstantially different structure) identified in the '235 patent (*i.e.*, a separator coupled to the bundle insertion unit). *See* CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019414-16. To the extent the [ ] is held to not be literally identical to the structure identified in the '235 patent, the [

] is equivalent, *i.e.*, it performs the same function (separating the bundle of banknotes received at the bundle insertion unit into individual sheets and transferring each of the individual sheets with a predetermined time interval) in the same way ([

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]). *See generally* CX-0274C (Howard WS) at Q/A 375.

Infringement analysis for the disputed claim term “bundle insertion unit” was discussed above in the section concerning limitation 1[a]. *See* CX-0274C (Howard WS) at Q/A 376.

**Limitation 1[c]. “a main transfer unit coupled to the bundle separator and configured to horizontally transfer the individual sheets of the banknotes along a main transfer path”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a main transfer unit” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products include a main transfer path comprising transfer channels, belts, rollers, and wheels. The main transfer path is driven by one or more motors within the Accused Products. Further, the main transfer path is coupled to the bundle separator in the [ ]. Lastly, the main transfer path in the Accused Products transfers the banknotes in a horizontal or substantially horizontal manner. *See* CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019328; *see also* CX-0274C (Howard WS) at Q/A 378.

To the extent the Accused Products do not literally practice this limitation, they practice it under the doctrine of equivalents. The Accused Products perform substantially the same function (*i.e.*, transferring each banknote along the transfer path), in substantially the same way (*i.e.*, the transfer path is horizontal or substantially horizontal for a substantial portion of the transfer path), with substantially the same result (*i.e.*,

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transferring each individual banknote through the device for deposit processing). *See* CX-0274C (Howard WS) at Q/A 380.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms “main transfer unit” and “bundle separator” are means-plus-function elements, the evidence nonetheless shows that the Accused Products satisfy this limitation.

Under the application of § 112, ¶ 6, the Accused Products’ main transfer path performs the same function using the same structure (or equivalent, insubstantially-different structures) as the structures identified above in the ‘235 patent corresponding to this limitation. The transfer path of the Accused Products uses the same structures identified in the ‘235 patent—[

] to drive the banknote—to perform the same function—

“horizontally transferring the individual sheets of the banknotes along a main transfer path.” *See* CX-0274C (Howard WS) at Q/A 382; CX-0117C (CCDM V2 Service Manual) at WN019302-03, 9338, 9345-9350); CX-0138C (CCDM V2 Specification) at 989DBITC003859.

To the extent the Accused Products’ main transfer path is held to not be literally identical to the structure identified in the ‘235 patent, the path is equivalent—*i.e.*, it performs the same function (horizontally transferring the individual sheets of the banknotes along a main transfer path) in the same way ([

] with the same result (substantial horizontal transfer of notes along a main transfer path). *See* CX-0117C (CCDM V2 Service Manual) at WN019302-03; CX-0274C (Howard WS) at Q/A 382.

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Infringement analysis for the disputed claim term “bundle separator” was discussed above in the section concerning limitation 1[b]. *See* CX-0274C (Howard WS) at Q/A 383.

**Limitation 1[d]. “a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim term “a verifying unit” and the claim term “to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused products contain a verifying unit installed on the main transfer path comprised of [

] components in the CCDMv2 module that are configured to verify the authenticity or abnormality of each banknote, produce a verification result indicating the authenticity or abnormality of each banknote, and perform tripartite detection of overlapping sheets in the main transfer unit using three different sensors. *See* CX-0186C (Diebold ActivMedia Spec Sheet) at NH\_989-00068616; CX-0165C (Wincor Nixdorf CCDM V2 Operating Manual) at 989DBITC0003891-92; CX-0163C (Wincor Nixdorf CCDM V2 Service Manual draft) at 989DBITC0004724; CPX-0005C (ActivMedia Module Overview) at 989DBITC0071434; CX-0164C (MMA Module Overview) at 989DBITC0004350.

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The sensors residing in and around the [ ] components of the CCDMv2 module verify the authenticity or abnormality of each sheet in the mixed bundle of banknotes. The CCDMv2 documentation refers to the combination of the [ ]]. *See* CX-0274C (Howard WS) at Q/A 385.

The [ ] contains [ ] for detecting abnormalities in passing media. *See* CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC00005447; *see also id.* at 989DBITC00005451. The [ ] captures an image of the checks and determines whether the sheet is a cash, check, or unfit media. Unfit media may include media other than cash or checks as well as damaged banknotes. The [ ] also contains Hall sensors for [ ]].

Similarly, the [ ] contains a number of sensors for verifying the authenticity or abnormality of the individual banknotes. The [ ] contains a [ ] for verifying the authenticity of checks. *See* CX-0117C (Wincor CCDMv2 Service Manual August 2015) at WN019304; CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC00005346. The CCDMv2's [ ]

] also contains CIS sensors for capturing images [ ]

]. *See* CX-0117C (Wincor CCDMv2 Service Manual August 2015) at WN019304; CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC00005451. The [ ] also contains a [ ]

]. The [ ] contains other sensors, [ ]

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] sensors, and infrared sensors, for verifying the authenticity of each individual banknote. *See generally* CX-0274C (Howard WS) at Q/A 386.

These sensors in and around the Move TCM and Move SB components produce verification results that indicate the authenticity or abnormality of each sheet in the mixed bundle of banknotes. The transmitted light camera in the Move TCM component generates a result indicating whether the banknote is a cash, check, or unfit media. If the Move SB determines that the banknote is not a valid cash or check, it generates a result indicating that the abnormal banknote be transferred to the rejection path. *See* CX-0274C (Howard WS) at Q/A 387.

At least three different sensors in and around the IO unit, Move TCM, and Move SB components perform tripartite detection of overlapping sheets in the main transfer path.

**Ultrasonic Sensor**

The CCDMv2 includes an ultrasonic sensor at the boundary between the I/O unit and the Move TCM. Respondents agree that the ultrasonic sensor detects overlapping notes.

As notes are separated they are transferred from the I/O unit, passed the ultrasonic sensor, and into the Move TCM. As the media passes the ultrasonic sensor, the sensor emits ultrasonic signals that pass through the media and are detected by a receiver on the opposite side. The ultrasonic sensor repeats this process multiple times as the media passes, thus testing multiple sections of the passing sheet. This allows it to detect overlapping notes even when they are not perfectly overlapped (*i.e.*, overlapped at every

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point of measurement). *See* CX-0163C (Wincor Nixdorf CCDM V2 Service Manual) at 989DBITC0004767.

**Hall Sensors**

The CCDMv2 includes [ ] Hall sensors in the [ ]. As notes pass from the [ ] into the [ ], they pass under moveable rollers. *See* CX-0274C (Howard WS) at Q/A 390. As the sheets pass, they [ ]. *Id.* The Hall sensor detects the change and uses it to measure the [ ]. *Id.* If the [ ]

[ ]. *Id.*; *see also* Hagen Tr. 447 (“Q: . . . [

] A: [ ]”) <sup>21</sup>; CX-0332C

(Hagen Dep. Tr.) 33.

**Photo Sensors**

The CCDMv2 includes a number of photo sensors throughout the main transport path, including a number of sensors in the [ ]. One symptom of overlapped notes, particularly when partially overlapped, is that the media will appear “[ ].” *See, e.g.*, Hagen Tr. 442 (“Q: . . . [Y]ou testified that [ ] condition generally describes an overlap of notes, correct? A: Yes, I testified to that.”) <sup>22</sup> The photo

<sup>21</sup> Mr. Hagen wrote errata that in fact substantively altered his testimony. *See generally* CX-0333C (Hagen errata). Mr. Hagen also modified subsequent responses involving the Hall sensors detecting overlapped notes and thickness. *See* Hagen Tr. 448-449.

<sup>22</sup> Mr. Hagen wrote errata to his deposition testimony which substantively altered his testimony, and is directly contradicted by the evidence. Both Dr. Howard and Dr.

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sensors in the CCDMv2 detect “[ ]” conditions by measuring the difference between [ ]

[ ]. See Picone Tr. 469 (agreeing that the CCDMv2 uses photo sensors to generate the [ ]). Using the [ ]

[ ], the system is capable of measuring the [ ]

[ ]. Langhuber Tr. at 372. If the [ ], the system registers an error. See CX-0274C (Howard WS) at Q/A 391; see also Langhuber Tr. 372 (“[ ]

]); CX-0332C (Hagen Dep. Tr.) at 37.

**MICR Sensors**

The CCDMv2 includes MICR sensors for reading the magnetic characters on passing media. Most, if not all, CCDMv2 modules include a [ ] with [ ] the transport path. When two checks are oriented exactly the same and perfectly overlapped their MICR lines could fall directly on top of one another. See CX-0274C (Howard WS) at Q/A 392. In such a situation, the MICR sensors would be unable to read a single MICR line and generate an error. *Id.* Additionally, when two checks are perfectly overlapped but oriented 180 degrees from one another, the [ ] will detect two distinct and legitimate MICR lines. *Id.* The MICR sensors will generate an error in this scenario as well. *Id.*

Further, Dr. Howard performed a personal inspection of a Diebold 7700 equipped with an ActivMedia module, in North Canton, Ohio, on July 21-22, 2016, and has

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Sorenson agree that the CCDMv2 source code uses the [ ] to detect “[ ]” conditions. See CX-0274C (Howard WS) at Q/A 406; Sorensen Tr. 479-480.

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testified in detail how that inspection further confirmed that the Accused Devices practice this limitation in the manner set forth above. *See* CX-0274C (Howard WS) at Q/A 393.

Over the course of that inspection, Dr. Howard confirmed that the unit, in operation, employed multiple sensors in evaluating inserted media, and that at least the four sensors identified by Hyosung were capable of detecting overlap conditions in inserted media.

CX-0274C (Howard WS) at Q/A 394.

Dr. Howard's test protocol need not include documentation (*e.g.*, photographing) of every operation conducted with the inspected device. Inasmuch as his goal was not to establish a quantitative record concerning the machine's performance, but only to confirm which sensors could be used to detect overlap, comprehensive photography was unnecessary.

**Ultrasonic Sensor**

Dr. Howard confirmed the Product's ability to detect overlap conditions in inserted media using at least an ultrasonic sensor. *See id.* at Q/A 397. Dr. Howard inserted a mixed check/cash bundle including "double check" 1001, prepared prior to the inspection, and five unaltered twenty-dollar bills. The Accused Product drew the mixed bundle in via the cash slot and after processing returned double check 1001, via the cash slot, while retaining the five unaltered twenty-dollar bills. The Product's diagnostic screen displayed text indicating that double check 1001 had been rejected due to the condition WRONG\_THICKNESS. *See* CX-0291C (Inspection photograph); CX-0292C (Inspection photograph); CX-0293C (Inspection photograph).

Related to this test, Dr. Howard also reviewed the "Error Stacks" in the Accused Product. The error stacks list errors generated by the product by year, month, day, and

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timestamp. Based on his observations, and on his knowledge of the Accused Products, Dr. Howard concluded that the observed behavior, *i.e.*, detection/rejection of double check 1001, was caused by the ultrasonic sensor (along with various associated logic such as the device software and/or firmware) detecting an overlap condition in double check 1001. *See* CX-0274C (Howard WS) at Q/A 397; *see also* CX-0294C (Inspection photograph); CX-0295C (Inspection photograph); CX-0296C (Inspection photograph).

**Hall Sensors**

Dr. Howard confirmed the Product's ability to detect overlap conditions in inserted media using at least one Hall sensor. Dr. Howard inserted a mixed check/cash bundle including double check 1001, discussed previously, a single, unaltered check, and an unaltered twenty-dollar bill. None of the inserted media had any staples or clips. The Product drew the mixed bundle in via the cash slot and then it returned double check 1001, also via the cash slot. The Product retained the unaltered check and the twenty-dollar bill. After removal of the double check 1001 from the cash slot, the Accused Product's diagnostic screen displayed text indicating that double check 1001 had been rejected due to the condition CLAMP\_DETECTED. *See* CX-0297C (Inspection photograph).

Based on these observations, and on his knowledge of the Accused Products, Dr. Howard concluded that the observed behavior, *i.e.*, detection/rejection of double check 1001, was caused by a Hall sensor (along with various associated logic such as the device software and/or firmware) detecting an overlap condition in double check 1001. In this case, the overlap condition was detected by the sensor detecting that the inserted media had the wrong thickness.

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The error code [ ] indicates that said detection was by a [ ] discussed above. Dr. Howard previously ran this test many times with a single stapled check and received the same error message received due to the presence of a staple. Based on the evidence reviewed and related evidence in this case Dr. Howard testified that the [ ] is the source of the [ ] error code. *See CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019319.* This is consistent with his experience and understanding of the capabilities of Hall sensors and with the record already discussed. *See CX-0274C (Howard WS) at Q/A 398.*

**Photo Sensors**

Dr. Howard confirmed the Product's ability to detect overlap conditions in inserted media using at least one or more photo sensors. Dr. Howard inserted a mixed check and cash bundle including "Partially overlapping" check 1668 and five unaltered twenty-dollar bills. *See CX-0298C (Inspection photograph); CX-0299C (Inspection photograph).* The Product returned partially overlapping check 1668, along with two of the unaltered twenty-dollar bills, also via the cash slot, while retaining three of the unaltered twenty-dollar bills. The Product displayed error text as "[ ]". *See CX-0300C (Inspection photograph); CX-0301C (Inspection photograph).*

Based on these observations, and on his knowledge of the Accused Products, Dr. Howard concluded that the observed behavior, *i.e.*, detection/rejection of partially overlapping check 1668, was caused by one or more photo sensors (along with various associated logic such as the device software and/or firmware) detecting an overlap condition in partially overlapping check 1668. In this case, the overlap condition was

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detected by the photo sensors detecting that the inserted media had greater than the maximum permissible length. Dr. Howard testified that such was consistent with his experience and understanding of the capabilities of photo sensors and with the record already discussed. *Id.*

**MICR Sensors**

Dr. Howard also confirmed the Product's ability to detect overlap conditions in inserted media using at least the MICR heads. *See* CX-0274C (Howard WS) at Q/A 400. Dr. Howard inserted "double check" 2156 into the cash slot. "Double check" 2156 was prepared by adhering two checks in such a way that MICR information was on both long edges. *See* CX-0274C (Howard WS) at Q/A 400. The Accused Product generated an error indicating abnormal MICR information. Based on these observations, and on his knowledge of the Accused Products, Dr. Howard concluded that the observed behavior, *i.e.*, failure of the MICR reading operation, were caused by the MICR heads (along with various associated logic such as the device software and/or firmware) detecting an overlap condition in double check 2156. *See id.* at Q/A 400. In this case, the overlap condition was detected by the MICR heads (along with various associated logic such as the device software and/or firmware) determining that it was impossible to get reliable MICR recognition from the overlapped sheets. *See* CX-0302C (Inspection photograph); CX-0303C (Inspection photograph); CX-0304C (Inspection photograph).

Dr. Howard confirmed that, in some circumstances, the ultrasonic sensor may fail to detect overlapping media, and that such media may reach the MICR heads as well as any other sensors in the path between the cash slot and the escrow. *See id.* at Q/A 402. Dr. Howard inserted a bundle including "partially skewed" check 2118. CX-0305C

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(Inspection photograph); CX-0306C (Inspection photograph). All media was transferred to the Escrow, despite the overlap present in check 2118. *See* CX-0307C (Inspection photograph). The bundle included ten notes, but the Product's counted only nine. *See* CX-0274C (Howard WS) at Q/A 402.

Based on these observations, and on knowledge of the Accused Products, Dr. Howard concluded that the observed behavior, *i.e.*, the product's transport to escrow of all media, including partially-skewed check 2118, demonstrated that the ultrasonic sensor is not a foolproof means of detecting overlap conditions in inserted media. Dr. Howard further concluded that, in the event that the ultrasonic sensor fails to detect an overlap condition in inserted media, the media may reach the MICR heads. *See* CX-0274C (Howard WS) at Q/A 402.

To ensure that the above tests were repeatable, Dr. Howard ran additional tests with double checks 1001, 2156, 2118. CX-0308C (Inspection photograph); CX-0309C (Inspection photograph). He repeated these test many times, and in most of the runs, these three test "double checks" were successfully placed into escrow. *See* CX-0274C (Howard WS) at Q/A 403.

As mentioned above, checks 2156, 2118 and 2119 generally failed the MICR reader test, when using the "Test MICR-Reader" test mode available in T/SOP. The resulting overlapped check 2119 shows that the account number on the check was improperly read by the MICR sensor. *See* Exhibit CX-0311C (Inspection photograph).

The above tests run over two days on the Diebold ATM in North Canton, Ohio, demonstrated that overlapped banknotes can be identified and detected by three or more different sensors: the ultrasonic double-detect sensor, a Hall sensor, one or more photo-

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[ ] . See CX-0274C (Howard WS) at Q/A 403.

**Source Code**

The source code further confirms infringement. See CX-0274C (Howard WS) at Q/A 404. As previously explained, the accused CCDMv2 module uses at least three different sensors [ ] to perform tripartite detection of overlapping sheets in the main transfer path, including at least the [ ] .

The ultrasonic sensor detects either a [ ]<sup>23</sup> Dr. Sturges and Mr. Langhuber's testimony confirms that the CCDMv2 utilizes [ ] to indicate detecting [ ] . See RX-0409C (Sturges RWS) at Q/A 275-76; RX-0410C (Langhuber RWS) at Q/A 144. Wincor documentation explaining its source code confirms that the ultrasonic sensor is used to detect [ ] . See CX-0274C (Howard WS) at Q/A 405; CPX-0028C (CCDMv2 Source Code) at WNI\_SC00005.

The CCDMv2 source code also includes a file called [ ] that contains a function labeled [ ] . See CPX-0028C (CCDMv2 Source Code) at WNI\_SC00019. The [ ] function is used to determine if the ultrasonic sensor has [ ] . If the [ ]

<sup>23</sup> Dr. Sturges acknowledges that the ultrasonic sensor in the Accused Devices is known as the "[ ] ." See RX-0409C (Sturges RWS) at Q/A 259.

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]. See CX-0274C (Howard WS) at Q/A 405.

The CCDMv2 also includes one or more photo sensors that detect overlapping notes when [ ]” See CPX-0028C

(CCDMv2 source code) at WNI\_SC00012. The source code explains that “[

].” See CPX-0028C (Wincor Source

Code) at WNI\_SC00078. The [ ] contains the function [ ],

which “[ ].” See *id.* at WNI\_SC00023-24.

This function uses the [ ] photo sensor to measure the [ ]. See CX-

0274C (Howard WS) at Q/A 406; *see also* Sorensen Tr. 479. The software measures the

[

]. *Id.* [

].” *Id.* [

].” See CPX-0028C (CCDMv2 Source Code) at

WNI\_SC00024. The system will generate the “[

].” errors. Ultimately, once the media has been detected as

[too long], the system will throw an error. See CX-0274C (Howard WS) at Q/A 406.

\* \* \*

Dr. Sturges’s opinions rebutting Dr. Howard’s testing and describing his own testing are insufficient, at least in part, because they rely on undisclosed conversations

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with Mr. Langhuber. *See* RX-0409C (Sturges RWS) at Q/A 193, 252, 254, 273. Dr. Sturges did not provide details regarding any conversations. Dr. Sturges criticizes Dr. Howard's testing methods. Dr. Sturges fails to support his conclusion that Dr. Howard's test media did not adequately replicate or simulate overlapping conditions. *See* RX-0409C (Sturges RWS) at Q/A 156-68.<sup>24</sup>

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term "verifying unit" is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The Accused Products' separation unit performs the same function using the same structure as the structures identified in the '235 patent corresponding to this limitation. The Accused Products' I/O Unit, Move TCM, and Move SB, containing the ultrasonic sensor, Hall sensors, photo sensors, and MICR sensors, perform the function of "verifying the authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes / producing a verification result indicating the authenticity or abnormality of each of the banknotes / performing tripartite detection of overlapping of the individual sheets using three different sensors" using the same structure as the structures identified in the '235 patent corresponding to this limitation.

The '235 patent recites CIS, MICR, and ultraviolet sensors in the verifying unit. The CCDMv2 contains CIS, MICR, and ultraviolet sensors in the Move SB component

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<sup>24</sup> Dr. Sturges ultimately performed tests on the Accused Product, but (1) he did not test all the cases described by Dr. Howard, including shifted or shingled overlaps, and (2) he did not test his own criticisms against Dr. Howard's methods. *See* RX-0409C (Sturges RWS) at Q/A 169.

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for verifying the authenticity or abnormality of each banknote and produce a verification result. Additionally, the '235 patent discloses detecting overlapped notes using a plural notes detection part, a MICR for detecting magnetic character abnormalities, and CIS sensors for detecting overlaps via measuring the size of the passing media. The CCDMv2 includes [

]. *See generally* CX-0274C (Howard

WS) at Q/A 413. Additionally, the Hall sensors detect overlapped notes based on

[ ]. *Id. See id.* at Q/A 414.

**Limitation 1[e]. “an abnormal sheet branch transfer unit having an abnormal sheet branch transfer path branched from the main transfer path, the abnormal sheet branch transfer unit configured to transfer abnormal banknotes verified by the verifying unit”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an abnormal sheet branch transfer unit” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products each include a [ ] that branches from the main transfer path and transfers notes that have been verified as abnormal by the [ ]. *See id.* at Q/A 416; CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019328-29; CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) 989DBITC0005426; *see also* CX-0164C (MMA Module Overview) at 989DBITC0004350; CX-0115 (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005400.

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Specifically, the Accused Products include a [ ] containing a reject path comprising belts, rollers, and a transfer channel that is driven by one or more. See CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005433. The Accused Products also contain [ ] that routes individual banknotes that have been [ ] from the main transfer path into the [ ] for transfer along the Reject path. See generally CX-0274C (Howard WS) at Q/A 416, 418.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “abnormal sheet branch transfer unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

Should § 112, ¶ 6 apply to this term, the Accused Products meet this limitation using structures that perform the same function of “transferring abnormal banknotes verified by the verifying unit,” and do so using the same structure (or equivalent, insubstantially-different structure) identified above in the ‘235 patent (*i.e.*, an abnormal sheet branch transfer path (*i.e.*, element 114a) having guide walls, transfer rollers, and a driving motor). See generally CX-0274C (Howard WS) at Q/A 421. The Reject transfer path of the Accused Products comprises a transfer channel with guide walls, belts, and driving wheels and one or more motors to drive the banknotes. See generally *id.*

**Limitation 1[f]. “a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path”**

The Accused Products practice this limitation. The Accused Products each include a gate ([ ]), identified as [ ], that routes banknotes

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verified as authentic by the sensors in the verifying unit along the main transfer path and into the [ ] and banknotes verified as abnormal by the sensors in the verifying unit along the Reject transfer path and into the [ ]. See CX-0274C (Howard WS) at Q/A 423-424; see also CX-0165C (CCDM V2 Operating Manual) at 989DBITC0003913; CX-0117C (CCDM V2 Service Manual) at WN019304; CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005402. The [ ] directs notes that have been identified as abnormal, and thus unfit for deposit, to the [ ]. Likewise, the [ ] in the CCDMv2 directs notes that have been identified as authentic, meaning suitable for deposit, along the main transfer path to the [ ].

**Limitation 1[g]. “an abnormal sheet unloading transfer unit coupled to the first gate, the abnormal sheet unloading unit having an abnormal sheet unloading transfer path and configured to return the abnormal banknotes to the user”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an abnormal sheet unloading transfer unit” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products each include a [ ] comprising a Reject transfer path that is connected to the [ ]. See CX-0164C (MMA Module Overview) at 989DBITC0004350; CX-0165C (Wincor Nixdorf CCDM V2 Operating Manual) at 989DBITC0003913. The [ ] includes a [ ] comprising belts, rollers, and a transfer channel that is driven by one or more motors. See CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005530. The transfer path in the [ ] is coupled to the first gate via the transport path that leads from the first gate, along the

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abnormal sheet branch transfer path, and into the [ ]. Banknotes verified as abnormal are routed from the first gate and into the Reject transfer path. The abnormal banknotes are then transferred along the [ ] into the [ ] and returned to the user. *See* CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005348; CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019328-29; CX-0274C (Howard WS) at Q/A 430-31.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “abnormal sheet unloading transfer unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation. The Reject transfer path of the Accused Products comprises the same structures identified in the ‘235 patent, including a transfer channel with guide walls, belts, driving wheels, and one or more motors to drive the banknotes. Such structure performs the same function of “transferring abnormal banknotes verified by the verifying unit” identified in the ‘235 patent. *See* CX-0274C (Howard WS) at Q/A 432-33.

**Limitation 1[h]. “an authentic cheque transfer unit coupled to an end of the main transfer path, the authentic cheque transfer unit having an authentic cheque transfer path and configured to transfer at least one authentic cheque in the bundle of banknotes verified by the verifying unit”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an authentic cheque transfer unit” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products each include a check transfer path comprising transfer channels, belts, rollers, and wheels,

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which are driven by one or more motors within the Accused Products. Further the check transfer path is located at the end of the main transport path. In the Accused Products, an individual banknote that has been verified as an authentic check and confirmed for deposit will be routed into the check transfer path. *See* CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019328-29. *See* CX-0274C (Howard WS) at Q/A 435. The authentic checks are transferred to a [REDACTED]. *See* CX-0165C (Wincor Nixdorf CCDM V2 Operating Manual) at 989DBITC0003891; CX-0164C (MMA Module Overview) at 989DBITC0004350; CX-0163C (Wincor Nixdorf CCDM V2 Service Manual draft) at 989DBITC0004724; CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005404-06. Further, Dr. Howard inspected an Accused Product and verified that the machine does in fact use [REDACTED]. *See* Howard Tr. 339.

Respondents have failed to establish that the CCDMv2 is used in any configuration other than with a [REDACTED]. When given a Diebold ATM to test, Dr. Sturges did not attempt to discover the default operation of the device. Even if the CCDMv2 is used with a different configuration, that is irrelevant. The machine itself would still contain each and every structure necessary to practice the entire claim. *See* CX-0274C (Howard WS) at Q/A 435-38; Dunlap Tr. at 408-409 (“A: Yes, the hardware is the same regardless of how the banks run it.”).

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms “authentic cheque transfer unit” and “a verifying unit” are means-plus-function

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elements, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The authentic check transfer path of the Accused Products performs the same function of “transferring at least one authentic cheque in the bundle of banknotes verified by the verifying unit” using the same structure (or equivalent, insubstantially-different structure) identified in the ‘235 patent (*i.e.*, the technology used in the main transfer path, such as guide walls, transfer rollers, and a driving motor). CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005404-06; CX-0274C (Howard WS) at Q/A 439.

Infringement analysis for the disputed claim term “a verifying unit” was discussed above in the section concerning limitation 1[d].

**Limitation 1[i]. “an authentic cash transfer unit coupled to the end of the main transfer path, the authentic cash transfer unit having an authentic cash transfer path and configured to transfer authentic banknotes other than cheques verified by the verifying unit”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an authentic cash transfer unit” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products each include a cash transfer path comprising transfer channels, belts, rollers, and wheels, which are driven by one or more motors. Further the cash transfer path is located at the end of the main transport path. *See* CX-0117C (CCDM V2 Service Manual) at WN019328-29. The CCDMv2 will transfer authentic cash into the cash transfer path and to a [ J. *See* CX-0274C (Howard WS) at Q/A 442; CX-0165C

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(Wincor Nixdorf CCDM V2 Operating Manual) at 989DBITC0003891; CX-0164C (MMA Module Overview) at 989DBITC0004350; CX-0163C (Wincor Nixdorf CCDM V2 Service Manual draft) at 989DBITC0004724; CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005404-06; CX-0268 (Dunlap Dep. Tr.) at 228.

Respondents failed to establish that the CCDMv2 is used in any configuration other than with a [ ]. When given a Diebold ATM to test, Dr. Sturges did not attempt to discover the default operation of the device. Even if the CCDMv2 is used with a different configuration, that is irrelevant. The machine itself would still contain each and every structure necessary to practice the entire claim. *See* CX-0274C (Howard WS) at Q/A 442-45; Dunlap Tr. 408-409 (“A: Yes, the hardware is the same regardless of how the banks run it.”).

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms “authentic cash transfer unit” and “a verifying unit” are means-plus-function elements, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The Accused Products’ authentic cash transfer unit practices this limitation under a means-plus-function analysis. The authentic cash transfer path of the Accused Products performs the function of “transferring authentic banknotes other than cheques verified by the verifying unit” using the structure identified in the ‘235 patent (*i.e.*, the technology used in the main transfer path, such as guide walls, transfer rollers, and a driving motor). *See* CX-0274C (Howard WS) at Q/A 446; CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005404-06.

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Infringement analysis for the disputed claim term “a verifying unit” was discussed above in the section concerning limitation 1[d]. *See* CX-0274C (Howard WS) at Q/A 447.

**Limitation 1[j]. “a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer unit to the authentic cash transfer path”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a second gate configured to route the at least one cheque transferred by the main transfer unit...” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products each include a gate (also called [     ]) labeled [     ] that routes banknotes verified as authentic checks by the sensors in the verifying unit into the authentic check path and banknotes verified as authentic cash by the sensors in the verifying unit into the authentic cash path. *See* CX-0274C (Howard WS) at Q/A 449-51; CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019328-29; *see also* CX-0165C (CCDM V2 Operating Manual) at 989DBITC0003914; CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005404-06; CX-0117C (CCDM V2 Service Manual) at WN019307-08, WN019320.

**Limitation 1[k]. “an authentic cheque storage cassette coupled to the authentic cheque transfer unit, the authentic cheque storage cassette configured to store therein the at least one authentic cheque transferred by the authentic cheque transfer unit”**

As discussed above in the claim construction section, the administrative law judge has determined that the claim term “coupled to” should be given its plain and ordinary

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meaning, and the plain and ordinary meaning of that claim term is “operatively connected either directly or indirectly.”

The Accused Products practice this limitation. The Accused Products each include a [ ]. See also CX-0165C (Wincor Nixdorf CCDM V2 Operating Manual) at 989DBITC0003891, 3914; CX-0163C (Wincor Nixdorf CCDM V2 Service Manual draft) at 989DBITC0004724. The [ ] is coupled to the end of the authentic check transfer path, which transfers authentic checks into the [ ]. See CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005404; CX-0117C (CCDM V2 Service Manual) at WN019328-29. The evidence shows that one of the [ ] is for checks, and [ ] is for cash.

Respondents have not established that they alter the ActivMedia module to operate in anyway other than indicated by the evidence. When given a Diebold ATM to test, Dr. Sturges did not attempt to discover the default operation of the device. Even under respondents’ hypothetical use case, the machine itself contains each and every structure necessary to practice the entire claim. See CX-0274C (Howard WS) at Q/A 454-57.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “authentic cheque transfer unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation. Infringement analysis for the disputed claim term “authentic cheque transfer unit” was discussed above in the section concerning limitation 1[h]. See CX-0274C (Howard WS) at Q/A 458.

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**Limitation 1 [I]. “an authentic cash storage cassette coupled to the authentic cash transfer unit and configured to store therein the authentic banknotes other than cheques transferred by the authentic cash transfer unit”**

As discussed above in the claim construction section, the administrative law judge has determined that the claim term “coupled to” should be given its plain and ordinary meaning, and the plain and ordinary meaning of that claim term is “operatively connected either directly or indirectly.”

The Accused Products practice this limitation. The Accused Products each include a [ ]. See also CX-0165C (CCDM V2 Operating Manual) at 989DBITC0003891, 3914; CX-0163C (CCDM V2 Service Manual draft) at 989DBITC0004724. The [ ] is coupled to the end of the authentic cash transfer path, which transfers authentic cash into the [ ]. See CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005404; CX-0117C (CCDM V2 Service Manual) at WN019328-29. The evidence shows that [ ] is for checks, and [ ] is for cash.

Respondents have not established that they alter the ActivMedia module to operate in anyway other than depicted by the evidence. When given a Diebold ATM to test, Dr. Sturges did not attempt to discover the default operation of the device. Even in respondents’ hypothetical use case, the machine itself contains each and every structure necessary to practice the entire claim. See CX-0274C (Howard WS) at Q/A 460-63.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “authentic cash transfer unit” is a means-plus-function element, the evidence nonetheless

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shows that the Accused Products satisfy this limitation. Infringement analysis for the disputed claim term “authentic cash transfer unit” was discussed above in the section concerning limitation 1[i]. *See* CX-0274C (Howard WS) at Q/A 464.

**Limitation 1[m]. “a cheque standby unit placed in the main transfer path between the first gate and the second gate, the cheque standby unit configured to hold the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim term “a cheque standby unit” and the claim term “placed in the main transfer path between the first gate and the second gate” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products each include an [ ] that is capable of holding one or more checks. *See* CX-0274C (Howard WS) at Q/A 466. The [ ] is located on the main transfer path after the individual banknotes pass the first gate, meaning it will [ ]].

*Id.* If the deposit is confirmed, the banknotes will leave the [ ] and proceed to the second gate to be routed to their respective [ ]. *Id.* If the deposit is cancelled, the [ ] will transfer the stored banknotes to the Reject transfer path for return to the user. *See* CX-0274C (Howard WS) at Q/A 466-69; CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005426-27; *see also* CX-0163C (CCDM V2 Service Manual draft) at 989DBITC0004717, 4724; CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005348; CX-0165C (CCDM V2 Operating Manual) at 989DBITC0003891; CX-0164C (MMA Module Overview) at 989DBITC0004350.

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In the event the Commission agrees with respondents that the disputed claim term “a cheque standby unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation. As explained previously, the Accused Products include an Escrow unit that is placed on the main transport path, which performs the same function as the structure identified in the ‘235 patent. The [ ] performs the function of “holding the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque,” using the structure (or equivalent, insubstantially-different structure) identified in the ‘235 patent (*i.e.*, a portion of the main transfer path. *See* CX-0274C (Howard WS) at Q/A 472.

**Limitation 1[n]. “a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim term “a depositing controller” and the claim term “individual sheets in the banknotes” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products contain a [ ] that contains the firmware for operating the device. *See* CX-0136C (ATM component image w/ handwritten notes) MP000359. The [ ]

[ ] is connected to the verifying unit via its connection to the [ ] ,

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to the first gate via its connection to the Escrow unit, and to the second gate via its connection through to the distribution unit controller in the lower module. The Master Controller controls the operation of the Accused Products, including transferring banknotes to Escrow or the Reject Path based upon the verification result and transferring banknotes to either the Cash or Check cassette based upon the verifying unit's determination of whether each banknote is a cash or a check. Langhuber Tr. 365 (explaining that the CCDMv2 "include[s] a master controller . . . which controls the operation of the machine"); *see also* CX-0274C (Howard WS) at Q/A 475-77; CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005364, 68, 74; CX-0136C (ATM component image w/ handwritten notes) at MP000359.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term "a depositing controller" is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation. As discussed above, the Accused Products include a Master controller that, like the controller identified in the '235 patent, is specifically configured to control the depositing operations of the CCDMv2. The Master Controller performs the functions recited in this limitation using the same structure (or equivalent, insubstantially-different structure) as the structures identified in the '235 patent corresponding to this limitation (*i.e.*, depositing controller (*i.e.*, element 140 in Fig. 1)). *See* CX-0274C (Howard WS) at Q/A 478.

\* \* \*

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Accordingly, complainants have shown that the Accused Products infringe asserted independent claim 1.

**b. Dependent Claim 2**

Asserted dependent claim 2 of the '235 patent reads as follows:

2. The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path.

JX-0001 ('235 Patent) at col. 10, ln. 66 – col. 11, ln. 2.

As discussed below, the Accused Products practice this claim.

**“The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an auto-alignment unit” should be given its plain and ordinary meaning.

The Accused Products practice this claim. For the reasons already discussed, the Accused Products practice every limitation of claim 1; they also practice the additional limitations of claim 2. *See* CX-0274C (Howard WS) at Q/A 481; CX-0163C (Wincor Nixdorf CCDM V2 Service Manual draft) at 989DBITC0004724; CPX-0005C (ActivMedia Module Overview) at 989DBITC0071434; CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019417-20; CX-0115C (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005436; CX-0166C (Check handling document) at MP000327. The Accused Products contain an alignment unit on the main transfer path after the [ ] component and before the [ ] component, as shown in

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CPX-0005C (ActivMedia Module Overview) at 989DBITC0071434. The Alignment unit aligns the individual banknotes before they pass [ ].

The Accused Products' alignment unit aligns the media to the side wall of the transfer path. *See* CX-0274C (Howard WS) at Q/A 481-83.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “an auto-alignment unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The Accused Products include an alignment unit comprising driving rollers, alignment rollers, and at least one motor. CX-0117C (CCDMv2 Service Manual August 2015) at WN019417-9420 and CX-0115C (CCDMv2 OEM Service Manual) at 989DBITC0005436 depict the rollers and transfer path elements within alignment unit. Further, as explained above, the alignment unit of the Accused Products aligns the individual banknotes as they are transferred along the main transfer path. *See* CX-0274C (Howard WS) at Q/A 485.

\* \* \*

Accordingly, complainants have shown that the Accused Products infringe asserted dependent claim 2.

**PUBLIC VERSION****c. Dependent Claim 3**

Asserted dependent claim 3 of the '235 patent reads as follows:

**3.** The apparatus of claim 1, wherein the verifying unit includes:

a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes;

a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes;

a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes; and

an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque.

JX-0001 ('235 Patent) at col. 11, lns. 3-15.

As discussed below, the Accused Products practice this claim.

**Limitation 3[a]. “a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim term “plural banknotes detection part” and the claim term “based on a thickness of the banknotes” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Move TCM module in the Accused Products includes two Hall (effect) sensors that detect overlapped banknotes by thickness.<sup>25</sup> The Hall sensors detect overlapped banknotes by measuring the attenuation

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<sup>25</sup> Dr. Sturges offered no opinions in response to the Hall sensors within the CCDMv2 satisfying this claim limitation. *See* RX-0409C (Sturges RWS) at Q/A 434-36.

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of [ ]. As media passes through the Hall sensors, the [ ], which changes the magnetic properties.

The sensors detect this change and use it to measure the [ ].

*See* CX-0274C (Howard WS) at Q/A 486-87; CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019305; *see also* CX-0271C (Hagen Dep. Tr.) at 39:15–22.

Further, the Accused Products include an ultrasonic sensor at the border between the [ ] and the [ ]. The ultrasonic sensor is used for [ ]

[ ]. *See* CX-0274C (Howard WS) at Q/A 389. The [ ]

*See id.* at Q/A 488; *see also* RX-0410C (Langhuber RWS) at Q/A 32 (explaining that “[

].”)The Accused Products practice this limitation under any of the parties’ proposed claim construction proposals. *See* CX-0274C (Howard WS) at Q/A 489-91.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a plural banknotes detection part” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

As discussed above, the Accused Products include an ultrasonic sensor and Hall sensors for detecting overlapped media. One skilled in the art would understand that these sensors are in the same category as the sensors described by the patent because they would be used to detect similar characteristics, *i.e.*, thickness, in a similar way, [

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]. These sensors perform the same function recited by the '235 patent; detecting overlapped banknotes based upon thickness. *See* CX-0274C (Howard WS) at Q/A 492.

**Limitation 3[b]. “a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes”**

As discussed above in the claim construction section, the administrative law judge determined that the disputed claim term “banknotes” should be construed to mean “cash, checks, or both cash and checks.” Under the correct claim construction of the disputed term, the Accused Products practice this limitation.

The Accused Products practice this limitation under any of the parties' claim construction proposals. *See* CX-0274C (Howard WS) at Q/A 495. The Accused Products contain a [ ] that comprises [ ] contact image sensors (CIS's) [ ]

[ ], which are used to verify the authenticity of the banknotes. *See* CX-0274C (Howard WS) at Q/A 494-97; CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019304.

**Limitation 3[c]. “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” should be given its plain and ordinary meaning.

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The Accused Products practice this limitation under any of the parties' claim construction proposals. *See id.* at Q/A 500. The CCDMv2 refers to the combination of the [ ] . The [ ] contains a [ ] that captures an image of the media and determines whether the sheet is a cash, check, or unfit media. *See id.* at Q/A 499; CX-0164C (MMA Module Overview) at 989DBITC0004350. Similarly, the [ ] contains other sensors, such as photo sensors and ultraviolet sensors for verifying the authenticity of each individual banknote. *See CX-0274C* (Howard WS) at Q/A 499-502; CX-0117C (Wincor Nixdorf CCDM V2 Service Manual) at WN019304, 426; CX-0164C (MMA Module Overview) at 989DBITC0004350.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

As discussed above with respect to claim element 1[d], the Accused Products' practice this limitation under a means-plus-function analysis. *See CX-0274C* (Howard WS) at Q/A 503-04; *see also CX-0117C* (Wincor Nixdorf CCDM V2 Service Manual) at WN019304.

**Limitation 3[d]. “an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque”**

The Accused Products practice this limitation. The Accused Products includes MICR sensors within the CCDMv2 that are used to verify the authenticity or abnormality

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of banknotes by detecting characteristics of the banknotes. *See* CX-0274C (Howard WS) at Q/A 505-06; CX-0164C (MMA Module Overview) at 989DBITC0004350; CX-0117C (CCDM V2 Service Manual) at WN019304.

The parties do not dispute claim construction as to this limitation. *See* Joint Outline at 2-5; CX-0274C (Howard WS) at Q/A 507.

\* \* \*

Accordingly, complainants have shown that the Accused Products infringe asserted dependent claim 3.

**d. Dependent Claim 6**

Asserted dependent claim 6 of the '235 patent reads as follows:

**6. The apparatus of claim 1, further comprising:**

- a memory configured to store various information acquired by the verifying unit;
- a communication controller configured to communicate with a host computer connected therewith;
- a central controller configured to control the memory, the depositing controller, and the communication controller;
- a user input unit configured to receive information from the user;
- a deposit display unit configured to display information to the user; and
- a receipt output unit configured to output a receipt to the user.

JX-0001 ('235 Patent) at col. 11, ln. 23 – col. 12, ln. 2.

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For the reasons discussed above, the Accused Products practice all limitations of claim 1, from which claim 6 depends. As discussed below, the Accused Products practice all additional limitations of claim 6.

**Limitation 6[a]. “a memory configured to store various information acquired by the verifying unit”**

The Accused Products practice this limitation. The [

]” See CX-0274C (Howard WS) at Q/A 508-09; CX-0138C (CCDM V2 Description & Device Specification) at 989DBITC00003860. One skilled in the art would understand that transmitting this data would necessarily require memory for storing the data at the receiving location. See CX-0274C (Howard WS) at Q/A 510. As [

], that component necessarily includes memory.

**Limitation 6[b]. “a communication controller configured to communicate with a host computer connected therewith”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a communication controller” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused products include a communications controller that communicates with a host computer. Specifically, the CCDMv2 Master Controller Board includes a USB component that is connect to and communicates with a host computer. See Dunlap Tr. 405-406; CX-0274C (Howard WS) at Q/A 512-14; see also CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005364.

**PUBLIC VERSION****means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a communication controller” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

As discussed above, the Accused Products contain a CCDMv2 module connected to the other components of the ATM via a USB connection. Such structure performs the function of “communicating with a host computer” using the same structure (or equivalent, insubstantially-different structure) as the structures identified in the ‘235 patent corresponding to this limitation (*i.e.*, communication controller (*i.e.*, element 146) having a transmitter and a receiver). *See* CX-0274C (Howard WS) at Q/A 517.

**Limitation 6[c]. “a central controller configured to control the memory, the depositing controller, and the communication controller”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a central controller” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The ATM sends command to the CCDMv2 and after processing the mixed bundle of banknotes the CCDMv2 responds back. *See* Dunlap Tr. at 405-406; CX-0115C (CCDM V2 OEM Service Manual) at 989DBITC0005364. Additionally, when the CCDMv2 scans and process the checks and cash, that information is uploaded to the ATM computer for additional validation, as well as the information of the media stored in escrow while the CCDMv2 awaits further instructions regarding whether to deposit the media or return it to the user. *See* CX-0274C (Howard WS) at Q/A 518-21. The Accused Products include a central controller

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that controls the memory, depositing controller, and communications controller within the Products.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms “a central controller” and “a depositing controller” are means-plus-function elements, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The Accused Products include a central controller that performs the function “controlling the memory, the depositing controller, and the communication controller,” using the same structure (or equivalent, insubstantially-different structure) as the structure identified in the ‘235 patent corresponding to this limitation (*i.e.*, central controller 144). *See* CX-0274C (Howard WS) at Q/A 522.

Infringement analysis for the disputed claim term “a depositing controller” was discussed above in the section concerning limitation 1[n]. *See* CX-0274C (Howard WS) at Q/A 523. Infringement analysis for the disputed claim term “a communication controller” was discussed above in the section concerning limitation 6[b]. *See* CX-0274C (Howard WS) at Q/A 524.

**Limitation 6[d]. “a user input unit configured to receive information from the user”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a user input unit” should be given its plain and ordinary meaning.

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The Accused Products practice this limitation. The Accused Products have user input devices, such as a keypad or touchscreen. See CX-0274C (Howard WS) at Q/A 525-28; CX-0182C (Diebold 7500 Spec Sheet) at NH\_989-00068619; CX-0185C (Diebold 7700 Spec Sheet) at NH\_989-00068621.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a user input unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The accused products include keypad or touchscreen that performs the function “receiving information from the user” using the same structure (or equivalent, insubstantially-different structure) as the structure identified in the ‘235 patent corresponding to this limitation (*i.e.*, a key panel and/or a touch panel). See CX-0274C (Howard WS) at Q/A 529 citing CX-0268 (Dunlap Dep. Tr.) at 243.

**Limitation 6[e]. “a deposit display unit configured to display information to the user”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a deposit display unit” should be given its plain and ordinary meaning. The parties do not dispute this. See Joint Outline at 2-5; Resps. Br. at 37-38.

The Accused Products practice this limitation. The Accused products include display screens for displaying information to the user. See CX-0274C (Howard WS) at Q/A 530-33; CX-0182 (Diebold 7500 Spec Sheet) at NH\_989-00068619; CX-0185 (Diebold 7700 Spec Sheet) at NH\_989-00068621.

**PUBLIC VERSION****means-plus-function:**

In the event the Commission agrees with respondents that the claim term “a deposit display unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The accused products include screens for displaying information that perform the function “displaying information to the user,” using the same structure (or equivalent, insubstantially-different structure) as the structure identified in the ‘235 patent corresponding to this limitation (*i.e.*, display unit (*i.e.*, element 150)). *See* CX-0274C (Howard WS) at Q/A 534; CX-0182 (Diebold 7500 Spec Sheet) at NH\_989-00068619; CX-0185 (Diebold 7700 Spec Sheet) at NH\_989-00068621.

**Limitation 6[f]. “a receipt output unit configured to output a receipt to the user”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a receipt output unit” should be given its plain and ordinary meaning. The parties do not dispute this. *See* Joint Outline at 2-5; Resps. Br. at 37-38.

The Accused Products practice this limitation. The Accused products include a receipt printer to print receipts for the user. *See* CX-0274C (Howard WS) at Q/A 535-38; CX-0182 (Diebold 7500 Spec Sheet) at NH\_989-00068619; CX-0185 (Diebold 7700 Spec Sheet) at NH\_989-00068621.

**PUBLIC VERSION****means-plus-function:**

In the event the Commission agrees with respondents that the claim term “a receipt output unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The accused products include a receipt printer that performs the function “outputting a receipt to the user,” using the same structure (or equivalent, insubstantially-different structure) as the structure identified in the ‘235 patent corresponding to this limitation (*i.e.*, receipt output unit (element 152)). *See* CX-0274C (Howard WS) at Q/A 539; CX-0182 (Diebold 7500 Spec Sheet) at NH\_989-00068619; CX-0185 (Diebold 7700 Spec Sheet) at NH\_989-00068621.

\* \* \*

Accordingly, complainants have shown that the Accused Products infringe asserted dependent claim 6.

**e. Dependent Claim 8**

Asserted dependent claim 8 of the ‘235 patent reads as follows:

**8. The apparatus of claim 1, further comprising:**

an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path,

wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit.

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JX-0001 ('235 Patent) at col. 12, Ins. 12-22.

For the reasons set forth above, the accused Products practice each limitation of claim 1, from which claim 8 depends. As discussed below, the Accused Products also practice each additional limitations of claim 8.

**Limitation 8[a]. “an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an authentic cheque incoming unit” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The Accused Products include a [ ] located at the end of the authentic check transfer path. *See* CX-0274C (Howard WS) at Q/A 540-41; CX-0115 (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005405, 5427-28. The authentic checks in the mixed bundle of banknotes are transferred into the [

]. *See* CX-0274C (Howard WS) at Q/A 542. After at least one authentic check in the mixed bundle of banknotes has been transferred to this unit, the [ ] moves the authentic checks into the [ ]. *See* Dunlap Tr. 404-405; CX-0274C (Howard WS) at Q/A 542-44; CX-0115 (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005405, 5427-28.

**PUBLIC VERSION****means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “an authentic cheque incoming unit” is a means-plus-function element, the evidence nonetheless shows that the Accused Products satisfy this limitation.

The accused products include a temporary stacking structure that performs the function “temporarily holding an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path,” using the same structure (or equivalent, insubstantially-different structure) as the structure identified in the ‘235 patent corresponding to this limitation. *See* CX-0274C (Howard WS) at Q/A 546; CX-0115 (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005405, 5427-28.

**Limitation 8[b]. “wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” should be given its plain and ordinary meaning.

The Accused Products practice this limitation. The [ ] in the Accused Products is configured to accept the stack of authentic checks stored in the [ ]. *See* CX-0274C (Howard WS) at Q/A 547; CX-0115 (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005405, 5427-28. As the

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banknotes are processed, the authentic checks are routed and stacked in the temporary storage above the cassette, until a push bar activates that pushes the stack of authentic checks from the temporary storage and into the check cassette for storage. *See* Dunlap Tr. 404-405; CX-0274C (Howard WS) at Q/A 548-50.

\* \* \*

Accordingly, complainants have shown that the Accused Products infringe asserted dependent claim 8.

**f. Dependent Claim 9**

Asserted dependent claim 9 of the '235 patent reads as follows:

**9.** The apparatus of claim 1, further comprising:

an authentic cash temporary storage provided at a rear end side of the authentic cash transfer path and configured to stack and temporarily hold the authentic banknotes other than cheques transferred along the authentic cash transfer path,

wherein the authentic cash storage cassette is configured to store a bundle of the stack of authentic banknotes other than cheques held by the authentic cash temporary storage.

JX-0001 ('235 Patent) at col. 12, lns. 23-32.

For the reasons set forth above, the Accused Products practice each limitation of claim 1, from which claim 9 depends. The Accused Products also practice each of the additional limitations of claim 9.

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**Limitation 9[a]. “an authentic cash temporary storage provided at a rear end side of the authentic cash transfer path and configured to stack and temporarily hold the authentic banknotes other than cheques transferred along the authentic cash transfer path”**

The Accused Products practice this limitation. The Accused Products include a [ ] located at the end of the authentic cash transfer path. The authentic cash in the mixed bundle of banknotes are transferred into the [ ]. See Dunlap Tr. 404-405; CX-0274C (Howard WS) at Q/A 551-56; CX-0115 (CCDM V2 OEM Service Manual) at 989DBITC0005405, 5427-28.

**Limitation 9[b]. “wherein the authentic cash storage cassette is configured to store a bundle of the stack of authentic banknotes other than cheques held by the authentic cash temporary storage”**

The Accused Products practice this limitation. The [ ] in the Accused Products is configured to accept the stack of authentic cash stored in the [ ]. See CX-0274C (Howard WS) at Q/A 557-58; CX-0115 (Wincor Nixdorf CCDM V2 OEM Service Manual) at 989DBITC0005405, 5427-28. Specifically, as the banknotes are processed, the authentic cash is stacked in the [ ], and, when device is ready to move the authentic cash to final storage, a push bar activates that pushes the stack of authentic cash from the [ ] and into the [ ] for storage. See Dunlap Tr. at 404-405; CX-0274C (Howard WS) at Q/A 558-61.

\* \* \*

Accordingly, complainants have shown that the Accused Products infringe asserted dependent claim 9.

**PUBLIC VERSION****4. Indirect Infringement**

Section 271(c) of the Patent Act provides: “Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer. 35 U.S.C. § 271(c).

Section 271(c) “covers both contributory infringement of system claims and method claims.”<sup>26</sup> *Arris*, 639 F.3d at 1376 (footnotes omitted). To hold a component supplier liable for contributory infringement, a patent holder must show, *inter alia*, that (a) the supplier’s product was used to commit acts of direct infringement; (b) the product’s use constituted a material part of the invention; (c) the supplier knew its product was especially made or especially adapted for use in an infringement” of the patent; and (d) the product is not a staple article or commodity of commerce suitable for substantial noninfringing use. *Id.*

**a. Importation**

Complainants argue:

Diebold imports CCDMv2 modules, including [

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<sup>26</sup> “Claims which recite a ‘system,’ ‘apparatus,’ ‘combination,’ or the like are all analytically similar in the sense that their claim limitations include elements rather than method steps. All such claims can be contributorily infringed by a component supplier.” *Arris*, 639 F.3d at 1376 n.8.

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] Diebold has been aware of the '235 patent since no later than February 9, 2016. Any manufacture, use, sale, offer for sale, or importation of the Accused Products, or of the CCDMv2 modules, since was presumptively taken with knowledge that such acts were infringing.

\* \* \*

Any importation by Diebold of the ActivMedia/CCDMv2 module (including software and/or firmware provided with the ActivMedia/CCDMv2), as well as any sale or offer to sell said module, would indirectly infringe each asserted claim of the '235 patent.[ ] This is because the ActivMedia/CCDMv2 forms a material part of the patented invention, is especially made or especially adapted for use in infringement, and has no substantial noninfringing users.

Compls. Br. at 103-04 (citations omitted).

Respondents argue:

Knowing it cannot substantiate a Section 337 violation based on direct infringement by the Accused Products, Hyosung resorts to a contributory infringement claim based on the importation of the CCDM V2 module. The [

]. Moreover, the CCDM V2 [ ] for it to operate to [ ]]. The imported components lack the pieces needed to install the CCDM into the ATM, as well as the [ ], that controls all relevant operations of the device, including whether to allow [ ]. The [ ] in the United States.

Resps. Br. at 41 (citations omitted).

Respondents' arguments concerning importation were addressed above in Section IV.B.2 of this ID.

Moreover, the evidence shows that respondents import CCDMv2 modules, including [ ], for incorporation into Accused Products that they subsequently sell in the United States. *See* Cameron Tr. 423-424 (confirming [ ]); CPX-

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0004C (Diebold Importation Spreadsheet); CPX-0052C (Diebold Importation Spreadsheet); CPX-0053C (Diebold Importation Spreadsheet); CPX-0054C (Diebold Importation Spreadsheet). Respondents then incorporate the [ ] into the Accused Products. Further, respondents [ ], all of which were imported from overseas. *See* CPX-0006C (Diebold inventory spreadsheet); CX-0274C (Howard WS) at Q/A 562. Respondents have been aware of the '235 patent since no later than February 9, 2016, when the complaint was filed. *See* CX-0057C (Diebold Supp. Interrog. Resps. (Jul. 20, 2016)), Interrogs. 30-32. Any manufacture, use, sale, offer for sale, or importation of the Accused Products, or of the CCDMv2 modules, as of February 9, 2016, was presumptively taken with knowledge that such acts were allegedly infringing.

**b. Contributory Infringement**

Section 271(c) of the Patent Act provides: "Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer. 35 U.S.C. § 271(c).

Section 271(c) "covers both contributory infringement of system claims and method claims."<sup>27</sup> *Arris*, 639 F.3d at 1376 (footnotes omitted). To hold a component

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<sup>27</sup> "Claims which recite a 'system,' 'apparatus,' 'combination,' or the like are all analytically similar in the sense that their claim limitations include elements rather than

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supplier liable for contributory infringement, a patent holder must show, *inter alia*, that (a) the supplier's product was used to commit acts of direct infringement; (b) the product's use constituted a material part of the invention; (c) the supplier knew its product was especially made or especially adapted for use in an infringement" of the patent; and (d) the product is not a staple article or commodity of commerce suitable for substantial noninfringing use. *Id.*

Any importation by respondents of the ActivMedia/CCDMv2 module (including software and/or firmware provided with the ActivMedia/CCDMv2), as well as any sale or offer to sell said module, would indirectly infringe each asserted claim of the '235 patent.<sup>28</sup> As discussed below, this is because the ActivMedia/CCDMv2 forms a material part of the patented invention, is especially made or especially adapted for use in infringement, and has no substantial noninfringing users. *See* Dunlap Tr. 391 (acknowledging that "the [ ]" in the Accused Products); CX-0274C (Howard WS) at Q/A 567.

As to the first requirement of contributory infringement, as discussed above in detail, complainants have shown that the Accused Products directly infringe the asserted claims.

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method steps. All such claims can be contributorily infringed by a component supplier." *Arris*, 639 F.3d at 1376 n.8.

<sup>28</sup> Respondents improperly rely on the [ ] to show that the CCDMv2 is not imported. *See* RX-0409C (Sturges WS) at Q/A 449. Respondents did not produce this evidence when responding to complainants' discovery requests. Respondents have offered conflicting opinions regarding whether the [ ]. *See id.* ("[ ] . . .").

**PUBLIC VERSION****material part of the patented invention**

For reasons discussed above, the ActivMedia/CCDMv2, including any software and/or firmware provided with the ActivMedia/CCDMv2, forms a material part of the invention claimed in each asserted claim of the '235 patent. As set forth in detail above, and based on the evidence cited, the ActivMedia/CCDMv2 (and particularly the [

]), provides the principal structure and/or functionality underlying the Accused Products' practice of each limitation. *See e.g.* infringement sections of this ID for claim elements 1[a], 1[b], 1[d], 1[k], 1[l] (describing how, within each Accused Product, it is the ActivMedia/CCDMv2 that principally practices each limitation of the asserted claims). Further, Dr. Howard's inspection of a Diebold 7700 with an ActivMedia module installed further confirmed his opinion that [

]. For at least these reasons, the ActivMedia/CCDMv2 forms a material part of the claimed invention. *See* CX-0274C (Howard WS) at Q/A 568.

**especially made or especially adapted for use in infringement**

The ActivMedia/CCDMv2 module is especially designed to include the patented structures for mixed-bundle cash-and-check processing, as described above. *See e.g.* infringement sections of this ID for claim elements 1[a], 1[b], 1[d], 1[k], 1[l] (describing

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how, within each Accused Product, it is the ActivMedia/CCDMv2 that principally practices each limitation of the asserted claims). Further, the ActivMedia/CCDMv2 is especially made for incorporation into automated teller machines such as the Accused Products and, once incorporated, will confer on those machines the structures necessary to practice the patented invention. Further, the manufacturer of the ActivMedia/CCDMv2 module, Wincor-Nixdorf, provides its customers (including respondents) with detailed instructions, and ongoing technical support, to assist in the incorporation of the module into automated teller machines and in how to use the module so as to gain the benefit of the invention covered by each asserted claim. *See e.g.* CX-0115C (CCDMv2 OEM Service Manual August 2015); CX-0274C (Howard WS) at Q/A 569. As discussed, respondents' continued importation of the ActivMedia/CCDMv2 (*e.g.*, the [ ] ) was taken with full knowledge that such importation was infringing, and the reasons therefor, at least as of the date of the complaint in this investigation.

\* \* \*

Respondents argue that they did not know how the CCDMv2 works because they did not make or design it. *See* Resps. Br. at 43-44. Respondents argue that lack of the requisite knowledge for a contributory infringement claim was not cured by the filing of the 337 complaint, because the complaint merely provides knowledge of the patent but not knowledge of the infringement. *Id.* For the reasons discussed below, respondents' arguments are unpersuasive.

First, respondents' argument that they could not know how the CCDMv2 module contributed to infringement because they do not know how the CCDMv2 works is

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unsubstantiated. As discussed above in detail, the evidence establishes that the original manufacturer of the CCDMv2 provides all its customers (including Diebold) with detailed instructions and on-going technical instructions in how to use the module to gain the benefit of the mixed-bundle feature as set forth in the asserted patent claims. Indeed, Diebold had access to Mr. Picone, Wincor's liaison and technical interface manager, who assisted Diebold with the integration of the CCDMv2 into the Accused Products. *See* RX-0416C (Picone RWS) at Q/A 11. Mr. Dunlap acknowledged that Diebold had access to Mr. [redacted]. *See* RX-0515C (Dunlap RWS) at Q/A 10. Thus, respondents' argument that they could not possibly understand the CCDMv2 enough to know how the module contributes to infringement is not credible.

Moreover, after the filing of the complaint on February 9, 2016, respondents had full knowledge as to how the CCDMv2 was especially made or adapted for use in the Accused Products because the complaint and attachments explained this in detail. Indeed, the Commission has ruled that, in the context of the knowledge requirement for a contributory infringement claim, "service of a section 337 complaint can be adequate to provide knowledge of the asserted patents." *Certain Television Sets, Television Receivers, Television Tuners, and Components Thereof*, USITC Inv. No. 337-TA-910 (Oct. 30, 2015) at \*23 (rules governing section 337 complaints require "highly detailed information concerning the asserted patents and complainant's infringement allegations"). The record establishes that Hyosung's complaint included claim charts that detailed the bases for the Accused Products' alleged infringement of the asserted claims of the '235 patent.

**PUBLIC VERSION****substantial noninfringing uses**

The ActivMedia/CCDMv2 lacks substantial noninfringing uses. The evidence discussed above demonstrates how typical use of the ActivMedia/CCDMv2 module will involve use of each and every one of the structures described in the various limitations of the asserted claims. To the extent that a person may elect not to use the “mixed bundle” processing capabilities of the ActivMedia/CCDMv2 module (*e.g.*, if a person inserts a bundle consisting only of checks), such would not be a noninfringing use. This is because each of the structures described in the various limitations of the asserted claims would still be present and in use, even if, for a given bundle of media, there would not actually be media passing through some of the recited structures. *See* CX-0274C (Howard WS) at Q/A 570.

To the extent that some end-customers of the Accused Products may elect to ignore certain overlap-detecting features of the ActivMedia/CCDMv2, *e.g.*, [ ], such a practice is not a substantial noninfringing use. *See* CX-0274C (Howard WS) at Q/A 570. The law is clear that the presence of an ability to turn off an infringing feature is not a “substantial noninfringing use.” *Fujitsu Ltd. v. Netgear Inc.*, 620 F.3d 1321, 1331 (Fed. Cir. 2010); *see also Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1205 (Fed. Cir. 2010) (describing how infringement occurs so long as underlying capability exists in the product, even if it must be “unlocked”); *Koninklijke Philips N.V. v. Zoll Med. Corp.*, Nos. 2014-1764, 2014-1791, 2016 WL 4045330 at \*17 (Fed. Cir.

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2016) (citing *Fujitsu*, 620 F.3d at 1331) (noting that the ability to deactivate an infringing mode does not establish substantial non-infringing uses)).

\* \* \*

Respondents argue that certain Accused Products [ ] limit customers to depositing checks-only and cash-only in two separate transactions—*i.e.*, they do not [ ]. *See* Resps. Br. at 45. Respondents argue that those machines show a substantial non-infringing use of the CCDMv2 modules in the Accused Products, and therefore, respondents cannot be liable as a contributory infringer. *See id.* For the reasons discussed below, respondents' arguments are unpersuasive.

The asserted claims of the '235 patent are apparatus claims that recite a device "comprising" certain structural elements. Respondents fail to show that any of the claimed structural elements are missing from the Accused Products sold to [

]. Indeed, the only difference between the ATMs sold to [ ] and the allegedly infringing ATMs sold to others by respondents, is allegedly [

]. *See* RX-0515C (Dunlap RWS) at Q/A 66; RX-0410C (Langhuber RWS) at Q/A 106-09. Thus, even under respondents' theory, all of the requisite structural elements (both hardware and software) that practice the Asserted Claims are literally present [

]. As such, all of the Accused Products sold to [ ], and

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any other similarly modified Accused Products that may have been sold to others, infringe the asserted claims of the '235 patent. *See Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1204-05 (Fed. Cir. 2010) (“in the same way that an automobile engine for propulsion exists in a car even when the car is turned off.”).

It does not matter whether or not all the claimed structural elements are enabled or turned-on. *See id.* The accused ATM products merely need to be “reasonably capable of satisfying the claim limitations, even though it may also be capable of noninfringing modes of operation.” *Id.* Here, the evidence shows that all of the Accused Products sold to [ ] are reasonably capable of performing the claimed [ ] feature. One needs only to enable the existing [ ] feature. Inasmuch as the Accused Products sold to [ ] by respondents are infringing uses of the CCDMv2, those ATMs cannot constitute as a substantial noninfringing use.

Moreover, the [ ] ATMs (and any similarly modified Accused Products) cannot constitute as a “substantial noninfringing use” because the ATMs, according to respondents, merely disable the infringing feature [ ]

[ ]—an approach the Federal Circuit has repeatedly found cannot be used by a contributory infringer to avoid liability. *See e.g., Zoll Medical Corp.*, 2016 WL 4045330 at \*16-17; *Fujitsu*, 620 F.3d at 1330-31. Respondents concede that disabling a “separate and distinct feature” in an accused product cannot be considered a substantial non-infringing use. *See Resps. Br.* at 47-48. For example, the invention at issue in *Zoll Medical* concerned a defibrillator with an automatically initiated self-testing feature. The alleged infringer argued that manually initiating the self-testing feature was a substantial non-infringing use. Respondents concede that *Zoll Medical* held that “the accused

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feature (automatic testing) was a ‘separate and distinct’ feature from the manual testing feature,” and “[b]ecause the patented feature was disabled during the alleged non-infringing use and thus not used, the Federal Circuit held it could not be a ‘non-infringing use.’” *See* Resps. Br. at 47.

Respondents argue that this investigation presents a “different fact scenario” from *Zoll Medical* and other Federal Circuit authority, because the mixed bundle feature is not “separate and distinct” from the cash or check-only modes of operation. Respondents argue that whenever a CCDMv2 is used to deposit cash-only or checks-only or a mixed bundle “[redacted].” *See* Resps. Br. at 49. Inasmuch as no hardware or software is [redacted],” respondents argue that the entire CCDMv2 is being used in the [redacted] ATMs. Respondents then conclude that such use of the CCDMv2 in [redacted] ATMs cannot be viewed as being a “separate and distinct” function from the use of the exact same CCDMv2 modules in ATMs where they can [redacted].

Respondents disregard the fact that all the [redacted] ATMs are [redacted]. *See* RX-0515C (Dunlap RWS) at Q/A 66. The ATMs sold to [redacted] allegedly have such [redacted], but prevents the ATM from [redacted]. *See* Resps. Br. at 50; Dunlap Tr. 408. Thus, [redacted], according to respondents’ witnesses, control whether the ATM can [redacted].

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], as set forth in the asserted claims of the Hyosung patent, or whether the ATM will [

]. Inasmuch as the type of ATMs bought by [ ] have software that effectively disables the infringing mixed bundle feature, use of CCDMv2 modules in [ ] ATMs cannot qualify as a “substantial noninfringing use.”

Indeed, even where there has been extensive overlap regarding the patented feature and the allegedly non-infringing use, the court has found the two features to be “separate and distinct.” *See Zoll Medical*, 2016 WL 4045330 (Fed. Cir. 2016) at \*16 (“In the cases where we have directly addressed this issue, we have generally been fairly liberal in finding the accused components separate.”). For example, as detailed above in *Zoll Medical*, the patented feature merely involved the automatic triggering of a self-test, as opposed to manually triggering that same self-test. *Id.* at \*16-17. Yet, the Federal Circuit determined that these two uses of the accused product were “separate and distinct” features. *Id.* (“As to the user-instigated self-tests, a reasonable jury could only conclude that this is a “separate and distinct” feature from the automatic, periodic self-test feature.”). Thus, an alleged infringer cannot merely point to some overlap to avoid a determination that the patented feature is “separate and distinct” from the allegedly substantial noninfringing use.

\* \* \*

Accordingly, complainants have shown that respondents contributorily infringe the asserted claims of the ‘235 patent.

**PUBLIC VERSION****C. Domestic Industry (Technical Prong)**

Complainants assert independent apparatus claim 1 and dependent claims 2, 3, 6, 8, and 9 of the '235 patent. *See* Compls. Br. at 107-55.

Complainants argue:

The evidence presented confirms that Hyosung satisfies the technical prong of the domestic industry requirement. This is so because Hyosung manufactures and sells ATMs—the Domestic Industry Products—that practice the asserted claims of the '235 patent.

At a high level, the Domestic Industry Products contain Hyosung's Cash & Check in Module ("CCiM"). CX-0274C (Howard WS) at Q/A575. The CCiM allows a user to deposit a mixed bundle of banknotes, including at least one check. *Id.* Thus products including the CCiM include an apparatus for automatically depositing a bundle of banknotes including at least one check. *Id.* The Domestic Industry Products also include components such as a keypad or touchscreen for entering commands from the user, a display screen for displaying information to the user, and a receipt printer for printing a receipt of a transaction. *Id.* At Q/A 596.

Looking to the Domestic Industry Products in more detail, the CCiM is a module within an ATM. *Id.* at Q/A 597. It allows users to insert a mixed bundle of banknotes (both cash and checks) for processing in one pass. *Id.* The CCiM includes [ ] units working together to process the inserted bundles. *Id.* This module includes numerous electromechanical components like [ ]. *See id.* at Q/A 597-98; CX-0156C (Hyosung Chap. 9 CCiM) at NH\_972-00039774.

Compls. Br. at 107.

Respondents argue:

Hyosung alleges that certain ATMs that include a CCiM ("Domestic Industry Products") practice the Asserted Claims of the Kwak patent. While Hyosung alleges that its ATMs practice the claims, the focus of the arguments relates to the structure and operation of the CCiM. There is a significant overlap between the arguments above related to noninfringement and the arguments related to domestic industry below. That being said, the specifics of the arguments are different because the CCiM is not identical to the CCDM. For example, although the CCDM and the CCiM contain similar types of sensors, Hyosung does not identify

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the same sets of sensors in the CCiM that allegedly perform the tripartite detection of overlapping of individual sheets. Similar to the CCDM V2, however, the CCiM does not perform tripartite detection.

In addition to the overlap arguments, Hyosung has failed to satisfy its burden that several elements of the Asserted Claims are practiced because, Hyosung and its expert do not submit any evidence, documentary or otherwise, to show how the CCiM practices certain claim elements. For example, Hyosung has not submitted any evidence to support its allegation that the CCiM transfers sheets with a predetermined time interval. Further, Hyosung's expert effectively conceded that at least two of the Domestic Industry Products do not contain an essential element, *i.e.*, a cash cassette.

Resps. Br. at 149-50.

**1. Applicable Law**

A violation of section 337(a)(1)(B), (C), (D), or (E) can be found “only if an industry in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established.” 19 U.S.C. § 1337(a)(2). Section 337(a) further provides:

(3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned—

(A) significant investment in plant and equipment;

(B) significant employment of labor or capital; or

(C) substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. § 1337(a)(3).

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These statutory requirements consist of an economic prong (which requires certain activities)<sup>29</sup> and a technical prong (which requires that these activities relate to the intellectual property being protected). *Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-586, Comm'n Op. at 13 (May 16, 2008) ("*Stringed Musical Instruments*"). The burden is on the complainant to show by a preponderance of the evidence that the domestic industry requirement is satisfied. *Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-694, Comm'n Op. at 5 (July 22, 2011) ("*Navigation Devices*").

**2. Domestic Industry Products**

Complainants argue: "The Hyosung Domestic Industry Products include the MX7600, MX7700, MX7800, MX8200QT, MX8700QT, and MX8800." Compl. Br. at 108.

**3. Independent Claim 1**

Asserted independent claim 1 reads as follows:

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<sup>29</sup> The Commission practice is usually to assess the facts relating to the economic prong at the time that the complaint was filed. See *Certain Coaxial Cable Connectors and Components Thereof and Products Containing Same*, Inv. No. 337-TA-560, Comm'n Op. at 39 n.17 (Apr. 14, 2010) ("We note that only activities that occurred before the filing of a complaint with the Commission are relevant to whether a domestic industry exists or is in the process of being established under sections 337(a)(2)-(3).") (citing *Bally/Midway Mfg. Co. v. U.S. Int'l Trade Comm'n*, 714 F.2d 1117, 1121 (Fed. Cir. 1983)). In some cases, however, the Commission will consider later developments in the alleged industry, such as "when a significant and unusual development occurred after the complaint has been filed." See *Certain Video Game Systems and Controllers*, Inv. No. 337-TA-743, Comm'n Op., at 5-6 (Jan. 20, 2012) ("[I]n appropriate situations based on the specific facts and circumstances of an investigation, the Commission may consider activities and investments beyond the filing of the complaint.").

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1. A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque, the apparatus comprising:

a bundle insertion unit configured to receive the bundle of banknotes from a user;

a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval;

a main transfer unit coupled to the bundle separator and configured to horizontally transfer the individual sheets of the banknotes along a main transfer path;

a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors;

an abnormal sheet branch transfer unit having an abnormal sheet branch transfer path branched from the main transfer path, the abnormal sheet branch transfer unit configured to transfer abnormal banknotes verified by the verifying unit;

a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path;

an abnormal sheet unloading transfer unit coupled to the first gate, the abnormal sheet unloading unit having an abnormal sheet unloading transfer path and configured to return the abnormal banknotes to the user;

an authentic cheque transfer unit coupled to an end of the main transfer path, the authentic sheet transfer unit having an authentic cheque transfer path and configured to transfer at least one authentic cheque in the bundle of banknotes verified by the verifying unit;

an authentic cash transfer unit coupled to the end of the main transfer path, the authentic cash transfer unit

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having an authentic cash transfer path and configured to transfer authentic banknotes other than cheques verified by the verifying unit;

a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer unit to the authentic cash transfer path;

an authentic cheque storage cassette coupled to the authentic cheque transfer unit, the authentic cheque storage cassette configured to store therein the at least one authentic cheque transferred by the authentic cheque transfer unit;

an authentic cash storage cassette coupled to the authentic cash transfer unit and configured to store therein the authentic banknotes other than cheques transferred by the authentic cash transfer unit;

a cheque standby unit placed in the main transfer path between the first gate and the second gate, the cheque standby unit configured to hold the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque; and

a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.

JX-0001 ('235 Patent) at col. 9, ln. 58 – col. 10, ln. 65.

For the reasons discussed below, complainants have shown that the Hyosung domestic industry products (hereinafter, "Domestic Industry Products") practice asserted independent claim 1.

**PUBLIC VERSION****Limitation 1 [preamble]. “A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque”**

As discussed above in the claim construction section, the administrative law judge determined that (1) the claim term “banknotes” should be construed to mean “cash, checks, or both cash and checks”; and (2) the claim term “a bundle of banknotes including at least one cheque” should be given its plain and ordinary meaning, *i.e.*, the bundle of banknotes must include at least one check. Under the correct claim construction of the disputed terms, the Domestic Industry Products practice this limitation of claim 1. Each Domestic Industry Product is an ATM capable of receiving and depositing a mixed media bundle. Each CCI<sub>M</sub> included in each Domestic Industry Product receives a mixed bundle of cash and checks from a user. The ATM then deposits the inserted mixed media from the bundle into the corresponding locations in the ATM. *See e.g.* CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972\_00052042-3.

Additionally, the CCI<sub>M</sub> service manual describes the module’s ability to accept a mixed bundle of cash and checks through “one single deposit slot.” CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052055, 52405 (noting that a bundle [ ] (*i.e.*, cash and checks)); CX-0274C (Howard WS) at Q/A 609.

Thus, in view of this evidence, disputes concerning claim construction do not affect whether the Domestic Industry Products practice this limitation. *See* CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052055, 52405; CX-0274C (Howard WS) at Q/A 609-12.

**PUBLIC VERSION****Limitation 1[a]. “a bundle insertion unit configured to receive the bundle of banknotes from a user”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a bundle insertion unit” should be construed to mean “a unit for the deposit or receipt of a bundle of banknotes,” wherein banknotes are cash, checks, or both cash and checks.

Under the correct claim construction of the disputed term, the Domestic Industry Products practice this limitation because they include a CCiM with a bundle module capable of receiving a mixed bundle of banknotes from a user. *See* CX-0155C (Hyosung MX8800 System Operator Manual) at NH-972-0051966; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401, 2445; CX-0157C (Hyosung Chap. 5 EP Command Function & Flow) at NH\_972-00089525; CX-0274C (Howard WS) at Q/A 613. The bundle unit accepts cash and checks in bundles, then it separates the bundle. The bundle unit may also be used to return banknotes to the user if necessary. *See* CX-0274C (Howard WS) at Q/A 613.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a bundle insertion unit” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. *Id.* at Q/A 617. This is because the CCiM’s bundle unit performs the same function using the same structure identified in the ‘235 patent that correspond to this limitation. *Id.* For example, the CCiM’s bundle unit includes [ ]. *See* CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401, 2445.

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**Limitation 1[b]. “a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a bundle separator” should be given its plain and ordinary meaning. Additionally, the administrative law judge has determined that the claim term “coupled to” should be given its plain and ordinary meaning, and the plain and ordinary meaning of that claim term is “operatively connected either directly or indirectly.”

The Domestic Industry Products include a [ ] in and around the [ ] and a [ ] that can separate the mixed bundle into individual sheets and transfer each individual sheet at a predetermined time interval. *See* CX-0274C (Howard WS) at Q/A 618; CX-0158C (MX8800 Service Manual) at NH\_972-00052401. Specifically, the [ ]

[ ] *See* CX-0274C (Howard WS) at Q/A 618. Further, the [ ] is coupled to the [ ]. *Id.*

The [ ] in the Domestic Industry Products pulls the inserted mixed bundle apart, one sheet at a time. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00051965; CX-0274C (Howard WS) at Q/A 618. The [ ]

*See id.* Dr. Howard reviewed the CCIIM’s source code to confirm that the Domestic Industry Products practice this limitation. *See* Howard Tr. 284; *see also* RPX-0029C (Hyosung Source Code). In other words, the [ ]

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]. *Id.* The [ ] functions as such because it is configured to separate a single note from the mixed bundle, then go into wait mode until that note is processed. *Id.* Thus, after a separated note has reached a certain point along the main transfer path, the [ ] will [

]. *Id.* The Domestic Industry Products repeat this until all the banknotes in the bundle are separated. *Id.*

Dr. Sturges's argument that Hyosung fails to prove that the Domestic Industry Products practice this limitation is incorrect. As noted above, Dr. Howard's review of the manuals, the testimony of the Hyosung engineers, and the CCiM's source code confirms that the CCiM transfers separated banknotes with [

]. *See* CX-0247C (Howard WS) at Q/A 617-21; Howard Tr. 284; RPX-0029 (Hyosung Source Code).

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms "a bundle separator" and "bundle insertion unit" are means-plus-function elements, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. Dr. Howard's testimony and analysis shows that the Bundle Separator performs the required function using the same structure as the structures identified in the '235 patent corresponding to the limitation. *See* CX-0274C (Howard WS) at Q/A 622. The Domestic Industry Products also practice the "bundle insertion unit" limitation. *Id.* at Q/A 623. The [ ] and [ ] units of the CCiM perform the function of separating the bundle of banknotes at the bundle insertion unit as it is described in claim 1 of the '235 patent. Thus, the Domestic Industry Product perform the required function

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with the structure identified in the '235 patent that corresponds with this limitation. *See id.*; CX-0158C (MX8800 Service Manual) at NH\_972-00052449. To the extent that the CCiM's [ ] is held not to literally practice this limitation under a means-plus-function construction, it performs it by equivalence because it performs the same function in the same way with the same result. *See* CX-0274C (Howard WS) at Q/A 623; CX-0158C (MX8800 Service Manual) at NH\_97200052449; Howard Tr. 284.

**Limitation 1[c]. “a main transfer unit coupled to the bundle separator and configured to horizontally transfer the individual sheets of the banknotes along a main transfer path”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a main transfer unit” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they contain a main transfer unit coupled to the [ ] that horizontally transfers the separated, individual sheets of the mixed bundle. *See* CX-0274C (Howard WS) at Q/A 624. The main transfer path is comprised of [ ]. *E.g.* *id.*; CX-0158 (Hyosung MX8800 System Service Manual) at NH\_972-0052401, 2407, 2408. One or more motors drive this main transfer path. *See* CX-0274C (Howard WS) at Q/A 624. Service manuals identify the motors that drive the transfer path—*e.g.*, [ ]. *See* CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-0052407-8. Further, the main transfer path is coupled to the [ ]. *See* CX-0160 (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806; CX-0274C (Howard WS) at Q/A 624.

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Under either party's construction, the Domestic Industry Products practice this limitation. Respondents argue that the Domestic Industry Products fail to meet this limitation because their main transfer path is not entirely horizontal. *See* RX-0409C (Sturges RWS) at Q/A 522-23. In view of the patent's claim language, specification, and prosecution history, the term horizontal need not be construed strictly as a horizontal plane. Further, respondents' argument neglects the fact that the main transfer path disclosed in the specification clearly includes horizontal portions. Finally, respondents' argument that the Domestic Industry Products do not, at the least, practice this limitation under the doctrine of equivalents cannot be supported.

The Domestic Industry Products practice this limitation under Hyosung's construction because they use a transfer path that moves individual banknote through several sections of the apparatus. *See* CX-0274C (Howard WS) at Q/A 626. Specifically, they contain a transfer path comprised of [

]. *Id.* Motors drive this path. *Id.* Through this path, the Domestic Industry Products transfer banknotes horizontally along this transfer path. *See id.*; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806. To the extent that these products do not literally practice this limitation, they do so by equivalence because they perform substantially the same function in substantially the same way with substantially the same result. *See* CX-0160 (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806; CX-0274C (Howard WS) at Q/A 626.

Even under respondents' construction of "horizontally transfer the individual sheets of the banknotes along a main transfer path" and "coupled to," the Domestic Industry Products practice this limitation under the doctrine of equivalents because they

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perform substantially the same function in substantially the same way to yield substantially the same results. *See* CX-0274C (Howard WS) at Q/A 627 (noting importantly that the main transfer path is perpendicular to the force of gravity for a substantial portion of the path; noting further that these products yield substantially the same results by transferring individual banknotes through the device for depositing).

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms “a main transfer unit” and “bundle separator” are means-plus-function elements, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The main transfer path horizontally moves [

]. *See* CX-0274C

(Howard WS) at Q/A 628. The transfer path in these products [

]. *Id.* Thus, this main transfer

path in the Domestic Industry Product performs the required function with the structure recited by the ‘235 patent corresponding to this limitation. *Id.*; CX-0158C (MX8800 Service Manual) at NH\_972-00052408, 2407; CX-0274C (Howard WS) at Q/A 628.

The technical prong analysis for the disputed claim term “bundle separator” was discussed above in the section concerning limitation 1[b]. *See also* CX-0274C (Howard WS) at Q/A 629.

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**Limitation 1[d]. “a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim term “a verifying unit” and the claim term “to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they contain a verifying unit installed on the main transfer path comprised of the sensors in and around the [redacted]. *See* CX-0158C (MX8800 Service Manual) at NH\_972-0052049-51. The verifying unit is configured to verify the authenticity or abnormality of each banknote, produce a verification result which indicates the authenticity or abnormality of each banknote, and perform tripartite detection of overlapping sheets in the main transfer unit using three different sensors. *Id.* The sensors in and around the [redacted]. *See* CX-0274C (Howard WS) at Q/A 630. The CCI<sub>M</sub> also includes sensors to detect overlapping banknotes. For example, there are [redacted] sensors in the CCI<sub>M</sub>, [redacted]. *Id.* The [redacted]

[redacted]. *See* CX-0274C (Howard WS) at Q/A

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630. The [ ].

They further verify the authenticity or abnormality of the banknotes. *See* CX-0274C (Howard WS) at Q/A 630.

**CCiM Overlap Sensors**

The CCiM performs tripartite detection of overlapped notes using three or more sensors in and around the [ ]. *Id.* The CCiM includes at least [ ]. *Id.* One is in the [ ]. *Id.* They detect overlapped banknotes based on thickness. *Id.* The [ ]

[ ]. They detect overlapped banknotes. *See* CX-0274C (Howard WS) at Q/A 630. The [ ]

[ ]. *See* CX-0274C (Howard WS) at Q/A 630. Thus, the use of these sensors satisfies the overlap detection portion of this limitation.

**Dr. Howard's Inspection of the Domestic Industry Products**

The evidence shows that Dr. Howard personally inspected the Domestic Industry Products, confirming his opinions that the verifying unit of the Domestic Industry Products includes the components required by the '235 patent. Dr. Howard inspected a Hyosung 7600i equipped with a CCiM in Dallas, Texas, in July of 2016. *See* CX-0274C (Howard WS) at Q/A 631. Dr. Howard confirmed that the inspected unit used multiple sensors to evaluate inserted media and at least [ ] such sensors were capable of

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detecting overlap conditions in the inserted media.<sup>30</sup> *Id.* Specifically, Dr. Howard confirmed that the Domestic Industry Products are capable of overlap detection using [

]. *Id.*

[ **Test**

Dr. Howard's personal inspection confirmed that the Domestic Industry Products detect overlap using an [ ] in the [ ]. *Id.* at Q/A 632. To test

where this sensor is used in overlap detection, Dr. Howard used the [

] in the CCI<sub>M</sub>. *Id.*

He inserted a double-thick \$20 bill, *i.e.*, two \$20 bills, temporarily adhered to one another using Loctite adhesive. *Id.* The CCI<sub>M</sub> module immediately rejected the double thick bill without processing the [

]; noting further that Dr.

Howard manually verified that the bill did not go [ ]). The tested unit's display showed that the only [

]. *Id.* (further stating that none of the [

]). The [ ] with the [ ], which the

tested unit displayed as [ ]. *Id.* For certainty, Dr. Howard repeated this test with [

]. *Id.* This test yielded the same result. *Id.* (noting that the [

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<sup>30</sup> Dr. Sturges stated that "testing the [CCI<sub>M</sub>] was not necessary" to inform his opinions. *See* RX-0409C (Sturges RWS) at Q/A 481-83; Sturges Tr. 624-625. Comparing this analysis to that of Dr. Howard, Dr. Sturges's opinions is given less weight because Dr. Howard's analysis involved personal testing of the Domestic Industry Products.

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] prevented further processing of the overlapped checks). The sensor page indicated that the rejection was due to the [ ].

*Id.*

[ **Test**

Next, Dr. Howard tested and confirmed that the Domestic Industry Products perform overlap detection using an [ ] in the [ ]. *Id.* at Q/A 633. Dr. Howard used the used the [

] to confirm that this sensor performs the required function. *Id.* Specifically, Dr. Howard inserted a double-thick check (two checks adhered together) partially overlapped but within the length specification for valid checks into the tested unit. *Id.* Dr. Howard reasoned from the conversations relayed to him from the Hyosung engineers that the [ ] only checks the [ ] of the inserted sheets. *Id.* It does not reject double-sheets if the [ ] does not appear to be double-thick. *Id.* Thus, this test was designed to trip overlap detection using the [ ].

During this test, the machine processed the overlapped check through portions of the CCM. *Id.* It rejected the overlapped checked as being a “double thick” note. *Id.* Relying on his knowledge of the tested unit, Dr. Howard opined that the tested unit rejected these overlapped checks using the [ ]. *Id.* Dr. Howard repeated this test with partially overlapped \$20 bills, *i.e.*, two \$20 bills, temporarily adhered together, partially overlapped, but within the length specification of the machine. *Id.* The tested unit returned the same error for the partially overlapped \$20 bills. *Id.*

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Next, Dr. Howard tested the Domestic Industry Product's ability to detect overlap using the [ ]. *Id.* at Q/A 634. To test this, Dr. Howard used the [ ]. *Id.* This entailed inserting an overlapping check, *i.e.*, two checks adhered together, partially overlapped. *Id.* Upon running this test, the CCI<sub>M</sub> rejected the checks as “[ ].” *Id.* (noting that the tested CCI<sub>M</sub> screen indicated that the inserted test note was “[ ]”). To confirm the sensors that were used to reject the tested notes as [ ], Dr. Howard re-ran this test in a mode where the status of the sensors could be viewed when the [

[ ]. *Id.* Dr. Howard noted that the first [ ] were blocked, indicating that the [

[ ]. *Id.* This further shows that the checks did not reach the [ ] because [ ] is beyond the [ ], positioned roughly collinear with [ ]. *Id.* Dr. Howard conducted the same test with a second set of checks. *Id.* He also repeated the test with partially overlapped \$20 bills. *Id.* (noting that the results of these tests were identical in that the same [ ] were blocked, causing the tested ATM to rejected the inserted, overlapped media).

[ Test

Dr. Howard's final test sought to confirm whether the Domestic Industry Products detect overlap using [ ]. *Id.* at Q/A 635. To test this, Dr. Howard placed the ATM machine in [

], formed from two relatively thin checks.

*Id.* Specifically, the checks were partially overlapped and the bottom check did not

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include bank or routing information. Dr. Howard did this in order to [

] from reading two sets of a data and throwing the corresponding error. *Id.* Dr.

Howard had previously verified that the overlapped checks did not trigger the [

] by testing the overlapped checks against these sensors in the manner

previously described. He had also verified that the bank routing and account information

on the overlapped check was properly read by the [ ]. *Id.* Thus, in view of

these precautions, Dr. Howard accurately determined that the overlapped checks were

rejected by the [ ]. Based on his understanding the tested machine,

Dr. Howard concluded that the [ ] the overlapping checks due to the

[ ] in the overlapped checks. *Id.* Dr. Howard ran the test several more times and

discovered that the overlapped checks were only rejected for a [ ].

*Id.* (explaining that if two checks were [ ], the checks would not be rejected by

the CCIIM's [ ]).

Dr. Sturges testified that the Domestic Industry Products fail to meet this limitation. He asserted that the Domestic Industry Products include only one sensor that detects overlap in inserted media. *See* RX-0409C (Sturges RWS) at Q/A 575. Thus, per Dr. Sturges's analysis, the Domestic Industry Products do not perform tripartite detection of overlapping sheets using three difference sensors. *Id.* However, Dr. Sturges did not personally inspect any of the Domestic Industry Products. *Id.* This omission raises questions about his methodological judgment. Thus, in view of Dr. Howard's thorough analysis detailed above, Dr. Sturges's conclusion concerning this limitation is given less weight. *See* CX-0274C (Howard WS) at Q/A 630.

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\* \* \*

In summary, Hyosung's Domestic Industry Products practice this limitation because they contain a verifying unit for tripartite detection of overlapping individual sheets in the main transfer unit using three different sensors. *See* CX-0274C (Howard WS) at Q/A 637. These include, among other, the [

] The evidence shows that the Domestic Industry Products use these sensors to verify the authenticity or abnormality of the banknotes in order to produce a verification result. Further, these sensors detect overlapping banknotes. Dr. Howard's testimony reveals that the Domestic Industry Products can verify the authenticity or abnormality of each banknote in a mixed bundle of banknotes.

Specifically, the combination of [ ] perform tripartite detection of the overlapping sheets in the main transfer unit. As previously noted, these sensors detect various characteristics of the inserted notes and such characteristics reveal whether the inserted media is overlapped. *Id.*

\* \* \*

Respondents argue that the disputed claim term "to perform tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors" should be construed to mean "to detect whether two or more banknotes are overlapping in the main transfer unit using three different types of data sensed from three different types of sensors." Resps. Br. at 12-15.

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Even in the event the Commission agrees with respondents' proposed claim construction for the disputed claim term "to perform tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors," the Domestic Industry Products practice this limitation under respondents' construction. As the evidence shows, the Domestic Industry products perform the required "tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors" under respondents' proposed construction because the Domestic Industry Products are capable of rejecting overlapping notes as unfit using at least three different types of data from at least three different sensors ([

]). *See* CX-0274C (Howard WS) at Q/A 638.

Additionally, the recited sensors used in the [ ] components (or equivalent, insubstantially different structures) correspond to the structures recited in the '235 patent and perform the same functions as stated in the '235 patent. *Id.* For example, the '235 patent recites CIS, MICR, and ultraviolet sensors in the verifying unit. The CCI<sub>M</sub> contains [

] components. Further, as noted above, these sensors verify the authenticity or abnormality of each banknote and produce a verification result. *Id.* The patent also teaches that sensors detecting thickness can be used to detect overlap in addition to [

]. The CCI<sub>M</sub> uses [ ] to detect overlapped notes based on thickness. It likewise uses [ ]. *Id.*

Furthermore, to the extent that the foregoing sensors do not literally practice "tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors" under respondents' construction, the limitation is practiced by

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equivalence because the recited sensors perform the same function in the same way with the same result as is required by respondents' interpretation. *See* CX-0274C (Howard WS) at Q/A 638.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term "verifying unit" is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic Industry Products perform the function required by the '235 patent using the structure disclosed in the patent that corresponds with this limitation. *See* CX-0274C (Howard WS) at Q/A 639.<sup>31</sup> Further, to the extent that such structure is held to not be literally identical to the structure identified in the '235 patent, such structure is equivalent because it performs the same function in the same way with the same results. *Id.*

**Limitation 1[e]. "an abnormal sheet branch transfer unit having an abnormal sheet branch transfer path branched from the main transfer path, the abnormal sheet branch transfer unit configured to transfer abnormal banknotes verified by the verifying unit"**

As discussed above in the claim construction section, the administrative law judge determined that the claim term "an abnormal sheet branch transfer unit" should be given its plain and ordinary meaning.

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<sup>31</sup> Respondents' argument that determining authentication and detecting multiple notes are distinct functions is inconsistent with the teachings of the patent. *See* Resps. Br. at 154-55; RX-0409C (Sturges RWS) at Q/A 390. The '235 patent explains that as the media passes through the CIS, cash verifying part, MICR, and the plural notes detection part, "the authenticity or the abnormality of the [media] is verified." *See* JX-0001 ('235 Patent) at col. 7, lns. 29-46. The '235 patent teaches that the function of detecting overlapping notes is a component of the overall process of determining the authenticity or abnormality of each banknote.

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The Domestic Industry Products practice this limitation because each contains a reject transfer path that branches from the main transfer path. This path transfers notes that have been verified as abnormal by the verifying sensors. *See* CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401, 2447; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806; CX-0274C (Howard WS) at Q/A 640. This reject path comprises [ ]. *Id.* It is driven by one or more motors. *See* CX-0274C (Howard WS) at Q/A 640. The Domestic Industry Products also contain a [ ] that routes individual banknotes that have been verified as abnormal by the [ ] components from the main transfer path to the reject component. *Id.*; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-0052401, 2447.

The Domestic Industry Products include an abnormal sheet transfer unit. *See* CX-0274C (Howard WS) at Q/A 642. Specifically, the Domestic Industry Products use a transfer path that moves individual banknotes that have been verified as abnormal by the sensors in the verifying unit into the rejecting unit. *Id.*; CX-0160 (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344785.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “an abnormal sheet branch transfer unit” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. Each of the Domestic Industry Products includes a reject transfer path that branches from the main transfer path and transfers notes that have been verified as abnormal by the sensors

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of the verifying unit into the reject unit. *See* CX-0274C (Howard WS) at Q/A 644. Such structure performs the function of transferring abnormal banknotes verified by the verifying unit and do so using the structure identified above (also identified in the '235 patent). *Id.*; CX-0158C (MX8800 Service Manual) at NH\_972-00052430. To the extent that the Domestic Industry Products do not literally practice this limitation under this construction, they do so by equivalence. *See* CX-0274C (Howard WS) at Q/A 644. The reject transfer path is equivalent because it performs the same function in the same way with the same results. *Id.* Thus, the Domestic Industry Products perform the required function using the structure disclosed in the '235 patent corresponding to this limitation.

**Limitation 1[f]. “a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path”**

The Domestic Industry Products practice this limitation because they contain a first gate that selectively routes banknotes verified as abnormal to an abnormal sheet transfer path and routes banknotes verified as authentic to the main transfer path. *See* CX-0274C (Howard WS) at Q/A 645; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344802, 4806. Specifically, the Domestic Industry Products include a [ ] that routes banknotes verified as authentic by the verifying unit along the main transfer path into the [ ]. *See* CX-0274C (Howard WS) at Q/A 645. This [ ] is used to route banknotes verified as authentic or unauthentic. *See* CX-0158C (Hyosung MX8800 System Service Manual) NH\_972-00052401; CX-0160 (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344802, 4806.

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Each of the Domestic Industry Products includes a [ ] that selectively routes abnormal banknotes to the reject transfer path and authentic banknotes to the main transfer path based on the verification result of each banknote. *See* CX-0274C (Howard WS) at Q/A 647. As previously noted, the Domestic Industry Products also include a transfer path that branches from the main transfer path and moves abnormal banknotes into the reject unit. This reject transfer path is comprised of transfer [

] that is driven by one or more [ ]. *Id.* Thus, the Domestic Industry Products are capable of transferring each individual banknote along the main transfer path or reject transfer path depending on their verification result. *Id.*

**Limitation 1[g]. “an abnormal sheet unloading transfer unit coupled to the first gate, the abnormal sheet unloading unit having an abnormal sheet unloading transfer path and configured to return the abnormal banknotes to the user”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an abnormal sheet unloading transfer unit” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they contain an abnormal sheet unloading transfer unit that includes a transfer path capable of returning banknotes verified as abnormal to the user. *Id.* at Q/A 649; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806. In particular, the Domestic Industry Products include a [ ] that is coupled to the first gate. *Id.* This transport path leads from the [

] component. *See* CX-0274C (Howard WS) at Q/A 649. As shown in the

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documentary evidence, the reject component includes a reject transfer path comprising

[ ] that is driven by at least one [ ]. *Id.*

Abnormal banknotes are routed into this transfer path from the first gate. *Id.* Such an

abnormal banknote is [

]. *Id.*; CX-0158C (MX8800 System Service Manual) at NH\_972-00052401, 2447; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806.

The Domestic Industry Products include a reject transfer unit that transfers the individual banknotes that have been verified as abnormal along the reject transfer path.

*See* CX-0274C (Howard WS) at Q/A 651. The reject transfer path is comprised of

[ ] and are driven by [

]. The first gate included in the Domestic Industry Products selectively routes abnormal banknotes to the reject transfer path and authentic banknotes to the authentic transfer path based on the verification results of each individual banknote. *Id.*; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term

“an abnormal sheet unloading transfer unit” is a means-plus-function element, the

evidence nonetheless shows that the Domestic Industry Products would meet this

limitation. The [ ] in the Domestic Industry Products is connected to

the first gate [ ]. *See* CX-0274C (Howard WS) at Q/A

653. This path is comprised of a transfer channel with [

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] and at least one [ ] to drive the banknotes. *Id.*; CX-0158C (MX8800 Service Manual) at NH\_972-00052430. Thus, the Domestic Industry Products perform the function of “return the abnormal banknotes to the user,” and do so with the structure identified in the ‘235 patent. *See* CX-0274C (Howard WS) at Q/A 653; CX-0158C (MX8800 Service Manual) at NH\_972-00052430. Thus, the Domestic Industry Products practice this limitation under a means-plus-function construction.

**Limitation 1[h]. “an authentic cheque transfer unit coupled to an end of the main transfer path, the authentic cheque transfer unit having an authentic cheque transfer path and configured to transfer at least one authentic cheque in the bundle of banknotes verified by the verifying unit”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an authentic cheque transfer unit” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they include a check transfer path comprising transfer [ ]. A banknote that is verified as an authentic check and confirmed by the user for deposit will be routed into the check transfer path. *See* CX-0274C (Howard WS) at Q/A 654-55. This transfer path is driven by one or more [ ]. *Id.* Further, this transfer path is located at the end of the main transport path. *Id.*; CX-0158 (MX8800 Service Manual) at NH\_972-00052401. Hyosung’s documentary evidence fortifies this position, illustrating that path of a deposited check in the CCiM. *See* CX-0160 (CCiM Chapter 2 Hardware Architecture) at NH\_972-00344807; CX-0274C (Howard WS) at Q/A 654.

Dr. Sturges testified that the Domestic Industry Products do not practice this limitation because they do not have an authentic check transfer unit configured as is

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required by the '235 patent. *See* Resps. Br. at 168-69; RX-0409C (Sturges RWS) at Q/A 646-54. Dr. Sturges reasoned that this is so because the decision of whether to direct cash or checks after the checks reach [ ] is not fixed and the bank can decide whether and how to store each banknote. *See id.* This cannot stand in view of Dr. Howard's testing and analysis and the weight of the documentary evidence.

The Domestic Industry Products include an authentic check transfer unit. *See* CX-0274C (Howard WS) at Q/A 656. Specifically, the Domestic Industry Products use a check transfer path that moves authenticated, individual banknotes that have been confirmed for deposit from the main transfer path towards the check cassette. This check transfer path is comprised of [ ]. It is driven by [

] that moves the banknotes along this transfer path. Thus, the Domestic Industry Products can transfer each banknote verified as an authentic check towards the check storage cassette. Further, as noted above, the Domestic Industry Products include a verifying unit that contains various sensors ([ ], etc.). *Id.* This verifying unit uses these sensors to verify the authenticity of inserted banknotes and to detect overlapping notes. The Domestic Industry Products utilize these verification results to determine if an individual banknote is an authentic check appropriate [ ]. *Id.*

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms "an authentic cheque transfer unit" and "a verifying unit" are means-plus-function elements, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic Industry Products' authentic check transfer path

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performs the required function using the structure identified in the '235 patent that correspond to the "an authentic cheque transfer unit" limitation. For example, the authentic check transfer path of these products performs the function of transferring at least one authentic check in the bundle of banknotes verified by the verifying unit and does so with the structure identified in the '235 patent (a [

]). *Id.*

at Q/A 658.

The technical prong analysis for the disputed claim term "a verifying unit" was discussed above in the section concerning limitation 1[d].

**Limitation 1[i]. "an authentic cash transfer unit coupled to the end of the main transfer path, the authentic cash transfer unit having an authentic cash transfer path and configured to transfer authentic banknotes other than cheques verified by the verifying unit"**

As discussed above in the claim construction section, the administrative law judge determined that the claim term "an authentic cash transfer unit" should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because each includes a [ ] that routes banknotes verified as authentic checks by the verifying unit sensors in to the authentic check path and banknotes verified as authentic cash by the verifying unit sensors into the authentic cash path. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00052401; CX-0274C (Howard WS) at Q/A 660-61. The gate routes each individual banknote into a transfer path that leads to either the check storage cassette or the cash storage cassette. *See* CX-0274C (Howard WS) at Q/A 660. Thus, each kind of inserted media (i.e. cash and checks) has a transfer path and storage unit

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configured to store that kind of media. The evidence shows that the required path through the CCiM exists to practice this limitation. *See* CX-0160C (CCiM Chapter 2 Hardware Architecture) at NH\_972-00344807; CX-0274C (Howard WS) at Q/A 660.

Dr. Sturges testified that the Domestic Industry Products do not include the required authentic cash transfer unit. *See* Resps. Br. at 168-69; RX-0409C (Sturges RWS) at Q/A 655-60. This is incorrect. Dr. Sturges's opinions on this point stem from the same analysis as his opinion concerning the "authentic cheque transfer unit." *Id.* at Q/A 657. For the same reasons as stated above, and based on the analysis below, the Domestic Industry Products practice this limitation. Dr. Howard's analysis and the weight of the evidence refutes any other basis upon which Dr. Sturges relied.

The Domestic Industry Products include an authentic cash unit. As discussed above, the Domestic Industry Products use this cash transfer path to move the individual banknotes that have been verified as authentic cash and confirmed for deposit from the main transfer path towards the cash storage cassette. *See* CX-0274C (Howard WS) at Q/A 662. Specifically, the Domestic Industry Products contain a cash transfer path comprised of transfer [ ] that drive the banknotes. This transfer path moves banknotes verified as authentic cash towards the cash storage cassette. The Domestic Industry Products include a verifying unit which the apparatus uses to determine the authenticity or abnormality of banknotes, to produce a verification result indicating the authenticity or abnormality of inserted banknotes, and to detect overlapping banknotes. *Id.* The Domestic Industry Products use this verification result to determine if an individual banknote is authentic cash appropriate for transfer down the authentic cash path.

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In the event the Commission agrees with respondents that the disputed claim terms “an authentic cash transfer unit” and “a verifying unit” are means-plus-function elements, the evidence would nonetheless show that the Domestic Industry Products would meet this limitation. The Domestic Industry Products’ authentic cash transfer unit performs the required function (*i.e.*, transferring at least one authentic check in the bundle of banknotes verified by the verifying unit) using the structure identified in the ‘235 patent that corresponds with this limitation. For example, the authentic cash transfer path transfers authentic banknotes other than checks verified by the verifying unit and does so with the required structure. *Id.* at Q/A 664.

The technical prong analysis for the disputed claim term “a verifying unit” was discussed above in the section concerning limitation 1[d]. *See also* CX-0274C (Howard WS) at Q/A 665.

**Limitation 1[j]. “a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer unit to the authentic cash transfer path”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a second gate configured to route the at least one cheque transferred by the main transfer unit...” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they include a second gate that routes individual banknotes from the main transfer unit to the authentic check path (if the banknote was verified as an authentic check) or the authentic cash path (if the banknote was verified as an authentic cash). Specifically, the second gate in the

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Domestic Industry Products routes banknotes verified as authentic checks by the sensors in the verifying unit into the authentic check path and banknotes verified by the same as authentic cash into the authentic cash path. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00052401; CX-0274C (Howard WS) at Q/A 666.

Dr. Sturges testified that the Domestic Industry Products do not include a second gate configured as is required by the '235 patent. *See* RX-0409C (Sturges RWS) at Q/A 661-66. This is incorrect. Dr. Sturges opines that because Dr. Howard has not shown that the CCiM includes an authentic check or cash transfer path, the second gate does not route the checks or other banknotes to those paths. *Id.* at Q/A 663. Dr. Howard's analysis and the documentary evidence shows otherwise. *See* CX-0274C (Howard WS) at Q/A 669. Dr. Howard's analysis shows that the Domestic Industry Products contain a [ ]. The gate selectively routes individual banknotes from the main transfer path into either the authentic check transfer path or the authentic cash transfer path depending on the banknote's verification result. *See* CX-0274C (Howard WS) at Q/A 668-69.

**Limitation 1[k]. "an authentic cheque storage cassette coupled to the authentic cheque transfer unit, the authentic cheque storage cassette configured to store therein the at least one authentic cheque transferred by the authentic cheque transfer unit"**

As discussed above in the claim construction section, the administrative law judge has determined that the claim term "coupled to" should be given its plain and ordinary meaning, and the plain and ordinary meaning of that claim term is "operatively connected either directly or indirectly." Also, the administrative law judge determined that the claim term "an authentic cheque transfer unit" should be given its plain and ordinary

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meaning. Under the correct claim constructions of the disputed terms, the Domestic Industry Products practice this limitation.

The Domestic Industry Products practice this limitation because they contain an authentic check storage cassette coupled to the authentic check transfer path and are capable of storing authentic checks. *See* CX-0274C (Howard WS) at Q/A 670.

Specifically, the check storage cassette in the Domestic Industry Products is coupled to the [

]. *Id.*; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344807.

Dr. Sturges testified that the Domestic Industry Products do not include an authentic check storage cassette coupled to the authentic check transfer unit, the authentic check storage cassette configured to store therein the at least one authentic check transferred by the authentic check transfer unit. *See* RX-0409C (Sturges RWS) at Q/A 667-68. Dr. Sturges's opinion stems from his observation that the decision of whether to direct cash or checks after the checks reach [ ] is not fixed and the bank can decide whether and how to store each banknote. *Id.* at Q/A 668. The evidence shows that the Domestic Industry Products use a check transfer path that moves the individual banknotes that have been verified as authentic checks and confirmed for deposit from the main transfer path towards the check cassette. *See* CX-0274C (Howard WS) at Q/A 672; *see also id.* at Q/A 670, Q/A 673-74.

The Domestic Industry Products include an [

]. *See* CX-0274C (Howard WS) at Q/A 672. The evidence

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shows that the Domestic Industry Products use a check transfer path that moves the individual banknotes that have been verified as authentic checks and confirmed for deposit from the main transfer path towards the check cassette. The authentic check transfer path in the Domestic Industry Products is coupled to the [ ]]. See CX-0274C (Howard WS) at Q/A 672-73.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “an authentic cheque transfer unit” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The technical prong analysis for that disputed term was discussed above in the section concerning limitation 1[h].

**Limitation 1[i]. “an authentic cash storage cassette coupled to the authentic cash transfer unit and configured to store therein the authentic banknotes other than cheques transferred by the authentic cash transfer unit”**

As discussed above in the claim construction section, the administrative law judge has determined that the claim term “coupled to” should be given its plain and ordinary meaning, and the plain and ordinary meaning of that claim term is “operatively connected either directly or indirectly.” Also, the administrative law judge determined that the claim term “an authentic cash transfer unit” should be given its plain and ordinary meaning. Under the correct claim constructions of the disputed terms, the Domestic Industry Products practice this limitation.

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The Domestic Industry Products practice this limitation because they contain an authentic cash storage cassette coupled to the authentic cash transfer path and can store authentic banknotes other than checks. *See* CX-0274C (Howard WS) at Q/A 675. The Domestic Industry Products include a [ ] coupled to the end of the [ ]

[ ] *See* CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344807; CX-0274C (Howard WS) at Q/A 675.

Dr. Sturges's opinion that the Domestic Industry Products do not include such an authentic [ ] is not persuasive. Dr. Sturges's analysis on this point flows from the same logic in opining that the Domestic Industry Products lack an authentic check storage cassette. As Dr. Howard notes, "the evidence establishes that the Domestic Industry Products use a cash transfer path that moves the individual banknotes that have been verified as authentic cash and confirmed for deposit from the main transfer path towards the cash cassette. The authentic cash transfer path in the Domestic Industry Products is coupled to the [ ]

[ ] *See* CX-0274C (Howard WS) at Q/A 675, *see also id.* at Q/A 677-78.

The Domestic Industry Products use a cash transfer path to move individual banknotes that have been verified as authentic cash and confirmed for deposit from the main transfer path toward the authentic [ ] *Id.* at Q/A 677. The [ ]

[ ] *Id.*

**PUBLIC VERSION****means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “an authentic cash transfer unit” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The technical prong analysis for that disputed claim term was discussed above in the section concerning limitation 1[i].

**Limitation 1[m]. “a cheque standby unit placed in the main transfer path between the first gate and the second gate, the cheque standby unit configured to hold the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim term “a cheque standby unit” and the claim term “placed in the main transfer path between the first gate and the second gate” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they contain a check standby unit placed on the main transfer path between the first and second gates that [

]. *See*

CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806; CX-0274C (Howard WS) at Q/A 680. As shown in the documentary evidence, the Domestic

Industry Products include an [ ] *See* CX-

0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344806. [ ]

is located on the [ ] *Id.*

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Thus, if the deposit is confirmed, the banknotes will leave the [ ] and proceed to the [ ], and if the user cancels the deposit, the [ ]

[ ]. See CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051965; CX-0274C (Howard WS) at Q/A 680.

Respondents argue that the Domestic Industry Products fail to meet this limitation because the CCiM's [ ] is purportedly not between the first and second gate on the main transfer path. See Resps. Br. at 165-66. Dr. Howard's analysis refutes such an opinion because the [ ]

[ ]. See CX-0274C (Howard WS) at Q/A 680, 682-83. Dr. Sturges admitted at the hearing that he has no evidence to show that [ ]

[ ]. See Sturges Tr. 630.

The Domestic Industry Products include an [ ] functionally between the [ ]

[ ]. See CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051965-66; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401; CX-0274C (Howard WS) at Q/A 682. The authentic banknotes follow a [ ]

[ ]. See CX-0160C (CCiM Hardware Overview) at NH\_972-00344806 (depicting a normal deposit path from the [ ]); CX-0155C (MX8800 System Operator Manual) at NH\_972-00051965-66 (explaining that, in the case of a [ ]

[ ]). Further,

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when storing the notes, the [ ]]. When

releasing the stored notes, the [ ]]

[ ]]. *See* CX-0158C (MX-8800 Service Manual) at NH\_972-00052432 (depicting the [ ] structure); *see* CX-0274C (Howard WS) at Q/A 683.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a cheque standby unit” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic Industry Products include [ ]]. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00052432 (depicting the [ ]

]). This structure performs the required function (holding the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque) using the structure identified in the ‘235 patent.

**Limitation 1[n]. “a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim term “a depositing controller” and the claim term “individual sheets in the banknotes” should be given its plain and ordinary meaning.

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The Domestic Industry Products practice this limitation because each includes a depositing controller connected to the first gate, the second gate, and the verifying unit. This depositing controller controls the [ ] or the [ ]. See CX-0274C (Howard WS) at Q/A 685. It further controls the [ ].

*Id.* The CCI's [ ] operates the devices and its components. *Id.*; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052441; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344790. The CCI [

]. See CX-0274C (Howard WS) at Q/A 685. It connects to the [

]. The CCI further

[

]. It also orders the transfer of

banknotes to either of the [

]. *Id.*; see also CX-0158C (Hyosung MX8800

System Service Manual) at NH\_972-00052441; CX-0160C (Hyosung Chapter 2

Hardware Architecture) at NH\_972-00344790.

Dr. Sturges opines that the Domestic Industry Products do not meet this limitation because the decision of whether to direct cash or checks [ ] is allegedly not fixed. Dr. Howard's analysis identifies extensive evidence to the contrary. See CX-0274C (Howard WS) at Q/A 685; see also *supra* discussions in sections concerning claim

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elements 1[h] – 1[i] (discussing various evidence and analysis weighing against Dr. Sturges’s opinions on this point).

The Domestic Industry Products include a depositing controller. The main controller [ ] matches the depositing controller described in the ‘235 patent. *See* CX-0274C (Howard WS) at Q/A 687. The [ ] in the Domestic Industry Products [ ]]. *See* CX-0158C (Hyosung MX8800 System Service Manual) NH\_972-00052441; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344790. Further, it provides power and control to a number of components. The Domestic Industry Products’ CCiM [ ]]. *Id.* It also [ ]]. *See* CX-0158C (Hyosung MX8800 System Service Manual) NH\_972-00052441; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344790; CX-0274C (Howard WS) at Q/A 687.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a depositing controller” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The [ ] is a controller, which one skilled in the art would understand to indicate a processor and circuitry capable of controlling a device. *See* CX-0274C (Howard WS) at Q/A 689. This [ ]]. Thus, such structure

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performs the function required by the '235 patent (*i.e.*, transferring the authentic banknotes to the main transfer path but transferring abnormal banknotes to the abnormal sheet branch transfer path based on verification result / transferring each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result) using the structure disclosed in the patent that corresponds with this limitation. *Id.* As noted above, the CCiM [ ] is connected to the [ ].

See CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052441; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-003447790; CX-0274C (Howard WS) at Q/A 689.

\* \* \*

Accordingly, complainants have shown that the Domestic Industry Products practice asserted independent claim 1.

**4. Dependent Claim 2**

Asserted dependent claim 2 of the '235 patent reads as follows:

2. The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path.

JX-0001 ('235 Patent) at col. 10, ln. 66 – col. 11, ln. 2.

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**“The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an auto-alignment unit” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they practice all of the limitations of claim 1, and they include an alignment unit which is located on the main transfer path that aligns each individual banknote as it passes through the alignment unit. *See* CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401. Specifically, the Domestic Industry Products’ alignment unit is on the main transfer path after the [ ] and before the [ ]. *Id.* It aligns the individual banknotes before they pass into the Recog component. The Alignment unit includes a transfer path with guide walls, drive rollers, and alignment rollers. *See* CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051965; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052401; CX-0274C (Howard WS) at Q/A 690.

The Domestic Industry Products practice this claim because they include an [ ]. *See* CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051965; CX-0158 (Hyosung MX8800 System Service Manual) at NH\_972-00052401; CX-0274C (Howard WS) at Q/A 692. This structure aligns the individual banknotes as they are transferred along that main

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path. This alignment unit is both part of and on the [ ]. The alignment unit uses [ ]. *Id.*

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “an auto-alignment unit” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic Industry Products include an alignment unit that includes [ ]. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00052426. As noted above, the alignment unit aligns the individual banknotes as they are transferred along the main transfer path. *See* CX-0274C (Howard WS) Q/A 694. Thus, the Domestic Industry Products’ alignment unit performs the required function with the structure identified in the ‘235 patent that corresponds with this limitation.

\* \* \*

Accordingly, complainants have shown that the Domestic Industry Products practice asserted dependent claim 2.

**5. Dependent Claim 3**

Asserted dependent claim 3 of the ‘235 patent reads as follows:

**3.** The apparatus of claim 1, wherein the verifying unit includes:

a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes;

a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes;

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a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes; and

an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque.

JX-0001 ('235 Patent) at col. 11, lns. 3-15.

For the reasons discussed below, the Domestic Industry Products practice claim 3.

**Limitation 3[a]. “a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim term “plural banknotes detection part” and the claim term “based on a thickness of the banknotes” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they include a plural banknotes detection part that detects overlapped banknotes based on thickness. *See* CX-0159C (CCiM Overview Chapter 6) at NH\_972-00345283; CX-0274C (Howard WS) Q/A 696 *et seq.* Specifically, the CCiM includes at least [ ] (one in the [ ]). They detect overlapped banknotes based on thickness. *See* CX-0159C (CCiM Overview Chapter 6) at NH\_972-00345283; CX-0274C (Howard WS) at Q/A 696, 698.

Under respondents’ proposed construction of the term “based on a thickness of the banknotes,” the Domestic Industry Products still practice this limitation because the CCiM’s [ ] detect overlapped banknotes [ ]. *See* CX-0274C (Howard WS) at at Q/A 699.

**PUBLIC VERSION****means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a plural banknotes detection part” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The CCiM’s sensors performs the required function, and one skilled in the art would understand that this function is executed by the structure referenced in the relevant portion of the ‘235 patent. An [ ] is in the same category of sensors as those described in the patent because it would be used to detect similar characteristics of the media (*i.e.*, thickness). *See* CX-0159C (CCiM Overview Chapter 6) at NH\_972-00345283; CX-0274C (Howard WS) at Q/A 700.

**Limitation 3[b]. “a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes”**

The Domestic Industry Products practice this limitation because they include one or more [ ] that scan the inserted banknotes to acquire images for analysis. In detail, the CCiM contains [ ]. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00052448. The [ ] are positioned to acquire and analyze image information. *See* CX-0161C (CCiM [ ] Hardware) at NH\_972-00345377. Each of the [ ]  
[ ]. These images are analyzed to verify the authenticity of the banknotes. Thus, the [ ] from the banknotes. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00052401; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00345377; CX-0274C (Howard WS) at Q/A 701 (noting, also, that Dr. Howard’s opinions as to this limitation were

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further supported by his personal inspection of the Domestic Industry Products). The Domestic Industry Products practice this limitation because they can process a mixed bundle of banknotes and are capable of scanning such a mixed bundle [ ]. *See* CX-0274C (Howard WS) at Q/A 703-04. Under the correct construction of “banknotes,” the Domestic Industry Products practice this limitation because they can process a bundle of banknotes and scan them [ ]. *Id.* at Q/A 704.

**Limitation 3[c]. “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they include sensors that verify the authenticity or abnormality of the inserted banknotes. *See* CX-0162 (Development of the CCiM) at NH\_989-00037562. Specifically, the [ ]

These sensors verify the authenticity or abnormality of each sheet in the mixed bundle. *See* CX-0274C (Howard WS) at Q/A 705. For example, the [ ] includes the following sensors: [ ]. *See id.* The Domestic Industry

Products practice this limitation because each Domestic Industry Product includes a [ ] including the sensors discussed above. They use these sensors to verify the authenticity or abnormality of banknotes by detecting various characteristics of the banknotes. As previously noted, the Domestic Industry Products can verify the

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authenticity or abnormality of each banknote in an inserted mixed bundle. *See* CX-0274C (Howard WS) at Q/A 707.

Under the correct construction of “banknote,” the Domestic Industry Products practice this limitation because they include a [ ] containing the sensors discussed above. The Domestic Industry Products use these sensors to verify the authenticity or abnormality of the inserted banknotes by detecting various characteristics thereof. As noted, the Domestic Industry Products can verify the authenticity or abnormality of each banknote in an inserted mixed bundle. *See* CX-0274C (Howard WS) at Q/A 708.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation.

The Domestic Industry Products practice this limitation because they perform the required function (verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknote) using the same structure as the structure identified in the ‘235 patent that correspond to this limitation. *See* CX-0162C (Development of the CCiM) at NH\_989-00037562. Further, to the extent that the relevant structure is not literally identical to the structure identified in the ‘235, such structure is equivalent because it performs the same function in the same way with the same results. *See* CX-0274C (Howard WS) at Q/A 709.

**PUBLIC VERSION****Limitation 3[d]. “an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque”**

The Domestic Industry Products practice this limitation because they include a

[

]. See CX-0155C (Hyosung

MX8800 System Operator Manual) at NH\_972-00051966; CX-0158C (MX8800 Service Manual) at NH\_972-00052410. The Domestic Industry Products use these [

] to verify the authenticity or abnormality of inserted banknotes by detecting certain characteristics, and, as previously noted, can verify authenticity and abnormality in a mixed bundle of banknotes. See CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051966; CX-0158C (MX8800 Service Manual) at NH\_972-00052402; CX-0274C (Howard WS) at Q/A 710.

\* \* \*

Accordingly, complainants have shown that the Domestic Industry Products practice asserted dependent claim 3.

**6. Dependent Claim 6**

Asserted dependent claim 6 of the '235 patent reads as follows:

**6. The apparatus of claim 1, further comprising:**

- a memory configured to store various information acquired by the verifying unit;
- a communication controller configured to communicate with a host computer connected therewith;
- a central controller configured to control the memory, the depositing controller, and the communication controller;

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a user input unit configured to receive information from the user;

a deposit display unit configured to display information to the user; and

a receipt output unit configured to output a receipt to the user.

JX-0001 ('235 Patent) at col. 11, ln. 23 – col. 12, ln. 2.

For the reasons discussed below, the Domestic Industry Products practice claim 6 of the '235 patent.

**Limitation 6[a]. “a memory configured to store various information acquired by the verifying unit”**

The Domestic Industry Products practice this limitation because they include a [ ] (discussed above with respect to claim 3) [ ]. Specifically, the [ ]. See CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344790, 4813-31; CX-0274C (Howard WS) at Q/A 712 (noting further that Dr. Howard’s opinions on this point were confirmed by his personal inspection of the Domestic Industry Products).

**Limitation 6[b]. “a communication controller configured to communicate with a host computer connected therewith”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a communication controller” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they contain a [ ]. See CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051936. The [ ] is for communicating

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with the [ ]. See CX-0160C (CCiM Hardware Overview) at NH\_972-00344790. Further, the CCiM contains a [ ] that operates the device and its components. See CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344790. This [ ]

[ ]. See CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051942; CX-0158 (Hyosung MX8800 System Service Manual) at NH\_972-00052106; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344790; CX-0274C (Howard WS) at Q/A 713 (noting also that Dr. Howard's opinions on this point were also derived from his personal inspection of Hyosung's ATM). The Domestic Industry Products practice this limitation because they contain a [ ]

[ ]. See CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052441; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344790. This [ ] in the CCiM connect to and communicates with the [ ]

[ ]. See CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051942; CX-0158C (Hyosung MC8800 System Service Manual) at NH\_972-00052106; CX-0160C (Hyosung Chapter 2 Hardware Architecture) at NH\_972-00344790; CX-0274C (Howard WS) at Q/A 715.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term "a communication controller" is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic

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Industry Products practice this limitation because they include a CCiM [

] to the other components of the ATM via a [ ]. This structure performs the required function (communicating with a host computer) using the same structure as is identified in the '235 patent that corresponds to this limitation. *See* CX-0160C (CCiM Hardware Overview) at NH\_972-00344790; CX-0155C (MX-8800 Operator Manual) at NH\_972-00051934; CX-0274C (Howard WS) at Q/A 717.

**Limitation 6[c]. “a central controller configured to control the memory, the depositing controller, and the communication controller”**

As discussed above in the claim construction section, the administrative law judge determined that each of the claim terms “a central controller,” “depositing controller,” and “communication controller” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they include a central controller that controls the memory, depositing controller, and communication controller within Hyosung’s products. *See* CX-0155C (MX8800 Operating Guide) at NH\_972-00051934, 1942; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052106; CX-0274C (Howard WS) at Q/A 718 (noting also that Dr. Howard’s opinions on this point were also derived from his personal inspection of Hyosung’s ATM). Under the plain and ordinary meaning of the controller elements, the Domestic Industry Products practice this limitation because they include a central controller that controls the memory, depositing controller, and communication controller. *See* CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051942; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052106; CX-0274C (Howard WS) at Q/A 720.

**PUBLIC VERSION****means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim terms “a central controller,” “depositing controller,” and “communication controller” are means-plus-function elements, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation.

The Domestic Industry Products include a central controller that performs the function required in the ‘235 patent using the same structure as is identified in the ‘235 patent corresponding to this limitation. *See* CX-0155C (MX8800 Operator Manual) at NH\_972-00051936; CX-0274C (Howard WS) at Q/A 721.

With respect to “depositing controller,” the Domestic Industry Products contain a [ ]. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00052441; CX-0160C (CCiM Hardware Overview) at NH\_972-00344790. The CCiM [

[ ]. *Id.* Further, the CCiM [ ] the operation of the Domestic Industry Products, including

[ ]. *See* CX-0274C (Howard WS) at Q/A 722.

As to “a communication controller,” the Domestic Industry Products contain the [ ] that operates the device and its components. *See* CX-0158C (MX8800 Service Manual) at NH\_972-00052441; CX-0160C (CCiM Hardware

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Overview) at NH\_972-00344790. The CCIIM's [

] See CX-0155C (MX8800 Operator Manual) at NH\_972-00051936; CX-0160C (CCiM Hardware Overview) at NH\_972-00344790. This structure performs the function required by the '235 patent using the same structure as is identified by the '235 patent that corresponds with this limitation. See CX-0155C (MX8800 Operator Manual) at NH\_972-00051936; CX-0160C (CCiM Hardware Overview) at NH\_972-00344790; CX-0274C (Howard WS) at Q/A 723.

**Limitation 6[d]. “a user input unit configured to receive information from the user”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a user input unit” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they include user input devices such as a keypad or touchscreen. See CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051934-35, 1942; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052106; CX-0274C (Howard WS) at Q/A 724 (noting also that Dr. Howard's opinions on this point were also derived from his personal inspection of Hyosung's ATM), 726.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a user input unit” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic Industry

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Products practice this limitation because they include a keypad or touchscreen that performs the function required in the '235 patent. Thus, the Domestic Industry Products perform the required function using the structure identified by the '235 patent corresponding to this limitation. *See* CX-0155C (MX8800 Operator Manual) at NH\_972-00051934; CX-0274C (Howard WS) at Q/A 727.

**Limitation 6[e]. “a deposit display unit configured to display information to the user”**

The Domestic Industry Products practice this limitation because they include a deposit display unit configured to display information to the user. *See* CX-0155C (MX8800 Operator Manual) at NH\_972-00051934-35; 1940; CX-0158C (Hyosung MX8800 System Service Manual) at NH\_972-00052079-80.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term “a deposit display unit” is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic Industry Products include screens for displaying information that perform the function required in the '235 patent (displaying information to the user) using the structure identified that corresponds to this limitation. *See* CX-0155C (MX8800 Operator Manual) at NH\_972-00051934-35; CX-0274C (Howard WS) at Q/A 731.

**Limitation 6[f]. “a receipt output unit configured to output a receipt to the user”**

The Domestic Industry Products practice this limitation because they include a receipt printer that prints receipts for the user. *See* CX-0155C (MX8800 Operator

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Manual) at NH\_972-00051936; CX-0274C (Howard WS) at Q/A 732 (noting also that Dr. Howard's opinions on this point were also derived from his personal inspection of Hyosung's ATM).

The Domestic Industry Products practice this limitation under Hyosung's construction because they include a receipt printer that prints receipts for the user. *See* CX-0155C (Hyosung MX8800 System Operator Manual) at NH\_972-00051942; CX-0158C (Hyosung MC8800 System Service Manual) at NH\_972-00052106.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term "a receipt output unit" is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic Industry Products include a receipt printer that performs the function required by the '235 patent (outputting a receipt to the user) using the same structure as the one identified in the patent corresponding to this limitation. *See* CX-0155C (MX8800 Operator Manual) at NH\_972-00051936; CX-0274C (Howard WS) at Q/A 735.

\* \* \*

Accordingly, complainants have shown that the Domestic Industry Products practice asserted dependent claim 6.

**7. Dependent Claim 8**

Asserted dependent claim 8 of the '235 patent reads as follows:

8. The apparatus of claim 1, further comprising:  
an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and

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configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path,

wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit.

JX-0001 ('235 Patent) at col. 12, lns. 12-22.

For the reasons discussed below, the Domestic Industry Products practice claim 8 of the '235 patent.

**Limitation 8[a]. “an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an authentic cheque incoming unit” should be given its plain and ordinary meaning.

The Domestic Industry Products practice this limitation because they include a [ ]. See CX-0157 (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559. The [ ] is configured to temporarily hold an individual sheet of the at least one authentic check transferred along the authentic check transfer path. *Id.* Specifically, the Domestic Industry Products include a [ ]

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J. *See* CX-0157C (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559, 9563; CX-0274C (Howard WS) at Q/A 738 (noting also that Dr. Howard's opinions on this point were also derived from his personal inspection of Hyosung's ATM), 739.

**means-plus-function:**

In the event the Commission agrees with respondents that the disputed claim term "an authentic cheque incoming unit" is a means-plus-function element, the evidence nonetheless shows that the Domestic Industry Products would meet this limitation. The Domestic Industry Products include [

] of the authentic check transfer path that performs the function required by the '235 patent (temporarily holding an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path) using identified structure corresponding with this limitation. *See* CX-0157C (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559, 9563; CX-0274C (Howard WS) at Q/A 741.

**Limitation 8[b]. "wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit"**

As discussed above in the claim construction section, the administrative law judge determined that the claim term "configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit" should be given its plain and ordinary meaning.

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The Domestic Industry Products practice this limitation because they include a [ ] stores authentic checks held by the authentic check incoming unit. *See* CX-0157C (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559, 9563. Specifically, the Domestic Industry Products include a [ ]].

The authentic checks in the mixed bundle of banknotes are [ ]]. As the authentic checks enter the [ ]].

[ ]]. *See* CX-0157C (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559, 9563. The [ ]]. *See* CX-0274C (Howard WS) at Q/A 742 (noting also that Dr. Howard's opinions on this point were also derived from his personal inspection of Hyosung's ATM), 744.

\* \* \*

Accordingly, complainants have shown that the Domestic Industry Products practice asserted dependent claim 8.

**8. Dependent Claim 9**

Asserted dependent claim 9 of the '235 patent reads as follows:

**9. The apparatus of claim 1, further comprising:**

an authentic cash temporary storage provided at a rear end side of the authentic cash transfer path and configured to stack and temporarily hold the authentic

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banknotes other than cheques transferred along the authentic cash transfer path,

wherein the authentic cash storage cassette is configured to store a bundle of the stack of authentic banknotes other than cheques held by the authentic cash temporary storage.

JX-0001 ('235 Patent) at col. 12, lns. 23-32.

For the reasons discussed below, the Domestic Industry Products practice claim 9 of the '235 patent.

**Limitation 9[a]. “an authentic cash temporary storage provided at a rear end side of the authentic cash transfer path and configured to stack and temporarily hold the authentic banknotes other than cheques transferred along the authentic cash transfer path”**

The Domestic Industry Products practice this limitation because they include a temporary cash storage structure for temporarily storing authentic cash in the mixed bundle of banknotes. *See* CX-0157C (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559, 9563; CX-0274C (Howard WS) at Q/A 745 (noting also that Dr. Howard's opinions on this point were also derived from his personal inspection of Hyosung's ATM), 747. Specifically, the Domestic Industry Products include a

[

] in the mixed bundle of banknotes [

]. *Id.*

Under the correct claim construction of “banknotes,” the Domestic Industry Products practice this limitation because they include a temporary cash storage structure for temporarily holding the authentic cash in the mixed bundle of banknotes. *See* CX-

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0157C (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559, 9563; CX-0274C (Howard WS) at Q/A 748.

**Limitation 9[b]. “wherein the authentic cash storage cassette is configured to store a bundle of the stack of authentic banknotes other than cheques held by the authentic cash temporary storage”**

The Domestic Industry Products practice this limitation because they include a temporary storage unit at the top of the authentic cash storage cassette that stores the authentic cash held by the authentic cash storage unit. *See* CX-0157C (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559, 9563; CX-0274C (Howard WS) at Q/A 749 (noting also that Dr. Howard’s opinions on this point were also derived from his personal inspection of Hyosung’s ATM), 751. Specifically, the Domestic Industry Products include a [

]. *Id.* [

]. *Id.* [

].

Under the correct claim construction of “banknotes,” the Domestic Industry Products practice this limitation because they include a temporary cash storage structure for temporarily holding the authentic cash in the mixed bundle of banknotes. *See* CX-0157C (Hyosung Chapter 5 EP Command Function & Flow) at NH\_972-00089559, 9563; CX-0274C (Howard WS) at Q/A 752.

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\* \* \*

Accordingly, complainants have shown that the Domestic Industry Products practice asserted dependent claim 9.

**D. Validity of the '235 Patent**

Respondents argue that (1) 11 disputed claim terms are indefinite; (2) each of the CCDMv1 module, 2003 CCDMv1 service manual, and the 2005 CCDMv1 service manual anticipates the asserted claims of the '235 patent; (3) the asserted claims of the '235 patent are rendered obvious by the CCDMv1 module, the 2003 CCDMv1 service manual, and/or the 2005 CCDMv1 service manual; and (4) the asserted claims of the '235 patent are rendered obvious by the CCDMv1 module, the 2003 CCDMv1 service manual, and/or the 2005 CCDMv1 service manual combined with U.S. Patent No. 6,663,001 ("Suttie"). *See* Resps. Br. at 90-149; Joint Outline at 5-6.

Complainants disagree. *See* Compls. Br. at 20-21, 25-28, 35-43, 46-51, 165-93.

For the reasons set forth below, respondents have not shown by clear and convincing evidence that the asserted claims of the '235 patent are invalid.

**1. Applicable Law**

One cannot be held liable for practicing an invalid patent claim. *See Pandrol USA, LP v. AirBoss Railway Prods., Inc.*, 320 F.3d 1354, 1365 (Fed. Cir. 2003). Nevertheless, each claim of a patent is presumed to be valid, even if it depends from a claim found to be invalid. 35 U.S.C. § 282; *DMI Inc. v. Deere & Co.*, 802 F.2d 421 (Fed. Cir. 1986).

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A respondent that has raised patent invalidity as an affirmative defense must overcome the presumption by “clear and convincing” evidence of invalidity. *Checkpoint Systems, Inc. v. United States Int’l Trade Comm’n*, 54 F.3d 756, 761 (Fed. Cir. 1995).

**a. Anticipation**

Anticipation under 35 U.S.C. § 102 is a question of fact. *z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1347 (Fed. Cir. 2007). Section 102 provides that, depending on the circumstances, a claimed invention may be anticipated by variety of prior art, including publications, earlier-sold products, and patents. *See* 35 U.S.C. § 102 (*e.g.*, section 102(b) provides that one is not entitled to a patent if the claimed invention “was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States”).

The general law of anticipation may be summarized, as follows:

A reference is anticipatory under § 102(b) when it satisfies particular requirements. First, the reference must disclose each and every element of the claimed invention, whether it does so explicitly or inherently. *Eli Lilly & Co. v. Zenith Goldline Pharms., Inc.*, 471 F.3d 1369, 1375 (Fed.Cir.2006). While those elements must be “arranged or combined in the same way as in the claim,” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed.Cir.2008), the reference need not satisfy an *ipsissimis verbis* test, *In re Bond*, 910 F.2d 831, 832-33 (Fed.Cir.1990). Second, the reference must “enable one of ordinary skill in the art to make the invention without undue experimentation.” *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 545 F.3d 1312, 1314 (Fed.Cir.2008); *see In re LeGrice*, 49 C.C.P.A. 1124, 301 F.2d 929, 940-44 (1962). As long as the reference discloses all of the claim limitations and enables the “subject matter that falls within the scope of the claims at issue,” the reference anticipates -- no “actual creation or reduction to practice” is required. *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1380-81 (Fed.Cir.2003); *see In re Donohue*, 766 F.2d 531, 533 (Fed.Cir.1985). This is so despite the

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fact that the description provided in the anticipating reference might not otherwise entitle its author to a patent. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562 (Fed.Cir.1991) (discussing the “distinction between a written description adequate to support a claim under § 112 and a written description sufficient to anticipate its subject matter under § 102(b)”).

*In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

**b. Obviousness**

Under section 103 of the Patent Act, a patent claim is invalid “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”<sup>32</sup> 35 U.S.C. § 103. While the ultimate determination of whether an invention would have been obvious is a legal conclusion, it is based on “underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness.” *Eli Lilly and Co. v. Teva Pharmaceuticals USA, Inc.*, 619 F.3d 1329 (Fed. Cir. 2010).

The objective evidence, also known as “secondary considerations,” includes commercial success, long felt need, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 13-17 (1966); *Dystar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006). “[E]vidence arising out of the so-called ‘secondary considerations’ must always when present be considered en route to a determination of

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<sup>32</sup> The standard for determining whether a patent or publication is prior art under section 103 is the same as under 35 U.S.C. § 102, which is a legal question. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987).

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obviousness.” *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983).

Secondary considerations, such as commercial success, will not always dislodge a determination of obviousness based on analysis of the prior art. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 426 (2007) (commercial success did not alter conclusion of obviousness).

“One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent’s claims.” *KSR*, 550 U.S. at 419-20. “[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.*

Specific teachings, suggestions, or motivations to combine prior art may provide helpful insights into the state of the art at the time of the alleged invention. *Id.* at 420. Nevertheless, “an obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way.” *Id.* “Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* A “person of ordinary skill is also a person of ordinary creativity.” *Id.* at 421.

Nevertheless, “the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would

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have had a reasonable expectation of success in doing so.” *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007); *see KSR*, 550 U.S. at 416 (a combination of elements must do more than yield a predictable result; combining elements that work together in an unexpected and fruitful manner would not have been obvious).<sup>33</sup>

**c. Indefiniteness**

The definiteness requirement of 35 U.S.C. § 112 ensures that the patent claims particularly point out and distinctly claim the subject matter that the patentee regards to be the invention. *See* 35 U.S.C. § 112, ¶ 2; *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1366 (Fed. Cir. 2004). If a claim’s legal scope is not clear enough so that a person of ordinary skill in the art could determine whether or not a particular product infringes, the claim is indefinite, and is, therefore, invalid. *Geneva Pharm., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1384 (Fed. Cir. 2003).<sup>34</sup>

Thus, it has been found that:

When a proposed construction requires that an artisan make a separate infringement determination for every set of circumstances in which the composition may be used, and when such determinations are likely to result in differing outcomes (sometimes infringing and sometimes not), that construction is likely to be indefinite.

*Halliburton Energy Servs. v. M-I LLC*, 514 F.3d 1244, 1255 (Fed. Cir. 2008).

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<sup>33</sup> Further, “when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.” *KSR*, 550 U.S. at 416 (citing *United States v. Adams*, 383 U.S. 39, 52 (1966)).

<sup>34</sup> Indefiniteness is a question of law. *IGT v. Bally Gaming Int’l, Inc.*, 659 F.3d 1109 (Fed. Cir. 2011).

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The Supreme Court addressed the issue of indefiniteness, and stated that a finding of indefiniteness should not be found if the claims, “viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014).

A patent is not indefinite if the claims, “viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). “If, after a review of the intrinsic and extrinsic evidence, a claim term remains ambiguous, the claim should be construed so as to maintain its validity.” *Certain Consumer Electronics And Display Devices With Graphics Processing And Graphics Processing Units Therein*, Inv. No. 337-TA-932, Order No. 20 (Apr. 2, 2015) (quoting *Phillips*, 415 F.3d at 1327).

The burden is on the accused infringer to come forward with clear and convincing evidence to prove invalidity. *See Young v. Lumenis, Inc.*, 492 F.3d 1336, 1344 (Fed. Cir. 2007) (“A determination that a patent claim is invalid for failing to meet the definiteness requirement in 35 U.S.C. § 112, ¶ 2 is a legal question reviewed de novo.”).

**2. Indefiniteness**

Respondents argue that 11 disputed claim terms are indefinite. *See* Resps. Br. at 90-103; Joint Outline at 5-6. Complainants disagree. *See* Compls. Br. at 20-21, 25-28, 35-43, 46-51.

For the reasons set forth below, respondents have not shown by clear and convincing evidence that the 11 disputed claim terms are indefinite.

**PUBLIC VERSION****a. Claim Term “a bundle separator” (Claim 1)**

Asserted independent claim 1 reads as follows:

**1.** A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque, the apparatus comprising:

a bundle insertion unit configured to receive the bundle of banknotes from a user;

a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval;

a main transfer unit coupled to the bundle separator and configured to horizontally transfer the individual sheets of the banknotes along a main transfer path;

a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors;

an abnormal sheet branch transfer unit having an abnormal sheet branch transfer path branched from the main transfer path, the abnormal sheet branch transfer unit configured to transfer abnormal banknotes verified by the verifying unit;

a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path;

an abnormal sheet unloading transfer unit coupled to the first gate, the abnormal sheet unloading unit having an abnormal sheet unloading transfer path and configured to return the abnormal banknotes to the user;

an authentic cheque transfer unit coupled to an end of the main transfer path, the authentic sheet transfer unit having an authentic cheque transfer path and configured

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to transfer at least one authentic cheque in the bundle of banknotes verified by the verifying unit;

an authentic cash transfer unit coupled to the end of the main transfer path, the authentic cash transfer unit having an authentic cash transfer path and configured to transfer authentic banknotes other than cheques verified by the verifying unit;

a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer unit to the authentic cash transfer path;

an authentic cheque storage cassette coupled to the authentic cheque transfer unit, the authentic cheque storage cassette configured to store therein the at least one authentic cheque transferred by the authentic cheque transfer unit;

an authentic cash storage cassette coupled to the authentic cash transfer unit and configured to store therein the authentic banknotes other than cheques transferred by the authentic cash transfer unit;

a cheque standby unit placed in the main transfer path between the first gate and the second gate, the cheque standby unit configured to hold the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque; and

a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.

JX-0001 ('235 Patent) at col. 9, ln. 58 – col. 10, ln. 65.

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As discussed above in the claim construction section, the administrative law judge determined that the claim term “a bundle separator” recited in claim 1 should be given its plain and ordinary meaning.

The disputed term is not a means-plus-function limitation. A person of ordinary skill in the art would find that this phrase denotes a particular structure, *i.e.*, the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art that handle separating media. The separation of media is a well-established technique, and bundle separators are used in many industries to perform the common function of separating individual sheets from a stack of sheets. A person of ordinary skill in the art would thus construe this term according to its plain and ordinary meaning. *See* CX-0274C (Howard WS) at Q/A 95.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how “a bundle separator” would have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components, such as driven rollers, in the art that handle separating individual media. *Id.* at Q/A 97-98. The claim also confers additional structure in the form of describing how the “bundle separator” interacts with other claimed elements. *Id.* As can be seen, claim 1 discloses that the bundle separator must be coupled to the bundle insertion unit, thus requiring well-known components to interface with the portion of the cash-and-check depositing module (discussed above) that handles bundle insertion. Further, as already discussed, bundle separating is a well-

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established technique in many applications, and bundle separators are used throughout many industries to separate individual sheets. Dr. Sturges admitted that evidence shows that “bundle separator” connotes structure. Sturges Tr. 544.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a bundle separator” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, “a bundle separator” limitation has corresponding structure in the ‘235 specification. Under § 112, ¶ 6 treatment, the claimed function is “separating the bundle of banknotes received at the bundle insertion unit into individual sheets and transferring each of the individual sheets with a predetermined time interval.” The corresponding structure is “a separator (*i.e.*, element 104) coupled to the bundle insertion unit.” *See* CX-0274C (Howard WS) at Q/A 96, 100-02; JX-0001 (‘235 Patent) at col. 2, lns. 32-34; Fig. 2; Abstract; col. 3, lns. 43-47; col. 7, lns. 19-25.

**b. Claim Term “a verifying unit” (Claim 1)**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a verifying unit” should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite.

The disputed term is not a means-plus-function limitation. A person of skill in the art would understand that the structure in an ATM that contains the sensors and apparatus to validate the media is the verifying unit. In general, the verifying unit refers to the portion or portions of the module that contain the necessary sensors and hardware for validation of banknotes. Further, note verification is a well-established technique, and

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verifying units are used in many industries to perform the common function of authenticating notes and/or detecting abnormalities in inserted media. One of ordinary skill would have appreciated that the reference to “three different sensors” necessarily denoted structure, as the universe of potential sensors to be used in this capacity is finite (including, *e.g.*, ultrasonic sensors, cameras, photosensors, Hall sensors, MICR heads). *See* CX-0274C (Howard WS) at Q/A 121-22.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how “a verifying unit” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for verifying banknotes. *See* CX-0274C (Howard WS) at Q/A 125. The claim also confers additional structure in the form of describing how the “verifying unit” must be “installed on the main transfer path.” *See* JX-0001 (‘235 Patent) at col. 10, ln. 4. To a person of skill in the art, this would further require well-known components to interface with the portion of the cash-and-check depositing module (discussed above) that transports media through the module. Further, note verification is a well-established technique, and verifying units are used in many industries to perform the common function of authenticating notes and/or detecting abnormalities in inserted media. One of ordinary skill would have appreciated that the reference to “three different sensors” necessarily denoted structure, as the universe of potential sensors to be used in this capacity is finite (including, *e.g.*, ultrasonic sensors, cameras, photosensors, Hall sensors, MICR heads).

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During prosecution, applicants made it clear that they were not wording their claim merely to claim an intended use, or function, for the “verifying unit.” *See* JX-0002 (‘235 Patent File History) at 000266 (adding “configured to verify” and “configured to produce a verification result”). The applicants wrote that, in view of these amendments, the limitations “no longer recite[ ] any limitations that amount to statements of intended use.” *Id.* at 000261 (“An agreement was reached that claims 1, 2, 4, 6 and 7, as amended herein, no longer recites any limitations that amount to statement of intended use.”).

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a verifying unit” is a means-plus-function element, the ‘235 patent discloses the required structure.

Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 description. Under § 112, ¶ 6 treatment, the three claimed functions and corresponding structure are:

**First Function:** “verifying the authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes”

**Second Function:** “producing a verification result indicating the authenticity or abnormality of each of the banknotes”

**Third Function:** “performing tripartite detection of overlapping of the individual sheets using three different sensors”

**Corresponding structure (first function):** a CIS having scanning surfaces, a pressurizing device, and information reader (*i.e.*, element 110a); cash verifier and detection sensors including light emitting sensors, magnetic sensors, ultra violet sensors, and infrared sensors (*i.e.*, element 110b); MICR sensors having a magnetic recognition head and a pressurizing device (*i.e.*, element

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110c); and plural notes detection sensors including CIS and MICR (i.e., element 110d)

**Corresponding structure (second function):** a CIS having scanning surfaces, a pressurizing device, and information reader (i.e., element 110a); cash verifier and detection sensors including light emitting sensors, magnetic sensors, ultra violet sensors, and infrared sensors (i.e., element 110b); MICR sensors having a magnetic recognition head and a pressurizing device (i.e., element 110c); and plural notes detection sensors including CIS and MICR (i.e., element 110d)

**Corresponding structure (third function):** a CIS having scanning surfaces, a pressurizing device, and information reader (i.e., element 110a); MICR sensors having a magnetic recognition head and a pressurizing device (i.e., element 110c); and plural notes detection sensors including CIS and MICR (i.e., element 110d).

See CX-0274C (Howard WS) at Q/A 123. Each function is recited in claim 1, and respondents do not substantively dispute these functions. *Id.* at Q/A 126-27; JX-0001 ('235 Patent) at col. 10, lns. 4-13. Dr. Howard described how the patent teaches corresponding structure of each of these functions, i.e., use of a CIS having scanning surfaces, a pressurizing device, and information reader (i.e., element 110a); MICR sensors having a magnetic recognition head and a pressurizing device (i.e., element 110c); and plural notes detection sensors including CIS and MICR (i.e., element 110d). See JX-0001 ('235 Patent) at Fig. 2; col. 3, ln. 63 – col. 4, ln. 9; col. 4, lns. 10-19; col. 4, lns. 30-37; col. 4, lns. 49-53; col. 4, ln. 60 – col. 5, ln. 6; col. 9, lns. 34-44; see also CX-0274C (Howard WS) at Q/A 128-29. Respondents' attempts to exclude some or all of these disclosures as structure for the "verifying unit" is improper, as the patent expressly describes each of these as performing overlap detection. See JX-0001 ('235 Patent) at

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col. 4, lns. 45-64; CX-0274C (Howard WS) at Q/A 129. This further demonstrates the terms' definiteness under a § 112, ¶ 6 treatment.

**c. Claim Term “a cheque standby unit” (Claim 1)**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a cheque standby unit” should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite.

A person of ordinary skill in the art would understand that a structure in an ATM that temporarily holds checks pending the customer confirming the deposit is the cheque standby unit. In general, a cheque standby unit is the escrow that temporarily holds checks. *See* CX-0274C (Howard WS) at Q/A 185-86.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “a cheque standby unit” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components for holding cheques in a standby configuration pending user confirmation of the deposit. *Id.* at Q/A 189. The claim also confers additional structure in the form of describing how the “cheque standby unit” must be “placed in the main transfer path between the first gate and the second gate.” *See* JX-0001 (‘235 Patent), col. 10, lns. 50-55.

During prosecution, applicants made it clear that they were not wording their claim merely to claim an intended use. *See* CX-0274C (Howard WS) at Q/A 189. Applicants modified their claim to add the phrase “configured to hold.” *See* JX-0002

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(‘235 Patent File History) at 000267. The applicants wrote that, in view of these amendments, the limitations “no longer recite[ ] any limitations that amount to statements of intended use.” *Id.* at 000261. This further confirms that the limitation is structural in nature. *See also id.* at Office Action of Oct. 17, 2012, at 000290-303; Amdmt. of Feb. 12, 2013, at 000359-360; Notice of Allowance, at 000378-380 (subsequent history, raising no functional claiming issues).

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a cheque standby unit” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 description, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “holding the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque,” and the corresponding structure is “stacking and temporary storage of media.” *See* CX-0274C (Howard WS) at Q/A 187, 190-93. Respondents do not substantively disagree as to the function being claimed. A person of ordinary skill in the art would find corresponding structure in the ‘235 patent. *Id.* at Q/ a 192. Figure 2 of the ‘235 patent teaches a cheque standby unit 120 that temporarily stores at least one authentic cheque by holding it in position on the belt. *See* JX-0001 (‘235 Patent) at Fig. 2. A person of ordinary skill in the art would also understand the stacking and temporary storage of media in figure 2. *Id.* at col. 2, lns. 65-66; col. 3, lns. 36-37; col. 5, lns. 40-54. This further demonstrates the term’s definiteness under a § 112, ¶ 6 treatment.

**PUBLIC VERSION****d. Claim Term “a depositing controller” (Claim 1)**

For the reasons discussed below, the administrative law judge has determined that the claim term “a depositing controller” should be given its plain and ordinary meaning. This claim term is not indefinite. A person of ordinary skill would find the phrase understandable, and requiring no elaboration. *See* CX-0274C (Howard WS) at Q/A 200-01.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how a “depositing controller” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for controlling the mechanical operations of the module. *Id.* at Q/A 204. For example, the claim describes, in specific terms, a precise algorithm that must be used to control the operation of the device. That is, the depositing controller must “transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result,” and must also “transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.” *See* JX-0001 (‘235 Patent) at col. 10, lns. 56-65. At the hearing, Dr. Sturges acknowledged that this amounted to a recitation of steps, and that the “depositing controller” is not just any processor, but a processor specifically for performing these steps. *See* Sturges Tr. 550, 552-553 (“Yes, I would agree with that, sure.”); *see also* Howard Tr. 234-235

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(discussing the steps the depositing controller would need to perform). Such recitation of steps provides more than sufficient structure to inform a person of skill as to the structure required for the “depositing controller.” *See* CX-274C (Howard WS) at Q/A 204.

Further, claim 1 recites how the controller is “connected to” other structural elements, further establishing structure. *Id.*

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the claim term “a depositing controller” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ contentions, the limitation has corresponding structure in the ‘235 description, and so survives definiteness review.

Under § 112, ¶ 6 treatment, the two claimed functions and corresponding structure are:

**First Function:** “transferring the authentic banknotes to the main transfer path but transferring abnormal banknotes to the abnormal sheet branch transfer path based on verification result”

**Second Function:** “transferring each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result”

**Corresponding structure (first function):** depositing controller (*i.e.*, element 140), carrying out the algorithm described in the claim

**Corresponding structure (second function):** depositing controller (*i.e.*, element 140), carrying out the algorithm described in the claim.

*See* CX-274C (Howard WS) at Q/A 202. This extends directly from claim 1, as discussed above, as well as from the written description, which teaches a depositing controller 140 for performing each of the functions identified. *See* JX-0001 (‘235 Patent) at col. 6, lns. 35-48, lns. 52-57, Figs. 1 and 2. A person of ordinary skill in the art would

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not need to refer to any algorithm to understand the structure being used to perform these functions, but it should be noted for completeness that the claim language itself teaches such an algorithm, as do the cited specification sections. *See* CX-0274C (Howard WS) at Q/A 207. Further, the '235 specification describes the actions that the various components controlled by the "depositing controller" must undertake, and in so doing further discloses the algorithm required for this term. *See* JX-0001 ('235 Patent) at col. 7, lns. 49-60 (describing how the first gate (controlled by the depositing controller as described at col. 6, lns. 38-40) appropriately directs authentic & abnormal notes); col. 8, lns. 16-23, 42-48 (describing how the second gate (also controlled by the depositing controller) appropriately directs cash and cheques). Thus, the term is definite under § 112, ¶ 6 treatment.

e. **Claim Term "individual sheets in the banknotes"  
(Claim 1)**

As discussed above in the claim construction section, the administrative law judge determined that the claim term "individual sheets in the banknotes" should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite.

Respondents argue:

One of ordinary skill in the art would not be able to comprehend the scope of the claims because the language "individual sheets in the banknotes" in claim 1 is confusing and nonsensical. Because the banknotes are themselves individual sheets, it is unclear how individual sheets could be "in the banknotes". Accordingly, because the term "individual sheets in the banknotes" fails to reasonably inform the person of ordinary skill in the art of the scope of the claims, this term is indefinite.

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Resps. Br. at 102. Respondents' argument cited above is the entirety of their argument in respondents' initial brief regarding whether the claim term "individual sheets in the banknotes" is indefinite.

A person of skill in the art would understand the phrase. *See* CX-0274C (Howard WS) at Q/A 212-13. A person of ordinary skill in the art would have no difficulty concluding that the reference to "individual sheets in the banknotes determined to be a cheque" to mean each of the banknote sheets that has been determined, upon use of the claimed apparatus, to be authentic cheques. *See* JX-0001 ('235 Patent) at col. 10, lns. 61-63 (describing "transfer[ring] each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path"). Such is the meaning that a person of ordinary skill in the art would readily apply, and is the plain and ordinary meaning of the term at issue. For the same reasons, such a person would have no difficulty determining the scope of the limitation. *See* CX-0274C (Howard WS) at Q/A 214.

**f. Claim Term "an auto-alignment unit" (Claim 2)**

Asserted dependent claim 2 of the '235 patent reads as follows:

2. The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path.

JX-0001 ('235 Patent) at col. 10, ln. 66 – col. 11, ln. 2.

As discussed above in the claim construction section, the administrative law judge determined that the claim term "an auto-alignment unit" should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite. A person of ordinary skill in the art would understand that the structure in an ATM that aligns the

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banknotes while they traverse the main transfer path is the auto-alignment unit. In general, an auto-alignment unit refers to the portion or portions of the module containing driven rollers and sensors for aligning banknotes. See CX-0274C (Howard WS) at Q/A 215-16.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “an auto-alignment unit” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for aligning banknotes. *Id.* at Q/A 219. The claim also confers additional structure in the form of describing how the “auto-alignment unit” must be “provided on the main transfer path.” See JX-0001 (‘235 Patent), col. 10, ln. 66 – col. 11, ln. 2. To a person of skill in the art, this would further confirm the structural requirements for the “auto-alignment unit,” including by requiring well-known components to interface with the portion of the cash-and-check depositing module that transfers the banknotes. See CX-0274C (Howard WS) at Q/A 219. Dr. Sturges agreed that the evidence demonstrates that the term “alignment unit” connotes structure. See Sturges Tr. 542.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “an auto-alignment unit” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 description, and so survives definiteness review. Under § 112, ¶ 6

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treatment, the claimed function is “aligning the banknotes while transferring the banknotes on the main transfer path,” and the corresponding structure is “alignment unit (i.e., element 108), with rollers to align and transfer.” *See* CX-0274C (Howard WS) at Q/A 217. There seems to be no substantive dispute between the parties as to the claimed function. *Id.* at Q/A 221. As to the corresponding structure, figure 2 of the ‘235 patent teaches an auto-alignment unit 108 that aligns the banknotes while transferring the banknotes on the main transfer path. *Id.* at Q/A 222; JX-0001 (‘235 Patent) at Fig. 2; *see also id.* at col. 2, lns. 36-39; col. 3, lns. 48-55, col. 3, lns. 56-62. Further, inasmuch as the alignment unit in the ‘235 patent performs alignment while notes are being transferred, a person of ordinary skill would also understand that the structures commonly associated with transfer paths in the ‘235 patent were used to perform the function, *e.g.*, rollers to align and transfer. *See id.* at Fig. 2, col. 1, lns. 48-50; col. 2, lns. 44-47; col. 3, lns. 49-55; CX-0274C (Howard WS) at Q/A 222. This further demonstrates the term’s definiteness under § 112, ¶ 6 treatment.

**g. Claim Term “plural banknotes detection part”  
(Claim 3)**

Asserted dependent claim 3 of the ‘235 patent reads as follows:

3. The apparatus of claim 1, wherein the verifying unit includes:
  - a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes;
  - a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes;

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a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes; and

an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque.

JX-0001 ('235 Patent) at col. 11, lns. 3-15.

As discussed above in the claim construction section, the administrative law judge determined that the claim term “plural banknotes detection part” should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite.

A person of ordinary skill in the art would understand that the structure in an ATM that contains the sensors and apparatus that sense more than one media passing through the module at a time is the plural banknotes detection part. In general, the plural banknotes detection part refers to the portion or portions of the module that contain the necessary sensors and hardware capable of identifying plural banknotes. *See* CX-0274C (Howard WS) at Q/A 227-28.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “plural banknotes detection part” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for the detection of plural banknotes. *Id.* at Q/A 231. The claim also confers additional structure in the form of describing how the “plural banknotes detection part” interacts with other claimed elements. *Id.* Claim 1 discloses that “verifying unit” (which includes the additional

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limitations recited in claim 3) must be “installed on the main transfer path.” JX-0001 (‘235 Patent), col. 11, lns. 3-15. To a person of skill in the art, this would further confirm the structural requirements for the “plural banknotes detection part,” including by requiring well-known components to interface with the portion of the cash-and-check depositing module that transfers the banknotes. *See* CX-0274C (Howard WS) at Q/A 231. As such, § 112, ¶ 6 treatment is unwarranted.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “plural banknotes detection part” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 description, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “detecting overlapping individual sheets based on a thickness of the banknotes,” and the corresponding structure is “plural notes detection sensors, e.g., an infrared sensor that detects thickness, a magnetic sensor, a light emitting sensor, a UV sensor.” *Id.* at Q/A 229. There is no substantive dispute between the parties as to the claimed function. *Id.* at Q/A 232-33. As to the corresponding structure, figure 2 of the ‘235 patent teaches plural notes detection part 110d. *See* JX-0001 (‘235 Patent) at Fig. 2; *see also id.* at col. 3, ln. 63 – col. 4, ln. 9; col. 4, lns. 10-19; col. 4, lns. 30-37 (“the detection sensors may include at least one among a light emitting sensor, a magnetic sensor, a UV sensor, an infrared sensor and the like”); col. 4, lns. 45-48 (“[T]he infrared sensor detects . . . characteristics thereof such as thickness . . . .”); col. 4, ln. 60 – col. 5, ln. 6; col. 9, lns. 34-44.

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The '235 patent describes the light emitting sensor, magnetic sensor, UV sensor, and infrared sensor as species of "detection sensors." *Id.* at col. 4, lns. 34–48. Thus a person of ordinary skill would understand the '235 patent's instruction that the plural banknotes detection part 110d "detects whether or not two or more banknotes are overlapped" to mean that it does so using, *e.g.*, one or more of the previously-described "detection sensors." *See id.* at col. 4, lns. 60–64. Further, one of ordinary skill would understand the '235 patent's instruction that such be performed "preferably . . . by way of detecting a thickness of the banknotes" to clearly refer to the species of "detection sensors" expressly described as detecting thickness, *i.e.*, the infrared sensors described above. *See CX-0274C (Howard WS) at Q/A 234.* Further, a person of ordinary skill would understand that a CIS, MICR, or pressurizing device may also detect a thickness of potentially-overlapping notes. *Id.* This further demonstrates the terms' definiteness under a § 112, ¶ 6 treatment. *See also id.* at Q/A 235.

**h. Claim Term "a communication controller"  
(Claim 6)**

Asserted dependent claim 6 of the '235 patent reads as follows:

- 6.** The apparatus of claim 1, further comprising:
- a memory configured to store various information acquired by the verifying unit;
  - a communication controller configured to communicate with a host computer connected therewith;
  - a central controller configured to control the memory, the depositing controller, and the communication controller;
  - a user input unit configured to receive information from the user;
  - a deposit display unit configured to display information to the user; and

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a receipt output unit configured to output a receipt to the user.

JX-0001 ('235 Patent) at col. 11, ln. 23 – col. 12, ln. 2.

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a communication controller” should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite. A person of ordinary skill in the art would find this phrase readily understandable, and requiring no further elaboration. *See* CX-0274C (Howard WS) at Q/A 248-49.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “a communication controller” would necessarily have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for communicating with other computers. *Id.* at Q/A 252. The claim also confers additional structure in the form of describing how the “plural communication controller” interacts with other claimed elements. As can be seen, claim 6 emphasizes that the “communication controller” must be “connected” to the “host computer.” *See* JX-0001 ('235 Patent), col. 11, ln. 23 – col. 12, ln. 2. To a person of skill in the art, this would further confirm the structural requirements for the “communication controller.” *See* CX-0274C (Howard WS) at Q/A 252. For these reasons, means-plus-function treatment is unwarranted.

**PUBLIC VERSION****Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a communication controller” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 patent, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “communicating with a host computer,” and the corresponding structure is “a communication controller (*i.e.*, element 146) having a transmitter and a receiver.” *See id.* at Q/A 250. There seems to be no dispute as to the claimed function. *Id.* at Q/A 253–54. As to the structure, the patent teaches the use of a communication controller (*i.e.*, element 146) having a transmitter and a receiver. *Id.* at Q/A 255; *see, e.g.*, JX-0001 (‘235 Patent) col. 6, lns. 58-67; Figs. 1 and 2. A person of ordinary skill in the art would not need to refer to any algorithm to understand the structure being used to perform this function, but for completeness that the claim language itself teaches such an algorithm, as do the cited specification sections. *See* CX-0274C (Howard WS) at Q/A 255. This further demonstrates the term’s definiteness under § 112, ¶ 6 treatment.

**i. Claim Term “a central controller” (Claim 6)**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a central controller” should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. A person of ordinary skill in

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the art would find the claim term “a central controller” readily understandable, and requiring no further elaboration. *See* CX-0274C (Howard WS) at Q/A 260-61. Dr. Howard described how the phrase “a central controller” would necessarily have a structural meaning to a person of ordinary skill in the art, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for providing basic control to memories, depositing controllers, and the communication controller. *See* CX-0274C (Howard WS) at Q/A 264.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “a central controller” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 patent, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “controlling the memory, the depositing controller, and the communication controller;” the corresponding structure is “a central controller (*i.e.*, element 144).” *Id.* at Q/A 262. There seems to be no dispute as to the claimed function. *Id.* at Q/A 265–66. As to the structure, the patent teaches the use of a communication controller (*i.e.*, element 146) having a transmitter and a receiver. *See* JX-0001 (‘235 Patent) at col. 7, lns. 1-2; Fig. 1; CX-0274C (Howard WS) at Q/A 267. A person of ordinary skill in the art would not need to refer to any algorithm to understand the structure being used to perform this function; but, for completeness, the claim language

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itself teaches such an algorithm, as do the cited specification sections. *See* CX-0274C

(Howard WS) at Q/A 267. The term is definite under § 112, ¶ 6 treatment.<sup>35</sup>

**j. Claim Term “an authentic cheque incoming unit” (Claim 8)**

Asserted dependent claim 8 of the ‘235 patent reads as follows:

**8. The apparatus of claim 1, further comprising:**

an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path,

wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit.

JX-0001 (‘235 Patent) at col. 12, lns. 12-22.

As discussed above in the claim construction section, the administrative law judge determined that the claim term “an authentic cheque incoming unit” should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite.

Respondents argue:

In addition to “cheque standby unit,” Kwak patent contains a number of claim terms that also utilize the generic word “unit,” including “a main transfer unit,” “a user input unit,” a “verifying unit,” “an auto alignment unit,” and “an authentic cheque incoming unit.” As Dr. Howard admitted during his cross-examination, each of these “units” physically perform different functions (Howard Tr. 699:5-700:8), but *how* the various

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<sup>35</sup> Respondents argue that claim term “depositing controller” is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. They argue that “insufficient structure” is defined. *See* Resps. Br. at 21. However, this claim term is not one of the 27 disputed claim terms, but respondents nonetheless argue that it is indefinite. *See* Joint Outline at 2-5. In any event, this claim term is discussed in the validity section of this ID. *See id.* at 5.

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functions are achieved, or by what mechanism it does so, is never explained by either the claim language or the specification. RX-0144C (Sturges WS) at Q/A 131-142, Q/A 192-201, Q/A 263-278, Q/A 279-291, Q/A 308-318, Q/A 339-347. Except for “main transfer unit” and “user input unit”, all of the “unit” claim elements do not contain adequate corresponding structures to perform each associated function. RX-0144C (Sturges WS) at Q/A 263-278, Q/A 279-291, Q/A 308-318, Q/A 339-347. Because the generic word “unit” alone cannot possibly denote sufficient structure for a person of ordinary skill in the art to figure out how to perform all of these functions, the claim terms are invalid for indefiniteness.

Resps. Br. at 90 n.14 (emphasis in original). Respondents’ argument cited above is the entirety of their argument in respondents’ initial brief regarding whether the claim term “an authentic cheque incoming unit” is indefinite.

A person of ordinary skill in the art would understand that the structure in an ATM that collects checks and temporarily holds is the authentic cheque incoming unit. In general, an authentic cheque incoming unit is the portion or portions of the module that collect the checks prior to placing them into storage. See CX-0274C (Howard WS) at Q/A 296-97.

Under *Williamson*, it must be determined “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. Dr. Howard described how the phrase “an authentic cheque incoming unit” would necessarily have a structural meaning to such a person, and would refer to the physical portion of a cash-and-check depositing module that is comprised of well-known components in the art for accepting incoming checks. The claim also emphasizes that the “authentic cheque incoming unit” must be “disposed at a rear end side of the authentic cheque transfer path.” See JX-0001 (‘235 Patent) at col. 12, lns. 13-14. To a person of skill in the art, this would further confirm

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the structural requirements for the “authentic cheque incoming unit,” including by requiring well-known components to interface with the portion of the cash-and-check depositing module (discussed above) that transfers cheques verified by the verifying unit. *See* CX-0274C (Howard WS) at Q/A 300. For these reasons, means-plus-function treatment is unwarranted.

**Structure under § 112, ¶ 6 treatment:**

In the event the Commission agrees with respondents that the disputed claim term “an authentic cheque incoming unit” is a means-plus-function element, the ‘235 patent discloses the required structure. Contrary to respondents’ arguments, the limitation has corresponding structure in the ‘235 patent, and so survives definiteness review. Under § 112, ¶ 6 treatment, the claimed function is “temporarily holding an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path;” the corresponding structure is “authentic cheque incoming unit 128, and stacking and temporary storage of media.” *Id.* at Q/A 298. There seems to be no dispute as to the claimed function. *Id.* at Q/A 301-02. As to the structure, the patent teaches an authentic cheque incoming unit 128, and stacking and temporary storage of media. *See* JX-0001 (‘235 Patent) at Fig. 2; col. 2, lns. 65-66; col. 3, lns. 36-37; col. 5, lns. 40-54; col. 8, lns. 16-24; col. 6, lns. 4-7; col. 8, lns. 32-41; CX-0274C (Howard WS) at Q/A 303-04. This further demonstrates the term’s definiteness under a § 112, ¶ 6 treatment.

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- k. Claim Term “configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” (Claim 8)**

Respondents argue:

Claim 8, which contains the phrase “configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” is indefinite because a person of ordinary skill in the art reading the Kwak patent would not know what is meant by this phrase and would therefore not understand the scope of the claims with reasonable certainty. RX-0144C (Sturges WS) at Q/A 347-351; *Chef Am., Inc.*, 358 F.3d at 1374.

Specifically, the phrase states storing “the individual sheet of the at least one authentic cheque” that is “responsive” to “the individual sheet of the at least one authentic cheque” that is already being held by the authentic cheque incoming unit. *Id.* The use of the word “responsive” in this context is nonsensical. *Id.* There is no indication of what is meant by “responsive,” because the preceding limitation of claim 8 merely states “an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path.” In other words; claim 8 does not indicate any “individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” that would be “responsive” with respect to the function of the authentic cheque storage cassette. *Id.* Accordingly, because one of ordinary skill in the art would not understand the scope of the claimed phrase with reasonable certainty, claim 8 is therefore invalid for indefiniteness.

Resps. Br. at 102-03. Respondents’ argument cited above is the entirety of their argument in respondents’ initial brief regarding whether the claim term “configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” is indefinite.

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As discussed above in the claim construction section, the administrative law judge determined that the claim term “configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit” should be given its plain and ordinary meaning. The disputed claim term was found not to be indefinite.

A person of ordinary skill in the art would find this phrase understandable, and requiring no further elaboration. *See* CX-0274C (Howard WS) at Q/A 308-09. A person of ordinary skill in the art would understand that the limitation describes storing each sheet that the authentic cheque incoming unit holds, *i.e.*, that when the condition of an authentic cheque being held in the authentic cheque incoming unit occurs, the device is configured to store said sheet. *Id.* at Q/A 310.

**3. Anticipation and Obviousness: CCDMv1 Module; Service Manuals; and U.S. Patent No. 6,663,001 (“Suttie”)**

Respondents argue that (1) each of the CCDMv1 module, 2003 CCDMv1 service manual, and the 2005 CCDMv1 service manual anticipates the asserted claims of the ‘235 patent; (2) the asserted claims of the ‘235 patent are rendered obvious by the CCDMv1 module, the 2003 CCDMv1 service manual, and/or the 2005 CCDMv1 service manual; and (3) the asserted claims of the ‘235 patent are rendered obvious by the CCDMv1 module, the 2003 CCDMv1 service manual, and/or the 2005 CCDMv1 service manual combined with U.S. Patent No. 6,663,001 (“Suttie”). *See* Resps. Br. at 103-49; Joint Outline at 6.

Complainants disagree. *See* Compls. Br. at 165-93.

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For the reasons set forth below, respondents have not shown by clear and convincing evidence that the asserted claims of the '235 patent are anticipated or rendered obvious.

Respondents argue:

As shown in the prosecution history of the Kwak patent, the only point of novelty offered by the Kwak patent was the ability of the verifying unit to “perform tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors.” For instance, in response to an office action rejecting the majority of the claim elements, Mr. Kwak amended the claims to add the limitations of “predetermined time interval” and “tripartite detection.” However, in anticipation of the examiner’s review of the amendments, Mr. Kwak’s attorney contacted the examiner to summarize the arguments he intended to make. Specifically, he made it clear that “[n]one of the cited references disclose the feature of ‘the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors’” and thus the claims were patentable.

In response, the examiner held that all of the elements of the asserted claims of the Kwak patent were present in the prior art, save for two limitations: “a predetermined time interval” and a verifying unit configured to, among other things, “perform tripartite detection of overlapping of individual sheets in the main transfer unit using three different sensors.”

Thus, based on Mr. Kwak and his attorney’s own statements, the only novel feature of the alleged invention is tripartite detection. Regardless, under Hyosung’s interpretation of these claim elements, the prior art CCDM V1<sup>[36]</sup> includes the same structures and performs the same operations as the accused CCDM V2<sup>[37]</sup> with respect to *both* (a) separation at predetermined intervals or (b) the sensors accused of “tripartite detection.” In fact, Hyosung itself accused the CCDM V1 of infringing the Kwak patent.

Hyosung now disputes that it accused the CCDM V1, of infringement in this Investigation, but its interrogatory responses are clear and indisputable. Hyosung provided a claim-by-claim, limitation-by-

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<sup>36</sup> “CCDMv1” and “CCDM V1” are used interchangeably.

<sup>37</sup> “CCDMv2 and CCDM V2” are used interchangeably.

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limitation analysis detailing exactly which parts of the CCDM V1 practice each asserted claim of the Kwak patent. Moreover, Hyosung incorporated these particular responses into its final contentions. Hyosung cannot now un-ring the bell, nor has Hyosung provided any logical explanation for its current position that what it claimed during discovery is no longer accurate.

Because the CCDM V1 and CCDM V2 operate the same with regard to these limitations, and because the remaining claim limitations were also present in the prior art, the Kwak patent is invalid.

Resps. Br. at 103-05 (emphasis in original) (citations omitted).

Additionally, referring to the CCDM V1 and the CCDM V2 modules, respondents argue that “if the term ‘bundle of banknotes’ is given the proper construction (as either a bundle of cash, checks, or both), there is no relevant difference at all in how the two operate.” Resps. Br. at 3.

**a. Introduction and Overview**

Respondents rely on four alleged prior art references to support their invalidity contentions regarding the ‘235 patent. These references and combinations fail to show processing a mixed bundle of cash and checks inserted at the same time, tripartite detection of overlapping sheets using three different sensors, and a depositing controller configured to route cash to a cash cassette and checks to a check cassette based on a verification result.

Three of these alleged references (the CCDMv1 Module, the 2003 CCDMv1 Service Manual, and the 2005 CCDMv1 Service Manual) generally relate to the “CCDMv1” device and form the basis of Dr. Sturges’s anticipation opinions and two obviousness opinions. Dr. Sturges also opines a combination of the CCDMv1 references with a fourth reference, the Suttie patent, to form an obviousness opinion. Dr. Sturges’s

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analysis makes no distinction between an obviousness combination based on the CCDMv1 Module in view of Suttie or one premised on CCDMv1 Manuals in view of Suttie.

The CCDMv1 Module and the CCDMv1 Manuals disclose a device capable of processing and depositing bundles of only cash or only checks, and none of them, alone or combined teach the invention of the '235 patent. Further, the Suttie patent describes a depositing system that fails to teach numerous claim limitations and is ultimately incompatible for combination with the CCDMv1. As such, none of the references or combinations asserted by respondents invalidates the asserted claims of the '235 patent.

None of the various combinations argued by respondents renders obvious each and every limitation of any of the asserted claims. Respondents' prior art analysis lacks structure and fails to specify which combination of references he is relying on for each limitation and construction. In addition, a person of ordinary skill in the art would not have had any reason to make the various combinations proposed.

**Overview of the Alleged Prior Art References**

Dr. Sturges's testimony identifies only three exhibits as alleged prior art: RX-0083C (CCDMv1 Service Manual (Nov. 2003)); RX-0066C (CCDMv1 Service Manual (2005)), and RX-0015 (the Suttie patent). Respondents did not introduce a CCDMv1 module at the hearing, nor has Dr. Sturges ever seen one or its source code. Sturges Tr. 649. Respondents chose not to produce a CCDMv1 despite having these devices in their possession. Dr. Sturges's entire understanding of its operation derives from documents and conversations with Wincor Nixdorf employees.

**PUBLIC VERSION****Failure to Provide a Claim-by-Claim Analysis**

Rather than illustrating how the alleged prior art discloses each limitation in the '235 patent, respondents rely on the assertion that whether or not these limitations are taught is not disputed. *See* Resps. Br. at 103-05. Respondents bear the burden of proving that these limitations are taught or disclosed within the prior art. Complainants' position (or silence) on the issue is immaterial to whether or not respondents have carried their burden.

Further, respondents failed to identify any specific structure or element within the prior art that would teach or disclose these "undisputed" limitations. For each limitation, respondents merely assert that the prior art discloses a paraphrased version of the claim language at issue without identifying any element within the CCDMv1 or the Suttie patent. To the extent that respondents reference the witness statements of Dr. Sturges and/or Mr. Langhuber to identify these elements, such incorporation-by-reference is improper.

Lastly, respondents did not offer any opinion regarding how any piece of prior art discloses or renders obvious the "main transfer path" limitation of the '235 patent. Respondents failed to include this limitation in their table of "undisputed terms," and make no reference to it as a disputed term. Given respondents' failure to address this limitation, respondents have not established that any of the prior art references invalidate any of the asserted claims.

**Reason/Motivation to Combine**

Respondents failed to provide sufficient motivation to combine the CCDMv1 module, the 2003 service manual, and/or the 2005 CCDMv1 service manual or explain

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what such a combination would add. *See* CX-0277C (Howard RWS) at Q/A 141. A person of ordinary skill has no reason to combine identical references because a combination offers no additional advantage over a single reference. Dr. Sturges opines that the 2003 manual discloses each and every limitation that the 2005 manual in the same manner, and vice versa. *See* Sturges Tr. 648; RX-0144C (Sturges WS) at Q/A566. Further, combining the 2003 and 2005 CCDMv1 service manuals with the CCDMv1 Module fails because there is no operation, function, or component that the service manuals describe that the CCDMv1 Module would not already include. *See* Sturges Tr. 650; CX-0277C (Howard RWS) at Q/A 144. Dr. Sturges's analysis falls short. The references are merely duplicative of one another and a combination offers no additional benefit.

Additionally, a person of ordinary skill would not have had a reason to combine the CCDMv1 Module and/or the CCDMv1 Manuals with the Suttie patent. Dr. Sturges's analysis addresses this issue by proposing an amalgamation of all four references that lacks specificity as to what each reference adds to the whole. *See* CX-0277C (Howard RWS) at Q/A 145. Further, the Suttie patent is fundamentally different from the CCDMv1 Module. The Suttie patent does not teach processing a mixed bundle in a single pass as described by the '235 patent. *See* RX-0144C (Sturges WS) at Q/A 568 ("Suttie itself does not disclose all of the detailed configurations of a machine capable of processing checks and cash received through a single slot."). The CCDMv1 likewise cannot automatically deposit a mixed bundle. Dr. Sturges makes no effort to explain how a person of ordinary skill in the art would overcome the many differences between these references so as to effectively combine the Suttie patent's device with the CCDMv1. *Id.*

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As a result, his conclusion that a person of ordinary skill would have had a reason to make these modifications is not persuasive.

**Means-Plus-Function Analysis**

Respondents' invalidity arguments lack any discussion related to their proposed means-plus-function analysis. Respondents failed to compare the prior art to the patent claims, identify the proposed structures in the prior art corresponding to the structure in the patent, and/or explain how the prior art structures perform the function(s) recited by the patent, and any attempt to do so at this point has been waived. *See* Resps. Br. at 103-41; Resps. Reply Br. at 58-69. Respondents cannot now claim that the '235 patent is invalidated by the prior art under § 112, ¶ 6.

**b. Whether CCDMv1 Module is Prior Art**

Complainants argue that respondents failed to establish the CCDMv1 Module as prior art:

The evidence relied upon by Diebold and Dr. Sturges falls short of showing that a CCDMv1 Module capable of processing both cash and checks was known, used, or sold in the United States prior to the date of invention of the '235 patent (*i.e.*, October 27, 2006). The CCDMv1 was available in a number of combinations, many of which could not process both cash and checks.

The mere sale of a CCDMv1 module, without further information regarding its components, is insufficient to establish the CCDMv1 module as a prior art reference. Mr. Langhuber identifies the sale of CCDMv1 modules but nothing more; he makes no attempt to show that such devices were capable of processing both cash and checks.

Diebold's attempt to establish the CCDMv1 as prior art relies entirely on the testimony of Mr. Hagen regarding the sale of a single Wincor ProCash ATM. Mr. Hagen's testimony is results driven and incomplete. Mr. Hagen cannot point to any record showing that the Wincor ATM in question included a CCDMv1 module; instead he points

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to components from which he claims he can infer the presence of a CCDMv1. Such guesswork does not satisfy Diebold's burden.

Compls. Br. at 168 (citations and footnote omitted).

For the reasons discussed below, respondents have shown that the CCDMv1 (or "CCDM V1") Module is prior art.

Wincor Nixdorf Inc., a United States subsidiary of Wincor, publicly announced the release of the Wincor CCDM V1 on November 5, 2002. *See* RX-0145C (Langhuber WS) at Q/A 273-80; RX-0087 (Wincor Nixdorf Announces Check/Cash Deposit Module-CCDM. Specifically, the CCDM V1 was publicly displayed in November 2002 at a retail delivery systems trade show in Atlanta, Georgia. *See* RX-0145C (Langhuber WS) at Q/A 280. The CCDM V1 displayed at the trade show was capable of accepting cash and checks and included a cash/check reader. *Id.* at Q/A 281-82. Following the trade show, the CCDM V1 was given to J.P. Morgan Chase in the United States. *Id.* at Q/A 283.

The CCDM V1 was incorporated into Wincor's ProCash 2100xe and ProCash 2150xe modules in the United States at least as early as 2004 and throughout 2005. *See* RX-0147C (Hagen WS) at Q/A 12-14. Moreover, these modules containing the CCDM V1 sold in the U.S. as early as 2004 were capable of processing both checks and cash. *See* RX-0144C (Sturges WS) at Q/A 521-23; RX-0145C (Langhuber WS) at Q/A 243; RX-0147C (Hagen WS) at Q/A 26-27.

Respondents provided sufficient evidence of such sales through their presentation of sales documents from Wincor's SAP system, which the evidence shows is the system used by Wincor to record financial transactions of its products. *See* RX-0145C (Langhuber WS) at Q/A 207; RX-0147C (Hagen WS) at Q/A 13-15. Mr. Hagen and Mr.

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Langhuber testified concerning the Wincor sales documents in detail and provide context to the sales of the CCDM V1s containing the cash/check readers in the United States *Id.*

For example, Mr. Hagen provided testimony discussing the sales data of a CCDM V1 sold in the United States in or around October 2004. *See* RX-0147C (Hagen WS) at Q/A 12-25. This data is presented in RX-0078C, which is a screen shot of a delivery notification record in the Wincor SAP system. *Id.* This particular screenshot shows a sale and shipment of a ProCash 2150xe containing a CCDM V1. The document shows that the ProCash 2150xe was delivered to Wells Fargo in the United States on October 22, 2004. *Id.*

According to Mr. Hagen, there are several indications in the RX-0078C (ProCash 2150xe Delivery Notification) that show that the ProCash 2150xe sold to Wells Fargo on October 22, 2004 contained a CCDM V1 capable of reading cash and checks. *Id.* at Q/A 26. For example, on page WN019988, the last entry on that page is a CCE Line XSA, which according to Mr. Hagen's testimony, is the check / cash reader for the CCDM V1. *Id.* at Q/A 27. He explains that this entry was used to identify the type of cash inserted and also what scans the front and back of the checks. *Id.* at Q/A 28. Thus, CCE Line XSA was only included for ATMs that contained a CCDM V1 capable of processing checks and cash. *Id.* Moreover, the plain language of that same entry on WN019988 reads: "CASH=YES" and "CHECK=YES." *Id.* at Q/A 29. This indicates that the module was capable of reading cash and checks. *Id.*

In addition, the same entry on page WN019988 of RX-0078C (ProCash 2150xe Delivery Notification) lists a part number, 1750064570, which is the part number for a check/cash reader, thus indicating that this ATM contained a CCDM V1 capable of

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reading cash and checks. *Id.* at Q/A 30-35; RX-0144C (Sturges WS) at Q/A 531-35.

This part number also appears in RX-0064 (2008 CCDM Manual) on page NH\_972-00105639. *Id.* Specifically, this part number is listed in a table of head module components, as shown below:

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**Configurations for the CCDM V1**
**Head module**

Different reader modules can be integrated in the head module.



| Component  | Part number:                |
|--|-----------------------------|
| Check/cash reader (Line XSA)<br>in acc. with ECB art. 6. | 01750064570                 |
| Check/cash reader (Line XSA)                             | 01750068336                 |
| Check/cash reader (Line XSA)                             | 01750105533                 |
| Cash reader (Line XSA)<br>in acc. with ECB art. 6.       | 01750068335                 |
| Cash reader (Line XSA)<br>in acc. with ECB art. 6.       | 01750105544                 |
| Cash reader (Line XSA)                                   | 01750088334                 |
| Check reader (Line XSA)                                  | 01750107800                 |
| Magnetic ink character reader                            | 01750097825 * / 01750108340 |
| Magnetic ink character reader MCR 2<br>CCDM Basic        | 01750108340                 |
| Magnetic ink character reader MCR 2<br>Dummy             | 01750097826 **              |

\* replacing magnetic ink character reader 01750034847.

\*\* replacing magnetic ink character reader Dummy 01750058122.

RX-0064 (2008 Manual) at NH\_972-00105639

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This table shows different hardware configurations for the CCDM V1. The first entry in this table is the check/cash reader, part number 1750064570. *Id.* Thus, this table supports Mr. Hagen's testimony that part number 1750064570 listed on WN019988 of RX-0078C is the part number for a check/cash reader. *Id.*

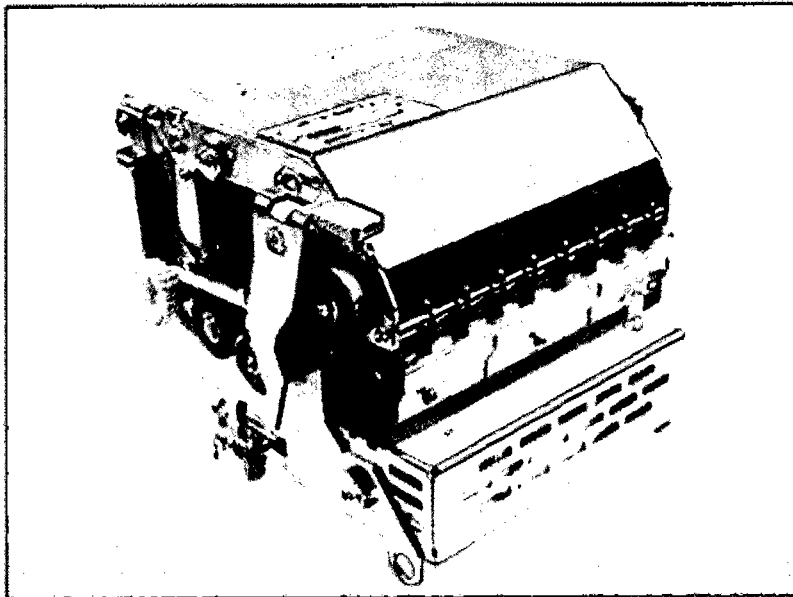
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Moreover, page NH\_972-00105657 of RX-0064 (2008 CCDM V1 Manual) illustrates a photograph of the check/cash reader and the same part number, 1750064570, as shown below:

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**Photograph of the Check/Cash Reader of the CCDM V1****Check / cash reader**

➔ **Check / cash reader (01750064570 / 01750105533)**



RX-0064 (2008 Manual) at NH\_972-00105657

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There are additional sales data and documentation that support respondents' position regarding the sale of the CCDM V1 in the United States. For example, RX-0046C shows a screen shot of certain records in Wincor's SAP System which record the configurations for several sales of ATMs. See RX-0144C (Sturges WS) at Q/A 520; RX-0145C (Langhuber WS) at Q/A 208-09. Specifically, RX-0046C contains configurations

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of several sales, including sales of ProCash 2100xe and ProCash2150xe modules. *Id.* RX-0046C can be used in conjunction with several other sales documents including RX-0084C, RX-0086C, RX-0088C, RX-0091C, which show information regarding product sales, customers, and delivery dates for certain orders and prove that the CCDM V1 was incorporated into Wincor's ProCash 2100xe and ProCash 2150xe modules in the United States at least as early as March 2004 and throughout 2005. *See* RX-0144C (Sturges WS) at Q/A 520; RX-0145C (Langhuber WS) at Q/A 219-72.

The first page of RX-0046C shows the configurations for order number 464321, which includes a "Cash/Check Deposit Modul" and then lists "Scheck-Banknoten-Deposit," which is translated as check-cash deposit. *See* RX-0046C (Screenshot of Wincor SAP Systems) at 989DBITC0074870; RX-0145C (Langhuber WS) at Q/A 220. This page shows that a CCDM V1 was included in this ProCash 2100xe configuration and that this ProCash 2100xe has the check/cash reader hardware. *Id.* Furthermore, these documents show that the ATM was sold in 2004. At that time, Wincor only had one Cash/Check Deposit Module, the CCDM V1. *Id.*

There is additional documentation from Wincor's SAP system to illustrate how ProCash2100xe and ProCash2150xe modules containing CCDM V1s were sold in the United States from 2004 to 2008. *See* RX-0145C (Langhuber WS) at Q/A 203-87; RX-0084C; RX-0086C; RX-0088C. During this time period, Wincor sold the CCDM V1 in the United States to customers including Wells Fargo, IBM, Bank of America, and JP Morgan. *Id.*

As shown in RX-0046C, both the ProCash 2100xe and ProCash 2150xe sold during this time period had display screens and soft keys next to the screen or touch

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monitor. *Id.* at Q/A 285. Further, these modules had display units that could display certain information to the user depending on the application of the bank. *Id.* at Q/A 286.

\* \* \*

Accordingly, respondents have shown that the CCDMv1 Module is prior art.

**c. Anticipation and Obviousness: CCDMv1 Module; 2003 and 2005 CCDMv1 Service Manuals**

Respondents argue that (1) each of the CCDMv1 module, 2003 CCDMv1 service manual, and the 2005 CCDMv1 service manual anticipates the asserted claims of the '235 patent; and (2) the asserted claims of the '235 patent are rendered obvious by the CCDMv1 module, the 2003 CCDMv1 service manual, and/or the 2005 CCDMv1 service manual. *See* Resps. Br. at 103-41, 145-49; Joint Outline at 6.

Complainants disagree. *See* Compls. Br. at 165-85.

For the reasons set forth below, respondents have not shown by clear and convincing evidence that the asserted claims of the '235 patent are anticipated or rendered obvious.

As an initial matter, respondents rely on evidence that is derived from documents dated after the October 27, 2006 filing date of the '235 patent. Respondents rely on non-prior art materials to describe the composition and operation of the alleged prior art CCDMv1 Module, including (1) RX-0076 (CCDMv1 Service Manual (2008)); and (2) RX-0064C (CCDMv1 Service Manual (2008)). *See* CX-0277C (Howard RWS) at Q/A 134. These document are not prior art, and Dr. Sturges does not seem to dispute this. *See* RX-0144C (Sturges WS) at Q/A 374.

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In addition, Dr. Sturges has not inspected or otherwise had contact with a CCDMv1 Module. Nor has he analyzed any engineering drawings or schematics or reviewed software related to the device. *See CX-0277C* (Howard RWS) at Q/A 136. Dr. Sturges relies entirely on the documentary evidence and the deposition testimony he cites to support his knowledge and understanding of the CCDMv1 Module.

As discussed below, the CCDMv1-related material (which comprises Dr. Sturges's various citations concerning a "CCDMv1 Module" and the various CCDMv1 manuals he cites) fail to either teach or render obvious numerous limitations of the asserted claims.

**i. Independent Claim 1**

Asserted independent claim 1 reads as follows:

**1.** A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque, the apparatus comprising:

a bundle insertion unit configured to receive the bundle of banknotes from a user;

a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval;

a main transfer unit coupled to the bundle separator and configured to horizontally transfer the individual sheets of the banknotes along a main transfer path;

a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite

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detection of overlapping of the individual sheets in the main transfer unit using three different sensors;

an abnormal sheet branch transfer unit having an abnormal sheet branch transfer path branched from the main transfer path, the abnormal sheet branch transfer unit configured to transfer abnormal banknotes verified by the verifying unit;

a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path;

an abnormal sheet unloading transfer unit coupled to the first gate, the abnormal sheet unloading unit having an abnormal sheet unloading transfer path and configured to return the abnormal banknotes to the user;

an authentic cheque transfer unit coupled to an end of the main transfer path, the authentic sheet transfer unit having an authentic cheque transfer path and configured to transfer at least one authentic cheque in the bundle of banknotes verified by the verifying unit;

an authentic cash transfer unit coupled to the end of the main transfer path, the authentic cash transfer unit having an authentic cash transfer path and configured to transfer authentic banknotes other than cheques verified by the verifying unit;

a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer unit to the authentic cash transfer path;

an authentic cheque storage cassette coupled to the authentic cheque transfer unit, the authentic cheque storage cassette configured to store therein the at least one authentic cheque transferred by the authentic cheque transfer unit;

an authentic cash storage cassette coupled to the authentic cash transfer unit and configured to store therein the authentic banknotes other than cheques transferred by the authentic cash transfer unit;

a cheque standby unit placed in the main transfer path between the first gate and the second gate, the cheque standby unit configured to hold the at least one

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authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque; and

a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.

JX-0001 ('235 Patent) at col. 9, ln. 58 – col. 10, ln. 65.

For the reasons discussed below, the CCDMv1 module and service manuals do not anticipate or render obvious independent claim 1 of the '235 patent. Specifically, each reference, alone or combined, fails to teach or render obvious the following limitations:

- “automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque,”
- “a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval,”
- “a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors,”
- “a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the

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banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.”

**“automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque”**

The CCDMv1 could not process mixed bundles before the ‘235 patent, and it still cannot do so. *See* CX-0277C (Howard RWS) at Q/A 178; *see also* CX-0259C (Introduction to CCDM 2003) at WN989000000768; CX-0260C (CCDMv1 Operating Manual 2004) at WN9890000867 (“A bundle may contain either just cheques or just banknotes[.]”); CX-0171C (Wincor Nixdorf CCDM Operating Manual) at NH\_972-00105517 (same). Documents from 2016 acknowledge the same short coming. *See* CX-0277C (Howard RWS) at Q/A 178; *see also* CX-0259C (Introduction to CCDM 2003) at WN989000000768. Additionally, respondents’ witnesses acknowledge that the CCDMv1 does not support mixed bundle processing. Dunlap Tr. 402 (“[M]y understanding is that [the CCDMv1] does not support mixed bundle processing.”).

The ability to process mixed bundles distinguishes Wincor’s CCDMv1 module (which Dr. Sturges asserts as prior art) from the CCDMv2 module (which stands accused of infringement, along with certain ATMs containing the CCDMv2). *See e.g.* Dunlap Tr. 402 (“... my understanding is that [the CCDMv1] does not support mixed bundle processing.”); Langhuber Tr. 380; CX-0277C (Howard RWS) at Q/A 178. Wincor’s documents expressly describe this point of distinction. *See* CX-0277C (Howard RWS) at Q/A 178 (explaining the CCDMv1’s ability to process “notes and checks separately” and the CCDMv2’s ability to “accept a mixed bundle,” and how it relieves users from having

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to “distinguish between cash and check transactions anymore”); *see also* RX-0518 (CCDMv1 vs. CCDMv2 Overview).

Dr. Sturges’s analysis conflates the ability to route media through a machine with the ability to “deposit” the media. *See* CX-0277C (Howard RWS) at Q/A 177. Claim 1 requires “depositing a bundle of banknotes including at least one cheque.” Dr. Sturges’s analysis relies merely on the ability to “accept a bundle,” *i.e.*, to have it inserted into the device, rather than analyzing whether the machine is capable of actually processing and depositing the mixed bundle in the manner required by claim 1. *See* RX-0144C (Sturges WS) at Q/A 582.

The CCDMv1 is not an automatic cash and cheque depositing apparatus for automatically depositing bundles of banknotes that include at least one cheque. *See* CX-0259C (Introduction to CCDM 2003) at WN989000000768 (“It is not possible to pay in a mixed bundle.”). By “automatically depositing,” the claim is referring to the capability to process and deposit both cash and checks, from a single inserted “bundle.” *See* CX-0277C (Howard RWS) at Q/A 177. The evidence shows that the CCDMv1 lacked that critical capability. *See* CX-0260C (CCDMv1 Operating Manual 2004) at WN98900000867 (“A bundle may contain either just cheques or just banknotes[.]”); CX-0171C (Wincor Nixdorf CCDM Operating Manual) at NH\_972-00105517 (same); Langhuber Tr. 380.

Dr. Sturges’s proposed “two-pass” process does not transform the CCDMv1 module into a device that practices the requirements of this limitation. *See* CX-0277C (Howard RWS) at Q/A 181. In the proposed “two-pass” process, the user must select the deposit mode, either cash or check, before media can be inserted into the CCDMv1. *See*

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RX-0145C (Langhuber WS) at Q/A 97. If the device is in “Cash mode,” the CCDMv1 will operate to process, validate, and deposit the cash—and only the cash—within the mixed bundle. *See id.* All other media, including invalid cash, unrecognized media, and checks, will be transferred to the reject unit. *See id.* Only after the cash has been deposited, will the other media be returned to the user and the user can then manually select “Check mode” and reinsert the bundle for a second transaction. Likewise, in “Check mode” it can process only checks.

**Under Complainants’ Proposed Constructions**

Dr. Sturges’s “two pass” scenario does not transform the CCDMv1 into a device which practices the “automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque” limitation. *See CX-0277C* (Howard RWS) at Q/A 181. To practice the claim, it is necessary that a device be capable of automatically processing and depositing both cash and checks from a single bundle. *See CX-0277C* (Howard RWS) at Q/A 181. The CCDMv1 is not capable of such operation, and the “two pass” operation requires human intervention to remove the rejected media, initiate a second transaction, and reinsert the media. *See CX-0277C* (Howard RWS) at Q/A 183. One of skill in the art would not understand this process to be “automatic.” *Id.* Further, additional limitations of claim 1 demonstrate that the patented invention requires a capability to deposit both cash and checks from a single bundle.

The evidence cited by Dr. Sturges does not establish that it would have been obvious to a person of ordinary skill in the art to modify the CCDMv1 references so as to practice this limitation. First, Dr. Sturges did not offer evidence to support his

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obviousness opinions regarding the CCDMv1 module and manuals under Hyosung's constructions as to this limitation. *See* CX-0277C (Howard RWS) at Q/A 185.

Dr. Sturges lacks support for his assertion that mixed bundle processing with the CCDMv1 was "merely a design choice." *See* CX-0277C (Howard RWS) at Q/A 185; RX-0144C (Sturges WS) at Q/A 613. The distinction between "mixed bundle" processing and the two-pass processing required for the CCDMv1 was a major technical distinction between the CCDMv1 and CCDMv2. *See* CX-0277C (Howard RWS) at Q/A 185; *see also* Dunlap Tr. 402 ("... my understanding is that [the CCDMv1] does not support mixed bundle processing."); Langhuber Tr. 380; CX-0277C (Howard RWS) at Q/A 178. Further, the evidence indicates that, even so late as 2016, the CCDMv1 remains incapable of "mixed bundle" processing. *See* CX-0259C (Introduction to CCDM 2003) at WN989000000768. Wincor Nixdorf, the company Dr. Sturges asserts is the most knowledgeable regarding the CCDMv1 device, and that has manufactured and sold the CCDMv1 for more than a decade, still has not modified the CCDMv1 to accept mixed bundles in one pass. *See* RX-0409C (Sturges RWS) at Q/A 53.<sup>38</sup> More importantly, Wincor created a second, improved device (the CCDMv2) that could accept mixed bundles [ ]. Dr. Sturges does not explain why a company would engage in extensive research and development to create a new product rather than modify an existing one.

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<sup>38</sup> In addition, respondents do not point to any company that has made such modifications to the CCDMv1 prior to the '235 patent. Mr. Hagen and Mr. Langhuber both discuss an alleged pilot program (albeit with differing facts) in which such modifications were supposedly made, but (1) all alleged modifications occurred years after the invention of the '235 patent and (2) neither witness offered any testimony regarding the extent of the modifications and changes performed. *See* RX-0145C (Langhuber WS) at Q/A 197-202.

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Additionally, respondents failed to establish any reason or motivation for those skilled in the art, prior to the '235 patent, to undertake such modification of the CCDMv1. The disclosures in the CCDMv1 manuals indicate complications regarding mixed bundle processing that teach against processing a mixed bundle in a single run. *See* CX-0277C (Howard RWS) at Q/A 185; *see also* RX-0518 (CCDMv1-CCDMv2 Overview). For example, the documents show that the CCDMv1 processed different media types at different speeds. *See* RX-0083C (2003 Manual of the Wincor CCDMV1) at WN9890000056. A person of ordinary skill in the art would not have known how or have been motivated to modify the various aspects of the CCDMv1 to process a mixed bundle in a single run. *See* CX-0277C (Howard RWS) at Q/A 185.

**Under the Correct Claim Constructions**

Under the correct claim construction, the “automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque” limitation requires that the claimed apparatus be for automatically depositing a bundle of “cash, checks, or both cash and checks” including at least one check. For the reasons explained above, the CCDMv1 cannot process a mixed bundle of both cash and checks. *See* CX-0277C (Howard RWS) at Q/A 186. Further, a bundle of only cash would fall outside of the scope of the claim as it lacks the required “at least one cheque.” *Id.*

Additionally, a machine capable of processing a bundle of only checks would also not practice this claim. The entirety of the claim, taken together, shows that the claimed cash and check depositing apparatus requires the capability to process cash and checks at the same time. The ability to process a homogenous bundle of checks, even if the machine could process a bundle of cash in another configuration as well, does not meet

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the claim's requirements of processing cash and checks at the same time. *See* CX-0277C (Howard RWS) at Q/A 186. Two non-practicing configurations do not create a configuration that practices the claims of the patent. *Id.*

**“a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval”**

As discussed above in the claim construction section, the administrative law judge determined that the claim term “a bundle separator” should be given its plain and ordinary meaning.

Dr. Sturges has failed to establish that the CCDMv1 references teach or render obvious this limitation under either the correct claim construction or respondents' proposed construction. After failing to address this limitation in his expert reports, Dr. Sturges now injects a new theory identifying the VLS6 sensor in the CCDMv1 module as a component that facilitates transferring each individual sheet at a predetermined time interval. *See* CX-0277C (Howard RWS) at Q/A 187. Dr. Sturges's analysis relies on a single statement in the 2003 CCDMv1 manual that makes no mention of time intervals between separation actions. *See* RX-0144C (Sturges WS) at Q/A 689 (citing RX-0083 (2003 Manual of the Wincor CCDM V1) at WN98900000070-71). This evidence is insufficient to disclose this claim under either the correct claim construction or respondents' proposed construction.

Further, Dr. Sturges's reliance on “the testimony of Mr. Langhuber,” (RX-0144C (Sturges WS) at Q/A 682) is insufficient at least because he failed to cite, identify, or analyze any such testimony. Without acknowledging which portions of Mr. Langhuber's

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statements Dr. Sturges agrees or disagrees with or relies on in forming his opinions, complainants have no opportunity to respond. As such, reliance on Mr. Langhuber's testimony by Dr. Sturges is given lesser weight.

Dr. Sturges also reasons that, if the CCDMv2 infringes this limitation, the CCDMv1 must practice it as well. Dr. Sturges's analysis asserts—without comparison or analysis—that the bundle separation mechanisms of the CCDMv1 and CCDMv2 modules are “quite similar” and “nearly identical.” *See* RX-0144C (Sturges WS) at Q/A 692, 702. Dr. Sturges has never seen a CCDMv1 module, nor has he examined its source code. Yet, the basis for this opinion appears to be uncited, hearsay statements from Mr. Langhuber, which itself lacks documentary corroboration. One cannot equate his own review of the CCDMv1 documents with Dr. Howard's comprehensive analysis of the CCDMv2, in which he relied on specific documentation, code review, product inspection, and deposition testimony. *See* CX-0277C (Howard RWS) at Q/A 188. By comparison, Dr. Sturges's analysis lacks specificity and relies mostly on generalizations and uncorroborated characterizations. Nothing in the record indicates that the CCDMv1 and CCDMv2 would be sufficiently similar as to this limitation as to warrant his conclusion.

Respondents' obviousness analysis invites improper hindsight. Dr. Sturges's analysis concludes, merely from the existence of rollers and sensors, that one skilled in the art would be motivated to and understand how to modify the CCDMv1 to transfer individual sheets at predetermined intervals. *See* RX-0144C (Sturges WS) at Q/A 707. Dr. Sturges's offers no rationale or reasoning for this conclusion, nor does he explain whether such modifications were within the ability of a person of ordinary skill in the art. *See* CX-0277C (Howard RWS) at Q/A 189. Dr. Sturges simply identifies the

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improvement taught by the '235 patent and then concludes that the CCDMv1 could be modified to perform the same function. *See* CX-0277C (Howard RWS) at Q/A 189.

Moreover, Dr. Sturges's conclusions do not account for the added complications of processing a mixed bundle required by the claim. A bundle of checks and cash will have varying textures, thickness, width, and length and the CCDMv1 processes each media type at different speeds. *See* CX-0277C (Howard RWS) at Q/A 189. It would not be obvious to modify the separator of the CCDMv1, which processes only cash or only checks in each transaction, to transfer each individual sheet in a mixed bundle at a predetermined time interval. *Id.* Additionally, Dr. Sturges does not account for the fact that there are multiple methods of spacing media along a transfer path that would not involve predetermined, regular, or identical intervals but would still provide the benefits he suggests are motivating factors, i.e., fewer jams and distance between each sheet. *Id.* The paucity of analysis provided by Dr. Sturges and evidence teaching away from such a combination demonstrate the non-obviousness of this limitation.

**“a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors”**

Dr. Sturges's analysis falls short of establishing that the CCDMv1 references, teaches or renders obvious tripartite detection of overlapping sheets, under either the correct claim construction or respondents' proposed construction.

**Under the Correct Claim Construction**

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Dr. Sturges has failed to identify three sensors that meet the requirements of this limitation. *See* CX-0277C (Howard RWS) at Q/A 193. Dr. Sturges's analysis identifies sensors in the CCDMv1 that are the same generic type of sensors that Hyosung has alleged practice this limitation in the CCDMv2 and concludes that the CCDMv1 sensors function in the same way. *See id.* at Q/A 760-801. Dr. Sturges has never seen a CCDMv1 or its source code. Yet, he compares his opinion with those of Dr. Howard, which were based review of the device's source code and personal inspection of the device in operation. *See* CX-0277C (Howard RWS) at Q/A 193. Dr. Sturges's approach is superficial at best and lacks a factual basis sufficient to establish that the CCDMv1 module or its components actually used those sensors in the manner required by the asserted claims. *Id.*

**Photo Sensors**

Dr. Sturges suggests that the photo sensors in the CCDMv1 detect overlapping notes because of a single error code that reads "paper jam . . . or paper is too long." His analysis does not explain what circumstances would give rise to such an error or if it would actually occur due to overlapped sheets. *See* CX-0277C (Howard RWS) at Q/A 194.

One cannot remedy this lack of evidence by combining Dr. Sturges's conclusions with Dr. Howard's opinions regarding a different device and its operation. Dr. Howard's opinions concerning infringement for the CCDMv2 and CCDMv2-containing ATMs was based on his review of code, personal inspection of a CCDMv2-containing ATM, and extensive documentation.

**Hall Sensors**

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Dr. Sturges's analysis merely notes that the CCDMv1 and the CCDMv2 modules both contain hall sensors before jumping to the conclusion that they must operate in the same manner. *See* CX-0277C (Howard RWS) at Q/A 195. Dr. Sturges fails to support his opinions with any testing, personal observations, or source code review. By comparison, Dr. Howard's performed a personal inspection and confirmed by direct observation that the CCDMv2 did, in fact, use Hall sensors in a manner as to detect an overlap condition in the inserted media. *Compare* CX-0274C (Howard WS) at Q/A 398 (discussing testing of the CCDMv2 module) *with* RX-0144C (Sturges WS) at Q/A 782-85 (relying solely on the CCDMv1 manuals to describe the sensors).

**Non-Obviousness**

Respondents' argument that the CCDMv1 module and/or manuals, individually or combined, render this limitation obvious is based on incomplete analysis, lack supporting evidence, and incorporate impermissible hindsight bias. As an initial matter, Dr. Sturges never shows that the CCDMv1 sensors are capable of or used for detecting overlapping notes in general. In addition, Dr. Sturges fails to explain why one of ordinary skill in the art would modify any of the references to use three different sensors instead of one or two. *See* CX-0277C (Howard RWS) at Q/A 196. Lastly, Dr. Sturges improperly looks to Hyosung's infringement allegations to inform his allegations of obviousness. *See* RX-0144C (Sturges WS) at Q/A 761 (asserting that, to the extent the CCDMv2 infringes, then the CCDMv1 invalidates). The CCDMv1 contains numerous sensors, but Dr. Sturges does not suggest that one of skill in the art would modify any sensor other than the ones Hyosung has accused in the CCDMv2. He opines that one of skill in the art would do so to increase the chance of detecting overlaps, but does not explain why one of

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skill in the art would find an ultrasonic sensor insufficient or why they would use these specific sensors. *Id.*

A person of ordinary skill would not have had any reason to make such modifications, nor have respondents shown that such modifications were within the ability of a person of ordinary skill in the art. *See* CX-0277C (Howard RWS) at Q/A 196.

**Under Respondents' Proposed Constructions**

For the same reasons explained under the correct constructions, Dr. Sturges's analysis is lacking and fails to show that the CCDMv1 module and/or manuals anticipate and/or render obvious this limitation under respondents' proposed constructions.

**“a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result”**

Respondents' analysis fails to show that the CCDMv1 Module and/or the CCDMv1 Manuals anticipate or render obvious this limitation. Specifically, the CCDMv1 does not route cash to the cash cassette and checks to the check cassette based on the verification result under either parties' construction. The user's deposit mode selection, and not the verification result of any individual sheet, controls how the gate in the CCDMv1 routes media to the cassettes. *See* CX-0277C (Howard RWS) at Q/A 199. The CCDMv1 requires that a user must manually select either Cash mode or Check mode when depositing. *See* CX-0260C (CCDMv1 Operating Manual 2004) at

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WN9890000874, 878; CX-0171C (Wincor Nixdorf CCDM Operating Manual) at NH\_972-00105524, 5529.

**Under the Correct Claim Constructions**

It is the initial selection of the deposit mode by the user that determines where processed notes are deposited in the CCDMv1. *See* CX-0277C (Howard RWS) at Q/A 199. For example, in “Cash mode” the structure alleged to be the “second gate” by Dr. Sturges is toggled to route cash to the cash cassette based on the user’s selection of “Cash mode.” The gate has no capability, in this mode, to do anything else (*e.g.*, to route checks to the check storage cassette), nor has Dr. Sturges demonstrated as much. Simply pointing to a depositing controller that manipulates the second gate falls short. Dr. Sturges’s opinions are equally amenable to the depositing controller manipulating the second gate in accordance with receiving the user-inputted deposit mode selection and not based on the verification result. *See* CX-0277C (Howard RWS) at Q/A 199. The same holds true when the CCDMv1 is in “check mode.” *Id.* It is the user selection of “Check Mode” or “Cash Mode” that dictates the position of the “second gate” and not the verification result. *Id.*

Dr. Sturges misses the point to the extent that he opines that the second gate routes media based on a verification result because only notes verified as authentic reach the second gate. *See* CX-0277C (Howard RWS) at Q/A 200. The decision to send a piece of media to one path or the other must be based on the verification result. Whether the verification result was used at some point prior to the second gate is inconsequential. *See* CX-0277C (Howard RWS) at Q/A 200.

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Dr. Sturges fails to show that the CCDMv1 would practice this claim in the same way as the CCDMv2. Not only does the CCDMv1 not use the verification result to route media to the correct cassette, it has no need to even contemplate such an action. Only one type of media is processed and deposited at a time and each time the media is deposited the user will explicitly identify the media type. The same is not true for the CCDMv2.

Similarly, there is no reason or motivation, nor does Dr. Sturges offer one, for one of skill in the art to modify the gate in the CCDMv1 to accept or operate on the verification result. *See* CX-0277C (Howard RWS) at Q/A 201. Such a modification would be superfluous and without benefit as it would not change the ultimate operation of the gate in anyway.

**Under Respondents' Proposed Constructions**

For the same reasons explained under the correct claim constructions, the CCDMv1 module and/or manuals does not anticipate or render obvious this limitation under respondents' proposed constructions.

**ii. Dependent Claim 2**

Asserted dependent claim 2 of the '235 patent reads as follows:

2. The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path.

JX-0001 ('235 Patent) at col. 10, ln. 66 – col. 11, ln. 2.

The CCDMv1 Module and/or the CCDMv1 Manuals do not anticipate or render obvious claim 2 of the '235 patent, at least for the same reasons that claim 1 is not

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invalidated, under either the correct claim construction or respondents' proposed construction.

**iii. Dependent Claim 3**

Asserted dependent claim 3 of the '235 patent reads as follows:

3. The apparatus of claim 1, wherein the verifying unit includes:
- a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes;
  - a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes;
  - a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes; and
  - an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque.

JX-0001 ('235 Patent) at col. 11, lns. 3-15.

The CCDMv1 Module and/or the CCDMv1 Manuals do not anticipate or render obvious claim 3 of the '235 patent, at least for the same reasons that claim 1 is not invalidated, under either the correct claim construction or respondents' proposed construction. In addition, as discussed below, the CCDMv1 module and/or manuals do not disclose or render obvious the "plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes."

The CCDMv1 Module and/or the CCDMv1 Manuals do not anticipate or render obvious this limitation under either the correct claim construction or respondents' proposed construction. Similar to the "verifying unit" limitation, respondents' arguments

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consist of merely identifying sensors in the CCDMv1 that are the same generic type of sensors that Hyosung has alleged practice this limitation in the CCDMv2 and concluding (without documentary evidence) that the CCDMv1 sensors function in the same way. Respondents rely on the testimony of Mr. Langhuber, who has not read the CCDMv1 source code, and Dr. Sturges, who has not seen the CCDMv1 module nor its source code. Respondents fail to explain how any sensor in the CCDMv1 detects overlapping sheets based on a thickness. *See* CX-0277C (Howard RWS) at Q/A 206. Such conclusions lack a factual basis, and are insufficient to establish that the CCDMv1 module or its components functioned in any specific way. *See* CX-0277C (Howard RWS) at Q/A 206.

Likewise, respondents' obviousness analysis regarding this limitation is incomplete. Dr. Sturges offers conclusory, unsupported statements to suggest that one of ordinary skill would be motivated to modify the CCDMv1 to detect overlap based on thickness. Dr. Sturges has opined that one of skill in the art would understand that none of the sensors identified in the CCDMv2, including the photo sensors, the Hall sensors, and the ultrasonic sensor, could detect overlapping notes based on thickness. *See* RX-0144C (Sturges WS) at Q/A 423, 426, 576. Respondents do not provide an explanation regarding how or why a person of ordinary skill in the art would modify these sensors to perform the required limitation. *See* Resps. Br. at 103-38; Resps. Reply Br. at 58-70; CX-0277C (Howard RWS) at Q/A 208.

**iv. Dependent Claim 6**

Asserted dependent claim 6 of the '235 patent reads as follows:

**6.** The apparatus of claim 1, further comprising:

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a memory configured to store various information acquired by the verifying unit;

a communication controller configured to communicate with a host computer connected therewith;

a central controller configured to control the memory, the depositing controller, and the communication controller;

a user input unit configured to receive information from the user;

a deposit display unit configured to display information to the user; and

a receipt output unit configured to output a receipt to the user.

JX-0001 ('235 Patent) at col. 11, ln. 23 – col. 12, ln. 2.

The CCDMv1 Module and/or the CCDMv1 Manuals do not anticipate or render obvious claim 6 of the '235 patent under either the correct claim constructions or respondents' proposed constructions. This claim is not invalidated at least for the reasons claim 1 of the '235 patent is not invalidated, as well as for the reasons discussed below.

**“a communication controller configured to communicate with a host computer connected therewith”**

Respondents' assertions are based on the uncorroborated assumption that the CCDMv1 and CCDMv2 satisfy this limitation using the same structure and operation. No evidence of such similarities has been offered by respondents. Dr. Sturges relies on a single sentence stating that the CCDMv1 was intended to be incorporated into an ATM terminal to conclude that such a terminal would include a communication controller. *See* RX-0144C (Sturges WS) at Q/A 1214-15. Moreover, respondents fail to show why the existence of a communication controller in a CCDMv2 ATM terminal leads to the same in a different terminal model built for the CCDMv1.

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Respondents' obviousness arguments are insufficient in analysis and evidentiary support. The fact that both CCDM modules are intended to be incorporated into ATM terminals does not disclose a communication controller in the module or the ATM. Further, respondents failed to show that the inclusion of such a controller in the CCDMv1 was obvious. Respondents argue that such a controller would have been "necessary in order to have an operational ATM," but fail to support this assertion. Resps. at 119. Dr. Sturges opines without explanation that one of ordinary skill would understand the necessity of a communication controller in an ATM. *See* RX-0144C (Sturges WS) at Q/A 1227. Such limited reasoning does not indicate that (1) one of ordinary skill in the art would have the knowledge to make such a modification or (2) they would have reason to do so. *See* CX-0277C (Howard RWS) at Q/A 214.

**"central controller configured to control the memory, the depositing controller, and the communication controller"**

Respondents' assertions are based on the uncorroborated assumption that the CCDMv1 and CCDMv2 and the ATMs in which they were incorporated satisfy this limitation using the same structure and operation. No evidence of such similarities has been offered by respondents. Dr. Sturges relies on circumstantial evidence to suggest that one of ordinary skill would have understood that the CCDMv1 was incorporated into an ATM terminal, and would thus include a central controller. *See* CX-0277C (Howard RWS) at Q/A 217. While Dr. Sturges does not point to any specific element that practices this limitation, he acknowledges that the central controller would be a component of the ATM terminal and not the CCDMv1 module. *See* RX-0144C (Sturges

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WS) at Q/A 1252. Respondents' invalidity arguments are directed to the CCDMv1 module, and it has not offered evidence that devices other than the CCDMv1, such as the ATM terminal, discloses this limitation. Respondents rely on assertions of obviousness supported by Dr. Sturges's uncorroborated statements to suggest that a person of ordinary skill would know how and be motivated, to modify the CCDMv1 and its ATM to practice this limitation.

**Under Respondents' Proposed Construction**

For the reasons discussed above, respondents' analysis is incomplete. The CCDMv1 references do not disclose this limitation and respondents failed to show that a person of ordinary skill would have had any reason to make such modifications, and that such modifications were within their ability.

**v. Dependent Claim 8**

Asserted dependent claim 8 of the '235 patent reads as follows:

**8. The apparatus of claim 1, further comprising:**

an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path,

wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit.

JX-0001 ('235 Patent) at col. 12, lns. 12-22.

The CCDMv1 Module and/or the CCDMv1 Manuals do not anticipate or render obvious asserted claim 8 of the '235 patent under either the correct claim construction or

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respondents' proposed construction. This claim is not invalidated at least for the reasons that claim 1 is not invalidated.

**vi. Dependent Claim 9**

Asserted dependent claim 9 of the '235 patent reads as follows:

**9. The apparatus of claim 1, further comprising:**

an authentic cash temporary storage provided at a rear end side of the authentic cash transfer path and configured to stack and temporarily hold the authentic banknotes other than cheques transferred along the authentic cash transfer path,

wherein the authentic cash storage cassette is configured to store a bundle of the stack of authentic banknotes other than cheques held by the authentic cash temporary storage.

JX-0001 ('235 Patent) at col. 12, Ins. 23-32.

The CCDMv1 Module and/or the CCDMv1 Manuals do not anticipate or render obvious asserted claim 9 of the '235 patent under either the correct claim construction or respondents' proposed construction. This claim is not invalidated at least for the reasons that claim 1 is not invalidated.

**d. Obviousness: CCDMv1 Module and Service Manuals Combined with U.S. Patent No. 6,663,001 ("Suttie" or "Suttie patent")**

Respondents argue that the asserted claims of the '235 patent are rendered obvious by the CCDMv1 module, the 2003 CCDMv1 service manual, and/or the 2005 CCDMv1 service manual combined with U.S. Patent No. 6,663,001 ("Suttie"). *See* Resps. Br. at 103-41, 145-49; Joint Outline at 6.

Complainants disagree. *See* Compls. Br. at 165-93.

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For the reasons set forth below, respondents have not shown by clear and convincing evidence that the asserted claims of the '235 patent are anticipated or

As discussed below, the CCDMv1-related material (which comprises Dr. Sturges's various citations concerning a "CCDMv1 Module" and the various CCDMv1 manuals he cites) in combination with the Suttie patent, fail to render obvious numerous limitations of the asserted claims.

**i. Independent Claim 1**

Asserted independent claim 1 reads as follows:

1. A cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque, the apparatus comprising:

a bundle insertion unit configured to receive the bundle of banknotes from a user;

a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval;

a main transfer unit coupled to the bundle separator and configured to horizontally transfer the individual sheets of the banknotes along a main transfer path;

a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors;

an abnormal sheet branch transfer unit having an abnormal sheet branch transfer path branched from the main transfer path, the abnormal sheet branch transfer unit configured to transfer abnormal banknotes verified by the verifying unit;

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a first gate configured to selectively route the verified banknotes to the abnormal sheet branch transfer path or the main transfer path;

an abnormal sheet unloading transfer unit coupled to the first gate, the abnormal sheet unloading unit having an abnormal sheet unloading transfer path and configured to return the abnormal banknotes to the user;

an authentic cheque transfer unit coupled to an end of the main transfer path, the authentic sheet transfer unit having an authentic cheque transfer path and configured to transfer at least one authentic cheque in the bundle of banknotes verified by the verifying unit;

an authentic cash transfer unit coupled to the end of the main transfer path, the authentic cash transfer unit having an authentic cash transfer path and configured to transfer authentic banknotes other than cheques verified by the verifying unit;

a second gate configured to route the at least one cheque transferred by the main transfer unit to the authentic cheque transfer path and configured to route the banknotes transferred by the main transfer unit to the authentic cash transfer path;

an authentic cheque storage cassette coupled to the authentic cheque transfer unit, the authentic cheque storage cassette configured to store therein the at least one authentic cheque transferred by the authentic cheque transfer unit;

an authentic cash storage cassette coupled to the authentic cash transfer unit and configured to store therein the authentic banknotes other than cheques transferred by the authentic cash transfer unit;

a cheque standby unit placed in the main transfer path between the first gate and the second gate, the cheque standby unit configured to hold the at least one authentic cheque to return the at least one authentic cheque to the user responsive to receiving user instructions cancelling depositing of the at least one authentic cheque; and

a depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal

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banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result.

JX-0001 ('235 Patent) at col. 9, ln. 58 – col. 10, ln. 65.

The CCDMv1 references combined with Suttie do not practice or render obvious this claim under either the correct claim construction or respondents' proposed construction. As discussed below, this combination does not satisfy at least the limitations requiring "a cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque," a "bundle separator . . . [configured to] transfer each of the individual sheets with a predetermined time interval," a "verifying unit . . . configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors," or a "depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the authentic cash transfer path based on the verification result."

**"a cash and cheque automatic depositing apparatus for automatically depositing a bundle of banknotes including at least one cheque"**

For the reasons previously stated, the CCDMv1 Module and CCMv1 Manuals do not disclose and the combination of the module and the manuals does not render obvious this limitation under either the correct claim construction or respondents' proposed

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construction, and the addition of the Suttie patent does not alter this fact. Respondents' expert Dr. Sturges admitted that the Suttie patent does not teach processing a mixed bundle in a single pass. *See* CX-0277C (Howard RWS) at Q/A 568 ("Suttie itself does not disclose all of the detailed configurations of a machine capable of processing checks and cash received through a single slot."). More importantly, Dr. Sturges does not describe the combination he asserts between these references or describe which elements from the Suttie patent one of skill in the art would combine with the CCDMv1 that would practice the asserted claims. *Id.*

Respondents do not provide sufficient evidence to indicate that one of ordinary skill in the art would have the motivation and knowledge to combine the CCDMv1 with the teachings of Suttie given the numerous differences between the two systems. Respondents avoid any specific analysis of the prior art and merely asserts that the Suttie patent teaches how to configure the CCDMv1 to process mixed bundles in a single pass. However, the Suttie patent teaches multiple transfer paths, gates, and escrows that do not align with the invention taught by the '235 patent or the mechanics of the CCDMv1.

Respondents asserts that the CCDMv1 was modified to process mixed bundles in a single pass, but omits that any such alleged modifications occurred years after the '235 patent. Wincor's documents as recent as 2016 illustrate that the CCDMv1 does not have this capability. Respondents have no evidence that modifying the CCDMv1 to process a mixed bundle in a single pass was obvious to one of ordinary skill.

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**“a bundle separator coupled to the bundle insertion unit and configured to separate the bundle of banknotes received at the bundle insertion unit into individual sheets and transfer each of the individual sheets with a predetermined time interval”**

Respondents have not shown that their proposed combination of the CCDMv1 module and/or manuals with the Suttie patent discloses this limitation.

**“a verifying unit installed on the main transfer path and configured to verify authenticity or abnormality of each of the banknotes by acquiring features information on each of the banknotes, the verifying unit configured to produce a verification result indicating the authenticity or abnormality of each of the banknotes, the verification unit further configured to perform tripartite detection of overlapping of the individual sheets in the main transfer unit using three different sensors”**

For the reasons discussed above, the CCDMv1 references do not disclose or render obvious this limitation, and Dr. Sturges’s suggested combination of the CCDMv1 references and the Suttie patent does not change this fact.

**Under the Correct Claim Constructions**

Respondents’ position offers no analysis or basis in fact. Respondents identify generic sensors in the Suttie patent, and assumes without basis or corroborating evidence that these sensors operate in the same way and for the same purpose as those identified in complainants’ infringement allegations. *See* CX-0277C (Howard RWS) at Q/A 235. The Suttie patent never mentions detecting overlapping notes. *Id.* In fact, the words “overlap,” “double,” and “multiple” do not appear anywhere in the specification or claims of the Suttie patent. *See* CX-0277C (Howard RWS) at Q/A 235.

Respondents cannot suggest that one of ordinary skill would understand how to incorporate the knowledge of a product which did not exist until years after the invention of the ‘235 patent. Respondents do not offer evidence to support their argument that the

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sensors in Suttie operate similarly to those in the CCDMv2, and thus, one of ordinary skill would understand that the CCDMv1 could be modified with the sensors of Suttie to detect overlapping notes. The CCDMv2 is not prior art and cannot provide guidance or motivation on how to modify an alleged prior art product to practice the claimed invention. *See* CX-0277C (Howard RWS) at Q/A 235.

**“depositing controller connected to the first gate, the second gate and the verifying unit, the depositing controller configured to transfer the authentic banknotes to the main transfer path but transfer abnormal banknotes to the abnormal sheet branch transfer path based on the verification result, and transfer each of the individual sheets in the banknotes determined to be a cheque to the authentic cheque transfer path and the banknotes other than the cheque to the**

Respondents have not shown that the proposed combination of the CCDMv1 module and/or manuals with the Suttie patent discloses this limitation.

The depositing controller of the ‘235 patent is connected to a first gate and second gate. Suttie does not disclose these gates. The depositing controller of the ‘235 patent requires an authentic cash transfer path and an authentic check transfer path. Suttie does not disclose these paths. Respondents failed to show how Suttie could disclose a depositing controller that is connected to a second gate and routes cash to the cash path and checks to the checks path.

**ii. Dependent Claim 2**

Asserted dependent claim 2 of the ‘235 patent reads as follows:

**2. The apparatus of claim 1, further comprising an auto-alignment unit provided on the main transfer path, the auto-alignment unit configured to align the banknotes while transferring the banknotes on the main transfer path.**

JX-0001 (‘235 Patent) at col. 10, ln. 66 – col. 11, ln. 2.

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Respondents have not shown, nor did they attempt to show, that the proposed combination of the CCDMv1 module and/or manuals with the Suttie patent discloses this additional limitation of claim 2.

**iii. Dependent Claim 3**

Asserted dependent claim 3 of the '235 patent reads as follows:

3. The apparatus of claim 1, wherein the verifying unit includes:

a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes;

a CIS (Contact Image Sensor) for acquiring and analyzing image information by scanning the banknotes;

a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes; and

an MICR (Magnetic Ink Character Recognition) module for acquiring magnetic ink character information printed on the at least one cheque.

JX-0001 ('235 Patent) at col. 11, lns. 3-15.

The CCDMv1 Module and/or the CCDMv1 Manuals combined with the Suttie patent do not render obvious claim 3 of the '235 patent under either the correct claim constructions or respondents' proposed constructions, at least for the same reasons that claim 1 is not invalidated, as well as for the reasons discussed below.

**“verifying unit includes: a plural banknotes detection part configured to detect overlapped individual sheets based on a thickness of the banknotes”**

Respondents have not shown that the proposed combination of the CCDMv1 module and/or manuals with the Suttie patent discloses this limitation. Dr. Sturges

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appears to acknowledge as much from his failure to opine on the issue. *See* Resps. Br. at 138-41 (not addressing claim 3). Any such combination fails for at least the same reasons discussed above with respect to the CCDMv1 module and manuals (regarding “tripartite detection”). The Suttie patent does not teach detecting overlapping notes in any manner, including based on thickness. *See* Compls. Br. at 191.

**“a cash verifying part for verifying authenticity or abnormality of the banknotes by sensing characteristics of the banknotes”**

Respondents have not shown that the proposed combination of the CCDMv1 module and/or manuals with the Suttie patent discloses this limitation. Dr. Sturges appears to acknowledge as much from his failure to opine on the issue. *See* Resps. Br. at 138-41 (not addressing claim 3).

**iv. Dependent Claim 6**

Asserted dependent claim 6 of the ‘235 patent reads as follows:

6. The apparatus of claim 1, further comprising:
- a memory configured to store various information acquired by the verifying unit;
  - a communication controller configured to communicate with a host computer connected therewith;
  - a central controller configured to control the memory, the depositing controller, and the communication controller;
  - a user input unit configured to receive information from the user;
  - a deposit display unit configured to display information to the user; and
  - a receipt output unit configured to output a receipt to the user.

JX-0001 (‘235 Patent) at col. 11, ln. 23 – col. 12, ln. 2.

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The CCDMv1 Module and/or the CCDMv1 Manuals combined with the Suttie patent do not render obvious claim 6 of the '235 patent, under either the correct claim constructions or respondents' proposed constructions. This claim is not invalidated at least for the reasons claim 1 of the '235 patent is not invalidated, as well as for the reasons discussed below.

**“a communication controller configured to communicate with a host computer connected therewith”**

The CCDMv1 Module and CCMv1 Manuals do not disclose or render obvious this limitation under either the correct claim construction or respondents' proposed construction, and the addition of the Suttie patent does not alter this fact.

**Under Respondents' Proposed Construction**

Respondents do not identify any element described in the Suttie patent that acts as a “communications controller.” Respondents assert that one of ordinary skill “who was interested in connecting an ATM or SST to a financial institution . . . would look to similar references in the field to learn precisely how to make that connection.” *See* Resps. Br. at 119. Thus, respondents' suggested modification would require knowledge beyond the scope of the Suttie patent and the knowledge of one of ordinary skill in the art.

**“a central controller configured to control the memory, the depositing controller, and the communication controller”**

For the reasons discussed previously, the CCDMv1 Module and CCMv1 Manuals do not disclose or render obvious this limitation under either the correct claim construction or respondents' proposed construction, and the addition of the Suttie patent does not alter this fact.

**PUBLIC VERSION****Under Correct Claim Construction**

The combination of the CCDMv1 module and/or manuals with the Suttie patent does not disclose or render obvious this limitation under the correct claim constructions. Respondents argue without supporting evidence that a person of ordinary skill would understand that the Central Processor 16 of Suttie would “perform the same functions Hyosung points to in its infringement arguments.” *See* Resps. Br. 121. One of ordinary skill in the art at the time of the patent would not have known this at least because the CCDMv2 did not exist. Respondents’ analysis lacks evidence and is insufficient to support the broad conclusions.

**v. Dependent Claim 8**

Asserted dependent claim 8 of the ‘235 patent reads as follows:

**8. The apparatus of claim 1, further comprising:**

an authentic cheque incoming unit disposed at a rear end side of the authentic cheque transfer path and configured to temporarily hold an individual sheet of the at least one authentic cheque transferred along the authentic cheque transfer path,

wherein the authentic cheque storage cassette is configured to store the individual sheet of the at least one authentic cheque responsive to the individual sheet of the at least one authentic cheque being held by the authentic cheque incoming unit.

JX-0001 (‘235 Patent) at col. 12, lns. 12-22.

The CCDMv1 Module and/or the CCDMv1 Manuals combined with the Suttie patent do not render obvious claim 8 of the ‘235 patent under either the correct claim construction or respondents’ proposed construction. This claim is not invalidated at least for the reasons that claim 1 is not invalidated.

**PUBLIC VERSION****vi. Dependent Claim 9**

Asserted dependent claim 9 of the '235 patent reads as follows:

**9. The apparatus of claim 1, further comprising:**

an authentic cash temporary storage provided at a rear end side of the authentic cash transfer path and configured to stack and temporarily hold the authentic banknotes other than cheques transferred along the authentic cash transfer path,

wherein the authentic cash storage cassette is configured to store a bundle of the stack of authentic banknotes other than cheques held by the authentic cash temporary storage.

JX-0001 ('235 Patent) at col. 12, lns. 23-32.

The CCDMv1 Module and/or the CCDMv1 Manuals combined with the Suttie patent do not render obvious claim 9 of the '235 patent under either the correct claim construction or respondents' proposed construction. This claim is not invalidated at least for the reasons that claim 1 is not invalidated.

**e. Secondary Considerations**

The objective evidence, also known as "secondary considerations," includes commercial success, long felt need, and failure of others. *See Graham v. John Deere Co.*, 383 U.S. 1, 13-17 (1966); *Dystar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006). "[E]vidence arising out of the so-called 'secondary considerations' must always when present be considered en route to a determination of obviousness." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983). Secondary considerations, such as commercial success, will not always dislodge a determination of obviousness based on analysis of the prior art. *See KSR Int'l Co. v.*

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*Teleflex Inc.*, 550 U.S. 398, 426 (2007) (commercial success did not alter conclusion of obviousness).

\* \* \*

Respondents have not shown that any of the claims of the '235 patent are invalid as either anticipated or obvious in light of the prior art. Further, secondary considerations of non-obviousness illustrate the validity of the '235 patent. As discussed below, the administrative law judge finds that there is some evidence of secondary considerations that supports non-obviousness of the asserted claims of the '235 patent.

**Long-felt, but Unsolved Need**

Wincor Nixdorf has manufactured and sold the CCDMv1 for more than a decade, and despite demand for a single throat, mixed bundle solution, it never produced or sold a CCDMv1 capable of practicing the claims of the '235 patent. Additionally, others tried and failed to develop the invention of the '235 patent, [ ]. See CX-0274C (Howard WS) at Q/A 757.

Mr. Langhuber stated that Wincor helped create a device capable of practicing the '235 patent, but any such activity occurred years after the patent. See RX-0145C (Langhuber WS) at Q/A 197-202. Recreating a claimed invention years after it was patented does not demonstrate obviousness, but reinforces evidence of demand for such an invention.

**Skepticism Within the Industry**

Respondents' actions and statements demonstrate skepticism within the industry that teaches away from the invention. For example, respondents noted their distrust that a

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so-called “[ ]]. See CX-0193C (Internal Memo Opteva Mixed Media) at 972DBD00020660. Respondents acknowledged its mistake in the same 2013 document. *Id.* In another document, respondents tout a “dual-slot” design over a single slot deposit module. See CX-0289C (Diebold Competitive Comparisons) at 972DBD00020673.

In addition, [

]. See CX-0259C (Introduction to CCDM 2003) at WN989000000777-78.

**Copying of the Invention by Others**

The nonobviousness of the ‘235 patent is further illustrated by others in the industry copying complainants’ patented invention. Wincor introduced the CCDMv2 years after the filing of the ‘235 patent. Respondents, after years of avoiding single throat systems, sought out a device that utilized the same technology claimed in the ‘235 patent, and used by complainants. See CX-0193C (Internal Memo Opteva Mixed Media) at 972DBD00020660.

**Commercial Success**

The commercial success of products practicing the ‘235 patent, made by complainants and their competitors, tends to show that the invention claimed in the ‘235 patent is nonobvious. The evidence establishes a nexus between the Accused Products and the invention of the ‘235 patent because the Accused Products practice at least claims 1, 2, 3, 6, 8, and 9 of the ‘235 patent. Respondents promote and distinguish their products based on the ActivMedia module and its ability to process mixed bundles of

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banknotes. *See* CX-0186C (Diebold ActivMedia Spec Sheet) at NH\_989-00068616. The Accused Products have generated [ ] for respondents. For example, Diebold recorded over \$[ ] in sales from the Diebold series ATMs from 2015 through the first half of 2016. During the same period, [ ] of the [ ] of Diebold's 7XXX series ATMs sold included the ActivMedia module. *See* CX-0119C (Spreadsheet (Neiding Dep. Ex. 2)) and CPX-0002C (ActiveMedia spreadsheet); CX-0120C (Product margin spreadsheet (Neiding Depo. Ex. 3) at 1.

The commercial success of the Domestic Industry Products also shows the nonobviousness of the patent. These products form a nexus between the '235 patent and the domestic industry products which practice at least claims 1, 2, 3, 6, 8, and 9 of the '235 patent. As explained above, the domestic industry products include the CCiM module, which is capable of processing and depositing a mixed bundle of banknotes by practicing the limitations claimed in the '235 patent. Additionally, complainants' sale and promotion of the CCiM creates a nexus between the '235 patent and the Domestic Industry Products. Using the CCiM, the Domestic Industry Products can efficiently deposit a bundle of cash and checks at the same time, saving customers from multiple transactions and/or from having to separate cash from checks (and vice versa) to make a deposit. Complainants differentiate their products at least in part on this functionality. The Domestic Industry Products have generated considerable revenues for complainants. *See* CPX-0001C (Vendor Supplier Spreadsheet) at NH\_989-00068529; CX-0276C (Daniels WS) at Q/A 14-15.

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Accordingly, the administrative law judge finds that there is some evidence of secondary considerations that supports non-obviousness of the asserted claims of the '235 patent.

**V. Domestic Industry (Economic Prong)**

Complainants argue:

Pursuant to 19 U.S.C. § 1337(a)(3)(A) and (B), Hyosung has made and continues to make significant U.S. investments in plant and equipment and significant employment of U.S. labor and capital. As detailed below, Hyosung devotes substantial resources, space, and manpower to the customization, finishing, supporting, and servicing the Hyosung ATMs protected by the '235 patent. Hyosung has facilities in Texas, California, and Ohio, as well as service personnel operating in 29 U.S. states, to support and maintain Hyosung's domestic investments.

Compls. Br. at 155 (footnote omitted).

Respondents argue:

In many ITC investigations, a complainant relying on manufacturing or service—even a non-U.S. based company—can satisfy the economic prong of the domestic industry requirement without difficulty. In such cases, the respondent often is left with to raise desultory questions about uncertainty in the arithmetic. This is not such an investigation. Here, with virtually no U.S. operations relevant to the patent, Hyosung has dramatically over inflated its domestic investments by including investments in thousands of products that do not practice the Kwak patent. It was confirmed at the hearing that well-over 90% of the so called Domestic-Industry Products actually do not and cannot practice the Kwak patent because they do not contain the “authentic cash storage cassette” nor an “authentic cash transfer unit” as expressly required by the claims of the Kwak patent.

The trial revealed that the main Hyosung domestic industry product—the MX8200QT—used the Bulk Recycler Module to handle all cash transactions and did not have the cash transfer path or cash cassette required by the claims. In that model the CCiM processes only checks. But Hyosung's expert, Dr. Vander Veen, failed to appreciate this important fact and the result is a record devoid of any quantitative or qualitative analysis of investments related to products that *do* practice the patent. In addition, Hyosung fails to explain why investments in activities

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wholly unrelated to the CCiM module, such as repair of other modules, should count in the domestic industry.

Resps. Br. at 176-77 (emphasis in original).

A violation of section 337(a)(1)(B), (C), (D), or (E) can be found “only if an industry in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established.” 19 U.S.C. § 1337(a)(2). Section 337(a) further provides:

(3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned—

(A) significant investment in plant and equipment;

(B) significant employment of labor or capital; or

(C) substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. § 1337(a)(3).

These statutory requirements consist of an economic prong (which requires certain activities)<sup>39</sup> and a technical prong (which requires that these activities relate to the

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<sup>39</sup> The Commission practice is usually to assess the facts relating to the economic prong at the time that the complaint was filed. See *Certain Coaxial Cable Connectors and Components Thereof and Products Containing Same*, Inv. No. 337-TA-560, Comm’n Op. at 39 n.17 (Apr. 14, 2010) (“We note that only activities that occurred before the filing of a complaint with the Commission are relevant to whether a domestic industry exists or is in the process of being established under sections 337(a)(2)-(3).”) (citing *Bally/Midway Mfg. Co. v. U.S. Int’l Trade Comm’n*, 714 F.2d 1117, 1121 (Fed. Cir. 1983)). In some cases, however, the Commission will consider later developments in the alleged industry, such as “when a significant and unusual development occurred after the complaint has been filed.” See *Certain Video Game Systems and Controllers*, Inv. No. 337-TA-743, Comm’n Op., at 5-6 (Jan. 20, 2012) (“[I]n appropriate situations based on the specific facts and circumstances of an investigation, the Commission may consider activities and investments beyond the filing of the complaint.”).

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intellectual property being protected). *Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-586, Comm'n Op. at 13 (May 16, 2008) (“*Stringed Musical Instruments*”). The burden is on the complainant to show by a preponderance of the evidence that the domestic industry requirement is satisfied. *Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-694, Comm'n Op. at 5 (July 22, 2011) (“*Navigation Devices*”).

With respect to the economic prong, and whether or not section 337(a)(3)(A) or (B) is satisfied, the Commission has held that “whether a complainant has established that its investment and/or employment activities are significant with respect to the articles protected by the intellectual property right concerned is not evaluated according to any rigid mathematical formula.” *Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Comm'n Op. at 27 (Feb. 17, 2011) (“*Printing and Imaging Devices*”) (citing *Certain Male Prophylactic Devices*, Inv. No. 337 TA-546, Comm'n Op. at 39 (Aug. 1, 2007)). Rather, the Commission examines “the facts in each investigation, the article of commerce, and the realities of the marketplace.” *Id.* “The determination takes into account the nature of the investment and/or employment activities, ‘the industry in question, and the complainant’s relative size.’” *Id.* (citing *Stringed Musical Instruments* at 26).

With respect to section 337(a)(3)(C), whether an investment in domestic industry is “substantial” is a fact-dependent inquiry for which the complainant bears the burden of proof. *Stringed Musical Instruments* at 14. There is no minimum monetary expenditure that a complainant must demonstrate to qualify as a domestic industry under the

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“substantial investment” requirement of this section. *Id.* at 25. There is no need to define or quantify an industry in absolute mathematical terms. *Id.* at 26. Rather, “the requirement for showing the existence of a domestic industry will depend on the industry in question, and the complainant’s relative size.” *Id.* at 25-26.

**A. Introduction**

Complainants have made and continue to make significant U.S. investments in plant and equipment and significant employment of U.S. labor and capital. As discussed below, complainants devote substantial resources, space, and manpower to the customization, finishing, supporting, and servicing complainants’ ATMs protected by the ‘235 patent. Complainants have facilities in Texas, California, and Ohio, as well as service personnel operating in 29 U.S. states, to support and maintain complainants’ domestic investments.

Complainant Nautilus Hyosung America Inc. (“NHA”) is a Delaware corporation with its headquarters in Irving, Texas. *See* CX-0276C (Daniels WS) at Q/A 3. NHA is a wholly owned subsidiary of Nautilus Hyosung Inc. (“NHS”). *Id.* NHS is a global technology company based in Seoul, South Korea. *Id.* The process of creating a fully-functioning Domestic Industry Product, suitable for customer use, begins with manufacturing activities overseas. With respect to the Domestic Industry Products at issue in this investigation, and their components, these initial activities are performed by or on behalf of NHS in Gumi, South Korea. *Id.* at Q/A 22. Unfinished ATMs are then shipped from NHS to the U.S. where they are received by NHA and are not ready for sale to U.S. customers. NHA’s domestic operations on the unfinished ATMs are necessary in order to render them suitable for sale. *See* CX-0276C (Daniels WS) at Q/A 35, 37. NHA

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is responsible for all U.S. operations of NHS, including finishing ATMs shipped from NHS, handling all service and repair of Hyosung ATMs in the U.S., and serving as the direct interface with U.S. customers. *See* CX-0276C (Daniels WS) at Q/A 3.

The ATMs imported, finished, sold, and serviced by NHA fall into two general categories: retail ATMs (these are cash dispensers that are typically smaller and less complex ATMs generally found in retail establishments, such as convenience stores and shopping malls) and financial institution (“FI”) ATMs (these are typically larger and more complex machines that are generally used by financial institutions, such as banks and credit unions). *See* CX-0276C (Daniels WS) at Q/A 20.

**B. Investments in Plant and Equipment**

NHA has facilities in Brea, California; Irving, Texas; and Miamisburg, Ohio. *See* CX-0276C (Daniels WS) at Q/A 92. NHA also has field service technicians operating in 29 U.S. states. *See* CX-0075C (FSE Address Report); CX-0276C (Daniels WS) at Q/A 92. Additionally, NHA recently decided to open an office in Charlotte, North Carolina to support its growing relationship with [ ]. *See* CX-0276C (Daniels WS) at Q/A 93.

NHA has [ ] square feet of total facility space in the U.S. *See* CX-0276C (Daniels WS) at Q/A 94. NHA devotes roughly [ ] square feet in its Irving, Texas facility and roughly [ ] square feet in its Miamisburg, Ohio facility to FI ATMs. *See* CX-0276C (Daniels WS) at Q/A 94. Complainants spent over \$[ ] on rent, mortgages, and other facilities-related expenses in the U.S. in 2015. *See* CPX-0023C (NHA SGA Summary). Over \$[ ] of this \$[ ] was directly related to FI ATMs. *See id.*; CX-0276C (Daniels WS) at Q/A 99.

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As discussed below, complainants have made significant investments in plant and equipment related to the protected articles.

**Qualitative Significance**

Complainants' investments are qualitatively significant. Hyosung is recognized as a leader in the ATM industry, and is currently the largest supplier of ATMs to the U.S. market. *See* CX-0275C (Vander Veen WS) at Q/A 63. Complainants actively market the asserted technology embodied in their Domestic Industry Products to prospective customers, and according to a product brochure for their MX7600I (one of the Domestic Industry Products), complainants tout that "[p]roven deposit automation technology is provided from in-house designed and manufactured envelope-free deposit modules." *See* CX-0326 (Hyosung Monimax 7600I website); CX-0275C (Vander Veen WS) at Q/A 63. Complainants' customers include some of the largest and most sophisticated financial institutions in the U.S. including [

]. *See* CX-0275C (Vander Veen WS) at Q/A 63.

Complainants' relationship with [ ] is expanding based, in part, on the features of the Domestic Industry Products. *See* CX-0276C (Daniels WS) at Q/A 6.

**Quantitative Significance**

Complainants' investments are quantitatively significant. The significance of complainants' domestic expenditures can be seen by examining the portion of complainants' FI ATM units which incorporate the technology embodied in the '235 patent (and represent the Domestic Industry Products). Of the [ ] FI ATMs shipped to the U.S. by NHS to NHA for sale in the U.S. in 2015, the Domestic Industry Products

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accounted for [ ] of these machines. *See* CPX-0017C (Revised Shipped ATMs Spreadsheet). In other words, [ ] percent of the FI ATMs that complainants shipped to the U.S. in 2015 were Domestic Industry Products that incorporated the technology embodied by the '235 patent. Applying the [ ] percent allocation factor, complainants' investments in plant and equipment relating to the Domestic Industry Products was [ ] in 2015. *See* CPX-0023C (NHA SGA Summary); CX-0275C (Vander Veen WS) at Q/A 60. In addition, [ ] square feet of facility space devoted to FI ATMs ([ ] square feet + [ ] square feet), or approximately [ ] square feet can be attributed to articles protected by the '235 patent. *See* CX-0275C (Vander Veen WS) at Q/A 70.

**C. Employment of Labor and Capital**

NHA currently has over [ ] employees in the United States supporting NHA's domestic operations directly related to FI ATMs. *See* CX-0276C (Daniels WS) at Q/A 29. In 2015, complainants spent more than \$[ ] on labor. *See* CPX-0023C (NHA SGA Summary); CX-0276C (Daniels WS) at Q/A 88. Of that, \$[ ] was spent on labor directly related to NHA's FI ATMs. *See* CPX-0023C (NHA SGA summary); CX-0276C (Daniels WS) at Q/A 88.

**Finishing**

In its Irving, Texas and Brea, California facilities, NHA has employees supporting its finishing operations. *See* CPX-0016C (Finishing Spreadsheet); CX-0276C (Daniels WS) at Q/A 31. NHA performs a variety of operations on its ATMs which are necessary in order for the ATMs to be sellable to NHA's customers. Complainants' ATM must undergo finishing and customization procedures before shipping to a customer. *See* CX-

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0276C (Daniels WS) at Q/A 35. For example, customers will require that the locks inside an ATM be changed according to their specifications. *Id.* Inasmuch as the software that runs on an ATM is extremely important to its smooth and secure operation, NHA will update the ATMs operating system before shipping it to a customer. *Id.* NHA will also attach customer-specific accessories, such as stickers, advertisements, and “toppers” (which typically contains digital messages the customer wishes displayed). *Id.* These finishing operations, which vary based on the demands of the customer, must occur prior to shipping the ATMs to customers from NHA’s facilities. *Id.*

Inasmuch as FI ATMs typically have more complicated software that require greater skill and more time to install than the operating software found on a retail ATM, FI ATMs typically require additional finishing. *See* CX-0276C (Daniels WS) at Q/A 36. NHA’s FI ATM customers also typically insist on the addition of anti-skimming devices on their ATMs, and these security devices must be constantly updated as criminals become more sophisticated. *Id.* In addition, NHA’s FI machines typically have alarms added to them inasmuch as the average FI ATM will hold several times the amount of cash found in a typical retail ATM. *Id.* NHA’s finishing operations in the U.S. are necessary for the sale of Hyosung FI ATMs. *See* CX-0276C (Daniels WS) at Q/A 37.

The finishing activities associated with NHA’s ATMs typically take up to [ ] hours per ATM to complete. *See* CPX-0016C (Finishing Spreadsheet). In addition to the [ ] hours, the FI ATM specific finishing takes an average of [ ] hours per machine. *See* CX-0276C (Daniels WS) at Q/A 38. Of the approximately [ ] NHS employees in finishing operations in 2015 in Brea, California and Irving, Texas, [ ] were dedicated specifically to FI ATMs. *See* CPX-0035C (Finishing Employees Spreadsheet). NHA

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spent more than \$[ ] (sum of salary, benefits, taxes, and health insurance) in 2015 to employ these [ ] FI ATM specific finishing employees. See CPX-0033C (Cost of Finishing Employees Spreadsheet). NHA currently has [ ] employees dedicated to finishing FI ATMs. See CX-0276C (Daniels WS) at Q/A 47.

**Technical Support**

At Irving, Texas facility, NHA employs approximately [ ] employees engaged in technical support of its ATMs. See CX-0276C (Daniels WS) at Q/A 77. NHA provides technical support that involves answering calls from customers and providing support related to ATM issues, such as installation, network integration, or general functionality, to customers who utilize its ATMs and its intermediate purchasers/installers. *Id.* at Q/A 78. Of the [ ] NHA employees in repair operations, [ ] were engaged in technical support related to NHA's FI ATMs. *Id.* at Q/A 79.

**Repair**

Also at its Irving, Texas facility, NHA employs roughly [ ] employees engaged in repairing damaged modules from its ATMs. *Id.* at Q/A 81. Service technicians in the field remove damaged modules from malfunctioning ATMs and send them back to the Irving, Texas facility to be repaired by NHA's repair personnel and placed back into circulation as replacement modules. *Id.* In 2015, these repair personnel spent [ ] hours repairing ATM parts at NHS's Irving, Texas facility. See CPX-0019C (2015 Repair Spreadsheet).

**Software Support**

At its Miamisburg, Ohio facility, NHA employs [ ] employees devoted to software support. See CX-0276C (Daniels WS) at Q/A 70. Inasmuch as an ATM is

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essentially a computer integrated with a safe, the ATM's computer software (which efficiently and securely communicates with the user's financial institution) is a critical component of complainants' ATMs. *Id.* at Q/A 69. Software support typically involves troubleshooting software integration issues between its ATMs and various software systems employed by its customers. *Id.* Of the [ ] NHS employees working in software support, [ ] provide software support for financial institutions and FI ATMs. *See* CPX-0022C (2015 Year to Date Utilization Spreadsheet). NHA devoted an estimated [ ] hours to FI ATM specific software support. *See* CX-0276C (Daniels WS) at Q75.

**Field Service**

NHA has [ ] field service technicians performing this servicing and repairing across [ ] U.S. states. *See* CX-0075C (FSE Address Report); CX-0276C (Daniels WS) at Q/A 52. NHA has ATMs operating across the country, and having service personnel spread across the country allows NHA to respond more quickly to ATM service and repair needs. *See* CX-0276C (Daniels WS) at Q/A 54. Due to the high cost of NHA's advanced ATMs, failed ATMs are typically serviced and repaired, where possible, instead of replaced. *Id.* at Q/A 55. Repairs fall into one of two categories: first line actions (those the service personnel undertake and which address immediate issues with the ATM, such as clearing jams in a machine) and second line actions (more involved repairs such as repairing or replacing a damaged module). *Id.* In 2015, NHA spent [ ] hours on these first line and second line service activities for FI ATMs alone. *See* CPX-0020C (Service Calls Spreadsheet). The in-service Domestic Industry Products

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in the U.S. accounted for over \$[ ] in service revenue in 2015. *See* CPX-0021C (Service Activity Spreadsheet).<sup>40</sup>

\* \* \*

As discussed below, complainants have made significant investments in the employment of labor and capital related to the protected articles.

**Qualitative Significance**

Qualitatively, complainants' investments are significant. As NHA's Executive Vice President and Chief Operating Officer Nancy Daniels testified, NHA's finishing operations are required before its ATMs can be delivered to its customers. *See* CX-0276C (Daniels WS) at Q/A 35. Further, NHA's software support and technical support, both based in the U.S., offer critical, real-time support to deal with domestic customers' ATM issues. *Id.* at Q/A 69, 78. NHA's field service technicians are spread across the U.S. to quickly respond to the service needs of NHA's ATMs. *Id.* at Q/A 53, 54. Nearly all of NHA's customers purchase a service contract on their NHA ATMs. Having service technicians across the country enables NHA to offer service quickly, eliminates ATM downtime, and maintains customer satisfaction. *Id.* at Q/A 54, 56.

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<sup>40</sup> Additionally, nearly all of NHA's U.S. customers purchase a service contract from NHA. *See* CX-0276C (Daniels WS) at Q/A 56. ATMs can require servicing anywhere from once or twice a year to several times a month, but FI ATMs tend to break down more often because they are more complex and thus require more service. *Id.* at Q/A 57. A forecast of the expected revenue from service for the Domestic Industry Products in the U.S. through 2022 projects them to account for more than \$[ ] in service revenue based on the 2015 installed ATM base over the [ ] depreciation life of the ATMs. *See* CPX-0021C (Service Activity Spreadsheet).

**PUBLIC VERSION****Quantitative Significance**

Quantitatively, complainants' investments are significant. As discussed previously, complainants employ more than [ ] individuals in the U.S. across all of its domestic finishing, repair, field service, technical support, and software support activities, representing an investment in labor of more than \$[ ] in 2015. Of this amount, complainants invested approximately \$[ ] in compensation and benefits (or [ ] percent) on these activities related directly to its FI ATMs. *See* CPX-0023C (NHA SGA Summary); CX-0275C (Vander Veen WS) at Q/A 50. Applying the [ ] percent allocation factor, complainants' domestic investments in the employment of labor relating to the Domestic Industry Products was more than \$[ ] in 2015. *See* CX-0275C (Vander Veen WS) at Q/A 50.<sup>41</sup>

The significance of NHA's domestic industry activities is also reflected in the comparison of those activities to the activities of NHS in Korea. As discussed previously, Hyosung invested more than \$[ ] in 2015 on finishing, repair, field service, technical support, and software support activities in the U.S. directly related to

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<sup>41</sup> Complainants' domestic revenues generated from services directly related to their Domestic Industry Products is significant. As discussed previously, over the [ ] depreciation life of the Domestic Industry Products installed in the U.S. as of 2015 ([ ] units), complainants expect to generate over \$[ ] in service revenues. *See* CPX-0021C (Service Activity Spreadsheet); CX-0276C (Daniels WS) at Q/A 65. In other words, complainants expect to generate more than \$[ ] per ATM (\$[ ]/[ ] units) in service revenue in the U.S. over the [ ] depreciation life of their Domestic Industry Products. The average selling price of their Domestic Industry Products shipped to the U.S. in 2015 was over \$[ ] per ATM (\$[ ]/[ ] units). *See* CPX-0017C (Revised Shipped ATMs Spreadsheet); CX-0275C (Vander Veen WS) at Q/A 65. Thus, complainants' expected service revenue on the Domestic Industry Products is significantly greater than their average selling price.

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the Domestic Industry Products. Hyosung's manufacturing labor cost in Korea related to the Domestic Industry Products is \$[ ]<sup>42</sup>. See CX-0275C (Vander Veen WS) at Q/A 66. As to labor expenses, complainants' employment of labor with respect to the Domestic Industry Products was greater in the United States than it was in Korea.

\* \* \*

Accordingly, evidence shows that complainants have made and continue to make significant U.S. investments in plant and equipment and significant employment of U.S. labor and capital.

**D. Discussion of Respondents' Arguments**

As noted above, respondents argue that "well-over [ ]% of the so called Domestic-Industry Products actually do not and cannot practice" the '235 patent. See Resps. Br. at 176. According to complainant, respondents' contention is based on an argument undisclosed at any time during discovery or in its pre-hearing brief, *i.e.*, Hyosung's MX8200QT and MX8700QT do not have the cash transfer path or cash cassette required by the asserted claims of the '235 patent. See Compls. Reply Br. at 39.

Further, there is no indication in the record that complainants' representation is false. See Resps. P.H. Br. at 212-19 (no argument that the MX8200QT and MX8700QT do not practice the '235 patent); Resps. Br. at 176-85; Resps. Reply Br. at 48-52. If this is the case, the argument that the MX8200QT and MX8700QT do not practice the '235

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<sup>42</sup> The \$[ ] cost represents the application of the [ ]% allocation factor to Hyosung's Korean manufacturing labor cost for FI ATMs in 2015 (\$[ ]). See CPX-0025C (Nautilus Hyosung's Manufacturing Labor Cost and Man Hours); CX-0275C (Vander Veen WS) at Q/A 68.

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patent is waived. *See* Order No. 2, Ground Rule 7 (“Any contentions not set forth in detail as required therein shall be deemed abandoned or withdrawn, except for contentions of which a party is not aware and could not be aware in the exercise of reasonable diligence at the time of filing the prehearing statement.”). Respondents’ argument rests on a few technical manuals that respondents had in their possession since at least March 2016. Respondents could have made this argument prior to its post-hearing brief, but chose to remain silent even in view of interrogatories seeking their contentions, expert reports, expert depositions, and witness statements.

Additionally, respondents’ new arguments fail on the merits as explained in the technical prong section of this ID. The administrative law judge determined that the domestic industry products practice the ‘235 patent.

Discussed below are calculations of the domestic investments assuming (1) the MX8200QT is determined not to be a Domestic Industry Product, and (2) assuming both the MX8200QT and MX8700QT are determined not to be a Domestic Industry Products. In either case, the resulting domestic investment remains significant, and therefore a domestic industry nonetheless exists.

**Excluding MX8200QT**

If the MX8200QT is determined not to be a Domestic Industry Product, complainants’ U.S. investments still satisfy the economic prong of the domestic industry requirement.

Qualitatively, complainants’ investments are significant with or without the MX8200QT included as Domestic Industry Product for the same reasons discussed above with respect to qualitative significance.

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Quantitatively, if the MX8200QT is determined not to be a Domestic Industry Product, the remaining Domestic Industry Products total [ ] units shipped to the U.S. in 2015. *See* CPX-0017C (Revised Shipped ATMs Spreadsheet). This results in a [ ] percent ( $[ ] / [ ]$ ) allocation factor. Applying this allocation factor, Hyosung's investments in plant and equipment relating to the Domestic Industry Products was over \$[ ] (\$[ ] x [ ]%) in 2015. Further, approximately [ ] square feet ( $[ ]$  square feet x [ ]%) can be attributed to articles protected by the '235 patent.

With respect to labor and capital, if the MX8200QT is removed from the Domestic Industry Products, 2015 NHA service revenue was over \$[ ]. *See* CPX-0021C (Service Activity Spreadsheet). Further, the expected service revenue for the Domestic Industry Products in the U.S. through 2022 without the MX8200QT is over \$[ ]. *See* CPX-0021C (Service Activity Spreadsheet). In other words, Hyosung expects to generate more than \$[ ] per ATM ( $\$[ ] / [ ]$  units) in service revenue in the U.S. over the [ ] depreciation life of its Domestic Industry Products. If the MX8200QT is removed from the Domestic Industry Products, the average selling price of its Domestic Industry Products shipped to the U.S. in 2015 is unchanged and remains over \$[ ] per ATM ( $\$[ ] / [ ]$  units). *See* CPX-0017C (Revised Shipped ATMs Spreadsheet). Even without the MX8200QT, Hyosung's expected service revenue on the Domestic Industry Products is significantly greater than their average selling price ( $\$[ ]$  versus  $\$[ ]$  per ATM).

Without the MX8200QT, complainants' investments in compensation and benefits for domestic finishing, repair, field service, technical support, and software support labor relating to the Domestic Industry Products was still more than \$[ ]

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(\$[ ] x [ ]%) in 2015. *See* CPX-0023C (NHA SGA Summary). This remains a significant investment.

The significance of NHA's domestic industry activities is also reflected in the comparison of these domestic activities to the activities of NHS in Korea. If the MX8200QT is removed from the Domestic Industry Products, complainants' manufacturing labor cost in Korea related to the Domestic Industry Products is \$[ ]

].<sup>43</sup> Without the MX8200QT, with respect to labor expenses, Hyosung's employment of labor with respect to the Domestic Industry Products was still greater in the United States (\$[ ] versus \$[ ]) than it was in Korea.

Thus, complainants have made and continue to make significant U.S. investments in plant and equipment and significant employment of U.S. labor and capital even without considering the MX8200QT a Domestic Industry Product.

**Excluding MX8200QT and MX8700QT**

If the MX8200QT and MX8700QT are determined not to be Domestic Industry Products, the qualitative significance of complainants' domestic investments does not change as discussed above.

Quantitatively, if the MX8200QT and MX8700QT are determined not to be Domestic Industry Products, the remaining Domestic Industry Products total [ ] units shipped to the U.S. in 2015. *See* CPX-0017C (Revised Shipped ATMs Spreadsheet).

This results in a [ ] percent ( $[ ] / [ ]$ ) allocation factor. Applying this allocation factor, complainants' investments in plant and equipment relating to the Domestic

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<sup>43</sup> The \$[ ] cost represents the application of the [ ]% allocation factor to complainants' Korean manufacturing labor cost for FI ATMs in 2015 (\$[ ]). *See* CPX-0025C (Nautilus Hyosung's Manufacturing Labor Cost and Man Hours).

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Industry Products was over \$[ ] (\$[ ] x [ ]%) in 2015. Further, over [ ] square feet ([ ] square feet x [ ]%) can be attributed to articles protected by the '235 patent.

As to labor and capital, if the MX8200QT and MX8700QT are removed from the Domestic Industry Products, 2015 service revenue was over \$[ ]. *See* CPX-0021C (Service Activity Spreadsheet). Further, the expected service revenue for the Domestic Industry Products in the U.S. through 2022 without the MX8200QT and MX8700QT is over \$[ ]. *See* CPX-0021C (Service Activity Spreadsheet). In other words, complainants expect to generate more than \$[ ] per ATM (\$[ ]/[ ] units) in service revenue in the U.S. over the [ ] depreciation life of its Domestic Industry Products. If the MX8200QT and MX8700QT are removed from the Domestic Industry Products, the average selling price of its Domestic Industry Products shipped to the U.S. in 2015 is still over \$[ ] per ATM (\$[ ]/[ ] units). *See* CPX-0017C (Revised Shipped ATMs Spreadsheet). Even without the MX8200QT and MX8700QT, complainants' expected service revenue on the Domestic Industry Products is significantly greater than their average selling price (\$[ ] versus \$[ ] per ATM).

Without the MX8200QT and MX8700QT, complainants' investments in compensation and benefits for domestic finishing, repair, field service, technical support, and software support labor relating to the Domestic Industry Products was still more than \$[ ] (\$[ ] x [ ]%) in 2015. *See* CPX-0023C (NHA SGA Summary). This still remains a significant investment.

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The significance of NHA's domestic industry activities is also reflected in the comparison of them to the activities of NHS in Korea. If the MX8200QT and MX8700QT are removed from the Domestic Industry Products, Hyosung's manufacturing labor cost in Korea related to the Domestic Industry Products is over \$[ ].<sup>44</sup> Without the MX8200QT and MX8700QT, with respect to dollars spent on labor, Hyosung's employment of labor with respect to the Domestic Industry Products was still greater in the United States (\$[ ] versus \$[ ]) than it was in Korea.

Thus, complainants have made and continue to make significant U.S. investments in plant and equipment and significant employment of U.S. labor and capital even without considering the MX8200QT and MX8700QT Domestic Industry Products.

\* \* \*

Respondents argue that complainants improperly included investments unrelated to the CCiM module in its economic domestic industry analysis, but respondents fail to substantiate their underlying assertion that the '235 patent protects only the CCiM module. *See* Resps. Br. at 181-83. To the contrary and as discussed in the technical prong section of this ID, the article protected by the '235 patent is the entire FI ATM containing a CCiM module. Respondents acknowledge this in their post-hearing brief:

Here, claim 1 of the Kwak patent is directed to an apparatus that is able to accept cash and checks.

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<sup>44</sup> The \$[ ] cost represents the application of the [ ]% allocation factor to Hyosung's Korean manufacturing labor cost for FI ATMs in 2015 (\$[ ]). *See* CPX-0025C (Nautilus Hyosung's Manufacturing Labor Cost and Man Hours).

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Resps. Br. at 182. A CCiM module without the surrounding components of the ATM, into which the CCiM is incorporated, cannot accept cash and checks. Complainants' economic domestic industry expert witness, Dr. Vander Veen, properly performed his analysis by allocating the investment numbers based on the entire FI ATM containing a CCiM module. *See* CX-0275C (Vander Veen WS) at Q/A 54-60. Dr. Vander Veen provided both qualitative and quantitative analysis in concluding that complainants' domestic investments are significant. *Id.* at Q/A 61-72. Respondents offered no expert opinion to rebut this analysis and rely solely on attorney argument to make their case. As Dr. Vander Veen testified, the products at issue in this Investigation are not only modules, but products containing the modules and ATMs themselves. *Id.* at Q/A 30-31. As discussed above, Dr. Vander Veen provided a detailed analysis that allocated complainants' domestic investments related to its FI ATMs containing a CCiM module.

**VI. Remedy and Bonding**

This is the recommended determination of the administrative law judge on remedy and bonding.

The administrative law judge must issue a recommended determination concerning the appropriate remedy in the event that the Commission finds a violation. *See* 19 C.F.R. § 210.42(a)(1)(ii). That recommendation is contained herein below. Nevertheless, the Commission did not authorize the administrative law judge to take public interest evidence or to provide findings and recommendations concerning the public interest. Thus, in accordance with the usual Commission practice and the applicable Commission Rule, only the Commission can determine the role that public interest factors may play in this investigation. *See* 19 C.F.R. § 210.50(b)(1).

**PUBLIC VERSION****A. Limited Exclusion Order**

The Commission has broad discretion in selecting the form, scope, and extent of the remedy in a section 337 proceeding. *Viscofan, S.A. v. United States Int'l Trade Comm'n*, 787 F.2d 544, 548 (Fed. Cir. 1986). A limited exclusion order directed to respondents' infringing products is among the remedies that the Commission may impose. *See* 19 U.S.C. § 1337(d).

Complainants argue:

In the event the Commission finds a violation of Section 337 in this Investigation, Hyosung submits that a limited exclusion order pursuant to Section 337(d) of the Tariff Act of 1930, as amended, is appropriate, excluding from entry into the United States all of Diebold's unlicensed automated teller machine modules and products containing the same that infringe one or more claims of the '235 patent. The limited exclusion order should apply to all infringing products, not just the specifically identified Accused Products, as well as components of those products that are later combined into infringing products that are sold after importation. Moreover, the limited exclusion order should be directed to Diebold and any entity under its control, including Wincor. On or about August 15, 2016, the closing conditions were satisfied and the takeover offer was settled for Diebold, Incorporated's acquisition of Wincor Nixdorf AG. *See* CX-0327 (Diebold Internet Press Release); *see also* CX-0329 (PRNewswire: "Diebold Completes Wincor Nixdorf Acquisition"). The combined organization began operating as "Diebold Nixdorf" on Tuesday, August 16, 2016. *See id.* Subsequently, on September 26, 2016, Diebold Holding Germany Inc. & Co. KGaA, a German partnership limited by shares and a wholly owned subsidiary of Diebold, entered into a domination and profit and loss transfer agreement as the controlling company with Wincor Nixdorf AG as the controlled company. *See* CX-0330 (Diebold SEC 8-K). Diebold has effective control over a majority interest in Wincor Nixdorf, as made clear by Diebold, and any remedy should accordingly extend to Wincor.

Compls. Br. at 196-97.

Respondents argue:

It is well-established Commission law that for a violation to lie under 19 U.S.C. § 1337(a)(1)(B)(i) based on patent infringement, the

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articles must infringe at the time of importation. The “Accused Products” in this investigation, Diebold ATMs sold in United States with an ActivMedia module, however, are not imported. They are assembled from hundreds of parts, many of them are off the shelf and domestically sourced. Thus, any remedy should only include devices or components that the ALJ has been specifically found to be infringing as imported and not extend to the handful of off-the-shelf parts that may be imported by Diebold for its product line.

Resps. Br. at 185 (citations omitted).

Respondents argue:

As evident from both parties’ cases, firmware plays a part as to whether there is infringement of the Kwak patent. But the portions of the ActivMedia that are imported do not indicate the operative software installed or intended customer of that module. Certification provisions are generally included in exclusion orders when, as here, Customs will be unable to easily determine whether a product is within the scope of an exclusion order through visual inspection. Further, certification provisions are appropriate when the respondent, as Diebold does here, imports both allegedly infringing and non-infringing products. Any ActivMedia modules that are destined for expressly non-infringing uses, such as those for Bank of America who do not use the ActivMedia Modules for mixed bundle deposits should not be included in any remedy. Thus, a certification provision should be granted to allow Diebold to certify that any imported product does not contain infringing firmware, internal hardware, or is not being sold for infringing purposes.

Resps. Br. at 185-86 (citations omitted).

Concerning domestic service and repair, respondents argue:

Diebold runs a significant service and repair operation for its Accused Products, which includes the servicing and maintenance of the Accused Products per customer contract. Diebold is the only current provider of service and maintenance for the Accused Products and, should a machine break, Diebold is obligated to service, repair, and otherwise make sure these ATMs are running to our customers’ satisfaction. This includes the replacement of any defective components of the Accused Products, including the ActivMedia module. There is no available non-accused replacement for the ActivMedia module that would be acceptable to customers and thus these customers would be without an ATM should Diebold be unable to replace it. Thus, Diebold should be permitted to continue to repair and replace components of the Accused Products, which

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includes the importation of any units certified for repair or replacement purposes.

The circumstances here are similar to those in prior investigations where the Commission permitted similar exceptions.

Resps. Br. at 186-87 (citations omitted).

Respondents argue regarding existing supply orders:

Diebold's ATMs are made to order and are not built until the customer specifically says so. But contracts for the delivery of machines can often extend multiple years by which Diebold agrees to provide a complete supply of a customer's ATM needs for a certain duration. Currently, Diebold has engaged with Bank of America to provide future needs of ATMs, including the Accused Products, through 2019. Diebold is required to fulfill all orders from Bank of America through 2019, which could mean 8,000 ATMs. An exclusion order would likely mean Bank of America could not fulfill its ATM needs in the United States. Thus, any exclusion order should not apply to any Accused Products to be sold pursuant to the Bank of America supply arrangement.

Resps. Br. at 187 (citations omitted).

Respondents argue that Wincor-Nixdorf should not be subject to remedial orders:

Hyosung argues that because Diebold and Wincor have entered into a domination agreement, Diebold has sufficient control over Wincor sufficient to place Wincor as a party that should be subjected to a limited exclusion order and/or cease and desist order should a violation be found. As explained in the very 8K cited by Hyosung, the "[e]ffectiveness of the Domination and Profit and Loss Transfer Agreement remains subject to registration with the commercial register (Handelsregister) of the local court (Amisgericht)." Diebold's 8-K acknowledges that registration, however, could be "delayed considerably pending potential shareholder litigation; if any, in Germany." Minority shareholders are provided a period of time in which such litigation can be filed with the Dortmund District court before Diebold can attempt to register the Domination and Profit and Loss Transfer Agreement ("Domination Agreement"). Indeed, on the third day of the hearing, November 3, shareholders did just that. This resulted in the German Court suspending the registration of the Domination Agreement until the issue is resolved and, to date, the Domination Agreement is not yet effective.

Resps. Br. at 190 (citations omitted).

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The administrative law judge recommends that the limited exclusion order should be directed to Diebold and any entity under its control, including Wincor. On or about August 15, 2016, the closing conditions were satisfied and the takeover offer was settled for Diebold, Incorporated's acquisition of Wincor Nixdorf AG. *See* CX-0327 (Diebold Internet Press Release); *see also* CX-0329 (PRNewswire: "Diebold Completes Wincor Nixdorf Acquisition"). The combined organization began operating as "Diebold Nixdorf" on Tuesday, August 16, 2016. *See id.* Subsequently, on September 26, 2016, Diebold Holding Germany Inc. & Co. KGaA, a German partnership limited by shares and a wholly owned subsidiary of Diebold, entered into a domination and profit and loss transfer agreement as the controlling company with Wincor Nixdorf AG as the controlled company. *See* CX-0330 (Diebold SEC 8-K). Diebold has effective control over a majority interest in Wincor Nixdorf, and any remedy should accordingly extend to Wincor.

Indeed, Diebold's and Wincor's activities demonstrate that Diebold has control of Wincor, making it proper to subject both parties to any issued remedial order. Specific to this investigation, Diebold's conduct further demonstrated its control. For example, Diebold's counsel was communicating and coordinating with Wincor from the outset of this investigation, Diebold worked to produce Wincor witnesses for deposition and documents for production, and Diebold provided the administrative law judge same-day updates during the hearing of confidential information regarding its takeover of Wincor. Thus, any relief granted in this investigation should cover Diebold's new entity, Diebold Nixdorf. Otherwise, Diebold might be able to evade a remedial order by having its new entity import products in violation of the order.

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\* \* \*

The administrative law judge recommends that in the event the Commission determines that a violation of section 337 has occurred, and if consideration of the statutory public interest factors does not require that remedies be set aside or modified, the Commission should issue a limited exclusion order covering all of the infringing articles imported, sold for importation, or sold after importation by respondents and should apply to respondents' affiliated companies, parents, subsidiaries or other related business entities, or their successors or assigns.

Further, in the event the Commission does issue a limited exclusion order in this investigation, the exclusion order should include a provision that allows the respondents to certify, pursuant to procedures to be specified by U.S. Customs and Border Protection, that they are familiar with the terms of the order, that they have made appropriate inquiry, and that, to the best of their knowledge and belief, the products being imported are not excluded from entry under the order.

**B. Cease and Desist Order**

Section 337 provides that in addition to, or in lieu of, the issuance of an exclusion order, the Commission may issue a cease and desist order as a remedy for a violation of section 337. 19 U.S.C. § 1337(f)(1). The Commission "generally issues a cease and desist order only when a respondent maintains a commercially significant inventory of infringing products in the United States." *Certain Ground Fault Circuit Interrupters and Products Containing Same*, Inv. No. 337-TA-615, Comm'n Op. at 24 (Mar. 26, 2009);

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*Certain Video Game Systems, Accessories, and Components Thereof*, Inv. No. 337-TA-473, Comm'n Op. at 2 (Dec. 24, 2002).

Complainants argue:

A cease and desist order is appropriate against Diebold and any entities under its control because the evidence demonstrates the presence of Diebold's commercially significant inventory in the United States. Shannon Cameron, Diebold's Vice President of Supply Chain Planning, testified that [

] CX-0269C (Cameron Dep. Tr.) at 72:21-74:10; *see also* Hr. Tr. (Cameron) at 424:22-425:4. This level of inventory could be used to [

] CX-0275C (Vander Veen WS) at Q/A 75.

Further, Diebold's [ ] CPX-0006C (Diebold's Inventory). When compared to Diebold's [ ] total unit sales of the Accused ATMs in [ ] that amount represents [ ] of Diebold's annual sales. CX-0275C (Vander Veen WS) at Q/A 75. That is, Diebold was holding nearly [ ] of CCDM 2 or ActivMedia modules that [ ] *Id.* A ratio of inventory to unit sales of [ ] *Id.* At most, Diebold holds enough CCDM 2 modules in inventory to [ ]

*Id.* Thus, a cease and desist order is appropriate based on the presence of Diebold's commercially significant inventory in the U.S.

Compls. Br. at 197.

Respondents argue:

The Accused Products are [ ] RX-0414C (Cameron WS) at Q/A 10. Therefore, [

] *Id.* at Q/A 38. In fact, [

] *Id.* at Q/A 39.

Hyosung does not appear to dispute this.

Instead, Hyosung's entire basis for a cease and desist order on all Accused Products is that Diebold keeps some components of ActivMedia

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modules in inventory for assembly into a Diebold ATM. But Diebold maintains inventory in the United States for many reasons such as service and repair, or simply for use in products that do not infringe, such as Diebold ATMs that [ ]. *Id.* at Q/A 40-41. Neither Hyosung nor its expert take this fact into consideration, which means an unwitting bystander to this investigation would likely be harmed.

Resps. Br. at 187-88.

\* \* \*

As argued by complainants, the evidence shows that a cease and desist order is appropriate against respondents and any entities under their control because the evidence demonstrates the presence of respondents' commercially significant inventory in the United States. Shannon Cameron, Diebold's Vice President of Supply Chain Planning, testified that at its Greensboro facility, respondents [

]. *See* CX-0269C

(Cameron Dep. Tr.) at 72-74, Cameron Tr. 424-425. This level of inventory could be used to fulfill many or all of respondents' [

] is commercially significant. *See* CX-

0275C (Vander Veen WS) at Q/A 75.

Further, respondents' internal documents reflect [

]. *See* CPX-0006C (Diebold's Inventory). When compared to respondents'

[ ] total unit sales of the Accused ATMs in [ ] that amount represents [ ] of respondents' annual sales. *See* CX-0275C (Vander Veen WS) at Q/A 75. A ratio of inventory to unit sales of [ ] is commercially significant. *Id.* At most, [

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Thus, a cease and desist order is appropriate based on the presence of Diebold's commercially significant inventory in the U.S.

Accordingly, should a violation be found, the administrative law judge recommends that the Commission issue a cease and desist order as to respondents and respondents' affiliated companies, parents, subsidiaries or other related business entities, or their successors or assigns.

**C. Bond**

Pursuant to section 337(j)(3), the administrative law judge and the Commission must determine the amount of bond to be required of a respondent, during the 60-day Presidential review period following the issuance of permanent relief, in the event that the Commission determines to issue a remedy. The purpose of the bond is to protect the complainant from any injury. 19 U.S.C. § 1337(j)(3); 19 C.F.R. §§ 210.42(a)(1)(ii), 210.50(a)(3).

When reliable price information is available, the Commission has often set bond by eliminating the differential between the domestic product and the imported, infringing product. *Certain Microsphere Adhesives, Processes for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op. at 24 (1995). In other cases, the Commission has turned to alternative approaches, especially when the level of a reasonable royalty rate could be ascertained. *Certain Integrated Circuit Telecommunication Chips and Products Containing Same, Including Dialing Apparatus*, Inv. No. 337-TA-337, Comm'n Op. at 41 (1995). A 100 percent bond has been required when no effective alternative existed. *Certain Flash*

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*Memory Circuits and Products Containing Same*, Inv. No. 337-TA-382, USITC Pub. No. 3046, Comm'n Op. at 26-27 (July 1997) (a 100% bond imposed when price comparison was not practical because the parties sold products at different levels of commerce, and the proposed royalty rate appeared to be *de minimis* and without adequate support in the record).

Complainants argue:

A 100% bond is appropriate because a price comparison between Hyosung's and Diebold's FI ATMs is impractical. There is not a standard price that a financial institution will pay for an FI ATM. CX-0276C (Daniels WS) at Q/A 108. The price of FI ATMs depends on many factors, such as which FI ATM they purchase, the customer's chosen FI ATM features, the purchase order volume, the service contract terms, and the customer's software requirements. *Id.* at Q/A 109. It is not possible to definitively state whether an NHA FI ATM is more or less expensive than Diebold's similar FI ATM. *Id.* at Q110. "Where the record establishes that the calculation of a price differential is impractical or there is insufficient evidence in the record to determine a reasonable royalty, the Commission has imposed a 100 percent bond." *Certain Three-Dimensional Cinema Systems*, Inv. No. 337-TA-939, Comm'n Op, at 67 (Aug. 23, 2016). Accordingly, a bond of 100% is appropriate if the Commission finds a violation.

Compls. Br. at 198.

Respondents argue:

Hyosung argued it is entitled to a 100% bond because ATM prices paid by customers vary substantially depending on the features, the quantity purchased, the customer, and additional contractual features. Hyosung fails, however, to provide any evidence of this variation. Surely if prices varied, it would have been easy to produce purchase orders for some of its Domestic Products to show the alleged variance. Hyosung did not do so and thus there is no reliable evidence on how much prices vary in order to show how a price differential is *impractical*. See, e.g., *Certain Rubber Antidegradants, Components Thereof, and Prods. Containing Same*, Inv. No. 337-TA-533, Comm'n Op. at 39-40 (July 21, 2006) (finding no bond required where complainant did not meet its burden of supporting its need for a bond).

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Hyosung is still required to provide evidence of the impracticality of a price comparison. Indeed, where the Commission *has* found a 100% bond appropriate based on the impracticability of a price comparison, the Complainant affirmatively set forth both the range of prices paid for by the customers and the differing features of the Accused and Domestic Products that render a price comparison impractical. *See e.g. Certain Marine Sonar Imaging Devices, Including Downscan and Sidescan Devices, Prods. Containing the Same, and Components Thereof*, 337-TA-921, Comm'n Op. at 84-85 (Dec. 1 2015) (discussing the analysis of pricing data and differing product features in concluding a pricing differential is impractical). Diebold produced volumes of sales revenue and purchase orders for the Accused Products along with a corporate deponent on sales and revenue topics. *See generally* CX-0270C (Neiding Dep. Tr.). Hyosung is affirmatively choosing not to address this testimony or sales information, which further shows Hyosung has failed to prove any bond is necessary.

Moreover, Hyosung can hardly be heard to allege an average price is impractical when their own economic expert uses the average price of the Hyosung Domestic Industry Products to make conclusions on domestic industry. Dr. Vander Veen had no problem calculating the average price of the Domestic Industry Products when it suited Hyosung's purpose:

Hyosung expects to generate more than [            ] per ATM in service revenue in the US over the [            ] depreciation life of its Domestic Industry Products—which is [            ] *the average selling price of its Domestic Industry Products* (\$[            ] per ATM).

CX-0275C (Vander Veen WS) a Q/A 65. Hyosung cannot have it both ways: it cannot allege an average price is impractical or unobtainable yet use the very same metric to attempt to satisfy the domestic industry.

Further, Hyosung has failed to adduce a bond amount based on any exclusion order against the CCDM/ActivMedia module. Should the ALJ find a violation based on the ActivMedia module, Hyosung failed to allege any bond amount for that particular component and thus no bond amount should issue.

Resps. Br. at 188-89 (emphasis in original).

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Having reviewed the parties' arguments, the administrative law judge finds that a bond based on price differential could have been determined in this investigation, but complainants did not attempt any type of price comparison. *See Resps. Br. at 188-89.*

Accordingly, based on the current record, it is the recommendation of the administrative law judge that no bond should be imposed during the Presidential review period.

\* \* \*

It is the RECOMMENDED DETERMINATION ("RD") of the administrative law judge that in the event a violation of section 337 is found, the Commission should issue a limited exclusion order, and a cease and desist order. Further, should the Commission impose a remedy that prohibits importation, it is recommended that no bond be imposed during the Presidential review period.

**VII. Conclusions of Law**

1. The Commission has subject matter, personal, and *in rem* jurisdiction in this investigation.
2. The accused products have been imported or sold for importation into the United States.
3. The accused products infringe the asserted claims of U.S. Patent No. 8,523,235.
4. The domestic industry requirement has been satisfied with respect to U.S. Patent No. 8,523,235.

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5. It has not been shown by clear and convincing evidence that the asserted claims of U.S. Patent No. 8,523,235 are invalid.

**VIII. Initial Determination and Order**

Accordingly, it is the INITIAL DETERMINATION of the undersigned that a violation of section 337 (19 U.S.C. § 1337) has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain automated teller machines, ATM modules, components thereof, and products containing the same that infringe the asserted claims of U.S. Patent No. 8,523,235.

Further, this Initial Determination, together with the record of the hearing in this investigation consisting of (1) the transcript of the hearing, with appropriate corrections as may hereafter be ordered, and (2) the exhibits received into evidence in this investigation, is CERTIFIED to the Commission.

In accordance with 19 C.F.R. § 210.39(c), all material found to be confidential by the undersigned under 19 C.F.R. § 210.5 is to be given *in camera* treatment.

The Secretary shall serve a public version of this ID upon all parties of record and the confidential version upon counsel who are signatories to the Protective Order, as amended, issued in this investigation.

Pursuant to 19 C.F.R. § 210.42(h), this Initial Determination shall become the determination of the Commission unless a party files a petition for review pursuant to § 210.43(a) or the Commission, pursuant to § 210.44, orders on its own motion a review of the ID or certain issues herein.

**PUBLIC VERSION**

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To expedite service of the public version, each party is hereby ordered to file with the Commission Secretary no later than March 7, 2017, a copy of this initial determination with brackets to show any portion considered by the party (or its suppliers of information) to be confidential, accompanied by a list indicating each page on which such a bracket is to be found. At least one copy of such a filing shall be served upon the office of the undersigned, and the brackets shall be marked in red. If a party (and its suppliers of information) considers nothing in the initial determination to be confidential, and thus makes no request that any portion be redacted from the public version, then a statement to that effect shall be filed.<sup>45</sup>



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David P. Shaw  
Administrative Law Judge

Issued: March 13, 2017

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<sup>45</sup> Confidential business information (“CBI”) is defined in accordance with 19 C.F.R. § 201.6(a) and § 210.5(a). When redacting CBI or bracketing portions of documents to indicate CBI, a high level of care must be exercised in order to ensure that non-CBI portions are not redacted or indicated. Other than in extremely rare circumstances, block-redaction and block-bracketing are prohibited. In most cases, redaction or bracketing of only discrete CBI words and phrases will be permitted.