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Paper 50
Entered: February 3, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VTECH COMMUNICATIONS, INC., and
UNIDEN AMERICA CORPORATION,
Petitioner,

v.

SHPERIX INCORPORATED,
Patent Owner.

Case IPR2014-01431
Patent 5,581,599

Before HOWARD B. BLANKENSHIP, JONI Y. CHANG, and BEVERLY M. BUNTING, *Administrative Patent Judges*.

CHANG, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

VTech Communications, Inc. and Uniden America Corporation (collectively, "VTech") filed a Petition requesting an *inter partes* review of claims 1–13 and 17–19 of U.S. Patent 5,581,599 (Ex. 1001, "the '599 patent"). Paper 2 ("Pet."). Patent Owner Spherix Incorporated ("Spherix") filed a Preliminary Response. Paper 11 ("Prelim. Resp."). Upon consideration of the Petition and Preliminary Response, we determined that there is a reasonable likelihood that VTech would prevail in challenging claims 1–7 and 18 as unpatentable under 35 U.S.C. § 103(a), but not with respect to claims 8–13, 17, and 19. Pursuant to 35 U.S.C. § 314, we instituted this trial as to claims 1–7 and 18 of the '599 patent. Paper 13 ("Dec."), 33.

Subsequent to institution, Spherix filed a Patent Owner Response (Paper 25, "PO Resp."), and VTech filed a Reply to the Patent Owner Response (Paper 28, "Reply"). An oral hearing[1] was held on September 28, 2015.[2]

We have jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). For the reasons set forth below, we determine that VTech has shown by a preponderance of the evidence that claims 1–7 and 18 of the '599 patent are unpatentable.

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[1] The oral hearings for this trial and IPR2014-01432 were consolidated.

[2] A transcript of the oral hearing is entered in the record as Paper 47 ("Tr.").

A. Related Matter

VTech indicates that the ’599 patent has been asserted in *Spherix Inc. v. VTech Telecomm., Ltd.*, No. 3:13-cv-3494-M (N.D.Tex.) and *Spherix Inc. v. Uniden Corp.*, No. 3:13-cv-3496-M (N.D.Tex.). Pet. 58.

B. The ’599 Patent

The ’599 patent relates to a telephone system having an interactive cordless telephone handset and an associated base station. Ex. 1001, Abs. Figure 1 of the ’599 patent is reproduced below.

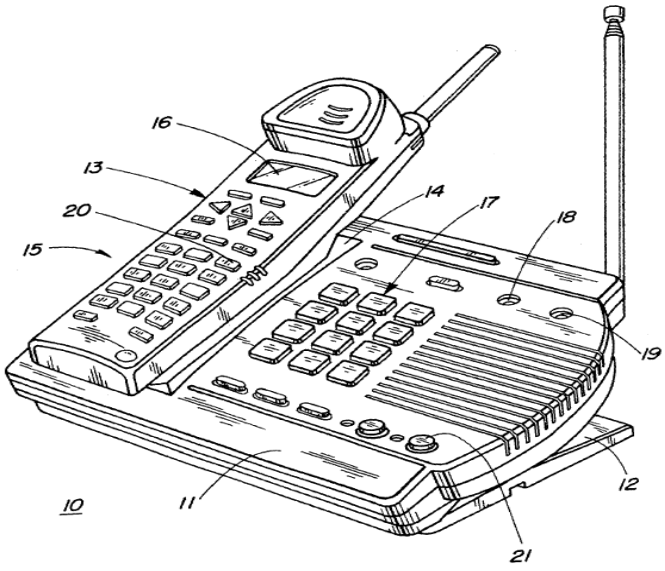

Figure 1 of the ’599 patent illustrates a telephone system 10 that includes base station 11 and cordless handset 13. *Id*. at 2:54–64. Cordless handset 13 includes dial pad 15 and display screen 16. *Id*. Base station 11 includes dial pad 17 and function keys. *Id*. at 2:65–3:1.

C. Illustrative Claim

Of the instituted claims, claims 1 and 18 are the only independent claims. Claims 2–7 depend, either directly or indirectly, from claim 1. Claim 1, reproduced below, is illustrative:

> 1. A method for displaying data and processing appearances thereof from *an alphanumeric display screen of a cordless handset in user-interactive radio communication with an associated base station* of a cordless telephone terminal in onhook communication with a telephone exchange, wherein said base station comprises a memory device, and wherein said *memory device comprises first and second submemories,* said method comprising the steps of:
>
> generating predetermined command and alphanumeric data from selected ones of key operations at the handset;
>
> enabling first processor means at the handset for displaying keyed alphanumeric data on the screen and *concurrently transmitting the alphanumeric data and commands to the base station*;
>
> enabling second processor means at the base station for receiving the alphanumeric data and commands, retrievably storing the data in a first submemory of the base station and operably responding to the commands;
>
> capturing service data from an incoming telephone call received at the base station;
>
> testing the service data at the base station to confirm its validity;
>
> retrievably storing the valid data in a second submemory of the base station and concurrently transmitting the valid data to the handset for display on the screen;
>
> generating a set of user-interactive prompts having predetermined appearances on the display screen; and

> accessing individual ones of the first and second submemories via key operations at the handset corresponding to the user-interactive prompts for selectively processing and editorially revising the alphanumeric data stored in the submemories while under display screen observation.

Ex. 1001, 12:57–13:23 (emphases added).

D. Prior Art Relied Upon

VTech relies upon the following prior art references:

Martensson	US 6,349,212 B1	Feb. 19, 2002	(Ex. 1002)
Schneyer	US 5,388,150	Feb. 7, 1995	(Ex. 1003)
Figa	US 4,924,496	May 8, 1990	(Ex. 1004)
Nishihara	US 5,561,712	Oct. 1, 1996	(Ex. 1008)
Obata	US 5,251,250	Oct. 5, 1993	(Ex. 1010)
Silver	US 4,882,745	Nov. 21, 1989	(Ex. 1015)

Bell Communication Research, *SPCS Customer Premises Equipment Data Interface*, BELLCORE TECHNICAL REFERENCE TR-TSY-000030 Issue 1 (1988) (Ex. 1012, "Bellcore I").

Bell Communication Research, *CLASS Feature: Calling Number Delivery*, BELLCORE TECHNICAL REFERENCE TR-TSY-000031 Issue 2 (1998) (Ex. 1013, "Bellcore II").[3]

[3] We also refer to Bellcore I and Bellcore II, collectively, as "Bellcore Technical References."

E. The Instituted Ground of Unpatentability

We instituted the instant trial based on the sole ground that claims 1–7 and 18 of the '599 patent are unpatentable under 35 U.S.C. § 103(a) over the combination of Figa and Martensson. Dec. 33.

II. ANALYSIS

A. Claim Construction

The '599 patent was issued from U.S. Patent Application No. 08/175,534, filed on December 30, 1993, and has expired. Ex. 1001, at [22]; Pet. 7–10; PO Resp. 21. For claims of an expired patent that cannot be amended, the Board's claim interpretation analysis is similar to that at district court. *In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012). The words of a claim "are generally given their ordinary and customary meaning," as understood by one of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

There is a "heavy presumption" that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted). To overcome this

presumption, the patentee must "clearly set forth" and "clearly redefine" a claim term away from its ordinary meaning. *Bell Atlantic Network Servs., Inc. v. Covad Commc'ns Grp., Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001). The disavowal must be "unmistakable" and "unambiguous." *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1322 (Fed. Cir. 2012).

VTech agrees with Spherix's claim constructions submitted previously in the related district court proceeding, to give the claim terms their ordinary and customary meaning. Pet. 8–10 (citing Ex. 1009; Ex. 1021). Subsequent to Institution, Spherix urges us to adopt all of the constructions entered in the Claim Construction Order (Ex. 2012) by the District Court. PO Resp. 22–23.

Although a district court's interpretation of a claim term recited in the involved patent is instructive, we nevertheless are not bound by that construction. *See Power Integrations, Inc. v. Lee*, 797 F.3d 1318, 1326 (Fed. Cir. 2015) ("There is no dispute that the board is not generally bound by a prior judicial construction of a claim term."). We note that patent claims have a presumption of validity in a district court proceeding. In contrast, there is no presumption of validity in an *inter partes* review, and, therefore, we will not be applying a rule of construction with an aim to preserve the validity of claims. Further, we observe that the parties' arguments and supporting evidence submitted here are different than those presented in the district court proceeding. For instance, Spherix argued in the district court proceeding that the claim elements "first processor means" and "second processor means" are *not* means-plus-function limitations.

Prelim. Resp. 17; Ex. 2012, 33–52. Here, however, Spherix urges us in this *inter partes* review to construe these claim terms as means-plus-function limitations under § 112, ¶ 6.[4] PO Resp. 22–23.

In any event, we have reviewed and considered the District Court's Claim Construction Order insofar as its reasoned analysis is relevant to the issues before us regarding the patentability of claims 1–7 and 18 of the '599 patent and the claim terms in dispute here. *See Power Integrations*, 797 F.3d at 1326 ("The fact that the board is not generally bound by a previous judicial interpretation of a disputed claim term does not mean, however, that it has no obligation to acknowledge that interpretation or to assess whether it is consistent with the broadest reasonable construction of the term."). Based on this record before us, we discern no inconsistency between our determination of the patentability issues in dispute here and the District Court's claim constructions.

We are mindful that only those terms, which are in controversy, need to be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). For purposes of this Final Written Decision, we determine that it is necessary to address only the following claim terms or elements expressly:

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[4] Section 4(c) of the AIA re-designated 35 U.S.C. § 112, ¶ 6, as § 112(f). Pub. L. No. 112-29, 125 Stat. 284, 296–07 (2011). Because the '599 patent has a filing date before September 16, 2012 (effective date), we will refer to the pre-AIA version of § 112, in this Decision.

the preamble of claims 1 and 18, "first submemory," "second submemory," "service data," "concurrently transmitting the alphanumeric data and commands," "first processor means," and "second processor means."[5] Therefore, it is not necessary for us to adopt all of the District Court's claim constructions, as requested by Spherix.

Preambles of Independent Claims 1 and 18

"In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (citations omitted). "Conversely, a preamble is not limiting 'where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.'" *Id.* In other words, the preamble is regarded as limiting if it recites essential structure that is important to the invention or necessary to give meaning to the claim. *NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282, 1305–06 (Fed Cir. 2005).

The preambles of claims 1 and 18 recite:

> A method for displaying data and processing appearances thereof from *an alphanumeric display screen* of *a cordless handset* in user-interactive radio communication with *an associated base station* of a cordless telephone terminal in onhook

[5] The district court did not construe the preamble of claims 1 and 18 nor the terms "service data," "first submemory," and "second submemory." Ex. 2012, 104.

> communication with a telephone exchange, wherein said base station comprises *a memory device*, and wherein said memory device comprises *first and second submemories*, said method comprising the steps of:

Ex. 1001, 12:57–64, 15:26–33 (emphases added).

The preambles of claims 1 and 18 recite essential structural elements of the claimed method pertaining to the cordless handset, base station, and memory device, rather than merely stating the purpose or intended use of the claimed method or apparatus. For instance, the recitation of "said memory device comprises first and second submemories" in the preambles of the claims sets forth the structural limitation that the first and second submemories are portions of the same memory device. Although the bodies of the claims recite first and second submemories, they do not recite a memory device, much less the structural relationship between the submemories and the memory device. It is apparent that the bodies of the claims do not recite the complete invention, and that the claim drafter of the '599 patent chose to use both the preamble and the body of each claim to define the subject matter of the claimed method. *See Bell Commc'ns Research v. Vitalink Commc'ns Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995) (noting that if the claim drafter "chooses to use *both* the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects." (emphasis in original)).

Moreover, the recitation of a "*cordless* handset in user-interactive radio communication with an associated base station" in the preambles of

claims 1 and 18 describes a fundamental characteristic of the claimed method—namely, the handset referenced in the bodies of the claims is a *cordless* handset. The Specification states that "a principal objective of the present invention is to provide a digital data display in the *cordless* handset." Ex. 1001, 1:51–53 (emphasis added). Essentially, the preambles of the claims recite structural elements that are important to the claimed invention. *See Vizio, Inc. v. ITC*, 605 F.3d 1330, 1340 (Fed. Cir. 2010) ("[T]he 'for decoding' language . . . is properly construed as a claim limitation, and not merely a statement of purpose or intended use for the invention, because 'decoding' is the essence or a fundamental characteristic of the claimed invention."); *Poly-America, L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1309-10 (Fed. Cir. 2004) ("blown-film" in the preamble was limiting where the specification was "replete with references to the invention as a 'blown-film' liner" and described it as a fundamental characteristic of the invention).

In consideration of the foregoing, we determine that the preambles of claims 1 and 18 are entitled to patentable weight.

"first submemory" and "second submemory"

Claims 1 and 18 recite "wherein said base station comprises a memory device, and wherein said memory device comprises *first and second submemories*." Ex. 1001, 12:57–24, 15:31–33 (emphasis added).

VTech agrees with Spherix's claim constructions submitted in the district court proceeding, which is to give these claim terms their ordinary

and customary meaning. Pet. 8–10. For example, VTech points out Spherix asserted that "'[s]ubmemory' is simply an engineering shorthand way of saying 'a portion of the memory.'" *Id*. at 8 (citing Ex. 1009, 18).

In its Patent Owner Response, however, Spherix urges us to construe the claim terms "first submemory" and "second submemory" as "a first *logically distinct portion* of a physical memory" and "a second *logically distinct portion* of the same said physical memory," respectively. PO Resp. 24–25 (emphases added). Spherix alleges that its current proposed constructions would make clear that the first submemory and the second submemory are *separate portions* of a physical memory, and they must be portions of the same physical memory device. *Id*. (citing Ex. 2010 ¶¶ 62–67, 74). Spherix further maintains that its proposed constructions submitted here are consistent with the prosecution history, the Specification of the '599 patent, and the ordinary and customary meaning of these terms. *Id*.

We have considered the evidence cited by Spherix that purportedly supports its current proposed claim constructions. We observe that adopting those constructions would import improperly an extraneous feature into the claims—namely, "logically distinct portion of a physical memory." It is well-settled that if a feature is not necessary to give meaning to what the inventor means by a claim term, it would be "extraneous" and should not be read into the claim. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998); *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co*., 849 F.2d 1430, 1433 (Fed. Cir. 1988). More importantly, Spherix does not provide sufficient evidence or reasoning to overcome the

"heavy presumption" that a claim term carries its ordinary and customary meaning. *See CCS Fitness*, 288 F.3d at 1366.

We observe that the cited portions of the prosecution history merely contain a copy of the '599 patent (Ex. 2016, 16, 20–21) and the examiner's amendment cited by Spherix provides no explanation as to why the amendment—adding "sub" before "memory"—was made (Ex. 2020, 4–5).[6] PO Resp. 25. It is unclear how the prosecution history supports Spherix's current proposed claim constructions. Spherix also does not proffer any meaningful explanation as to whether there is a prosecution history disclaimer or whether there is a clear and deliberate disavowal. *See* PO Resp. 24–25. At most, the portions of the prosecution history cited by Spherix are ambiguous. It is well-settled that "the doctrine of prosecution disclaimer only applies to unambiguous disavowals." *Grober v. Mako Prods., Inc*., 686 F.3d 1335, 1341 (Fed. Cir. 2012) (citing *Abbott Labs. v. Sandoz, Inc*., 566 F.3d 1282, 1289 (Fed. Cir. 2009)). "It is inappropriate to limit a broad definition of a claim term based on prosecution history that is itself ambiguous." *Inverness Med. Switz. GmbH v. Warner Lambert Co.*, 309 F.3d 1373, 1382 (Fed. Cir. 2002).

Further, based on our review of the portions of the Specification cited by Spherix, we note that the term "submemory" is not used in the Specification. *See* Reply 19; PO Resp. 24–25 (citing Ex. 1001, 4:13–23,

[6] All references to the page numbers of Exhibits 2016 and 2020 refer to the exhibit page number on the bottom right corner of the page.

7:23–35, 9:33–67). In fact, the cited portions of the Specification merely disclose storing data in a nonvolatile NVRAM (memory), and are silent as to storing data in a *submemory* or a *logically distinct portion* of a memory. Ex. 1001, 4:13–23 ("the data is retrievably stored in a nonvolatile NVRAM 34"); 7:23–35 ("such data is stored in a non-volatile NVRAM 34"); 9:33–67 ("In the case of storing the corresponding name, storage occurs in the nonvolatile memory NVRAM 34 in which the directory resides."). Spherix's expert witness, Dr. Paul Franzon, testifies that the Specification describes storing separate lists of alphanumeric data in *logically separate memory portions* that are part of a single physical memory device. Ex. 2010 ¶ 64. Dr. Franzon's testimony, however, also is unsupported, as the portions of the Specification cited by Dr. Franzon are likewise silent as to storing data "in logically separate memory portions" of a memory device. Ex. 1001, 9:33–67 (storing predialed alphanumeric data in the NVRAM 34); 4:13–23, 7:23–34 (storing captured caller ID service data in the NVRAM 34). It is unclear how those cited portions of the Specification support Spherix's current proposed claim constructions. "Although an inventor is indeed free to define the specific terms used to describe his or her invention, this must be done with reasonable clarity, deliberateness, and precision." *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In this proceeding before us, Spherix points to nothing that defines the "submemory" claim terms with "reasonable clarity, deliberateness, and precision."

With respect to the ordinary and customary meaning of these "submemory" claim terms as would be understood by a person of ordinary

skill in the art, Dr. Franzon testifies that "[t]echniques for partitioning a single physical memory into separate registers for different types of data or functions would have been well known to a POSITA in December 1993." Ex. 2010 ¶ 66. During cross-examination, Dr. Franzon implied that storing two lists in one memory device necessarily means that those lists have to be *logically separate*, and further explained that *logically separate*, "in the view of the person of ordinary skill in the art, is to treat those two lists as . . . not being one joint list, . . . because you have got to find the information again." Ex. 1024, 108:3–24. Further, as VTech points out, Spherix previously asserted in the district court proceeding that the plain and ordinary meaning of the term "submemory" is "a portion of the memory." Pet. 8–10; Reply 18–19; Ex. 1009, 18. In that light, we determine that the claim terms "first submemory" and "second submemory" should be given their ordinary and customary meaning as would be understood by a person with ordinary skill in the art at the time of the invention, in that the term "submemory" means "a portion of the memory."

"service data"

Claim 1 recites "testing the *service data* at the base station to confirm its validity," and claim 2 further recites "wherein the *service data* comprises digitally encoded calling line identification data including a caller's name, a directory number sequence, date and time of call." Ex. 1001, 13:11–12, 24–27 (emphases added).

Because Spherix raised the issue of whether the combination of Figa and Martensson renders these limitations concerning service data in its Preliminary Response, we construed the term "service data" in the Decision of Institution. Dec. 8–9, 18–21. Specifically, we construed the claim term "service data" as "caller identification information," in light of the Specification. Dec. 9; Ex. 1001, 4:10–13. Subsequent to institution, in its Patent Owner Response, Spherix agrees that "caller identification information" is within the proper scope of the "service data" in the context of the claims of the '599 patent. PO Resp. 21. VTech does not propose a different claim construction as to this claim term. *See generally* Reply. Upon review of the present record in its entirety, we discern no reason to change our claim construction for this Final Written Decision.

"*concurrently transmitting the alphanumeric data and commands"*

Claims 1 and 18 recite "displaying keyed alphanumeric data on the screen and *concurrently transmitting* the alphanumeric data and commands to the base station." Ex. 1001, 13:1–4, 15:34–37 (emphasis added). Spherix urges us to adopt the District Court's claim construction, which is "plain and ordinary meaning." PO Resp. 22–23 (citing Ex. 2012, 104). We agree. As District Court found, the claim language, in light of the Specification, indicates that the term "concurrently" as used in the claim limitation does not refer to both "displaying" and "transmitting" but rather refers to "transmitting the alphanumeric data and commands to the base station." Ex. 2012, 24; Ex. 1001, 8:42–55, Fig. 6b. According to the District Court's

finding, "the specification does not state that each time an alphanumeric data is keyed, it is concurrently transmitted." Ex. 2012, 25; Ex. 1001, 9:2–28 (the displayed number is not transmitted to the base station until the users strikes the command key to dial the number). We also agree with the District Court's finding that a person of ordinary skill in the art would have understood that the term "concurrently" only requires the transmission of the alphanumeric data and commands to occur within the same interval of time, and not at the same instant of time. Ex. 2012, 33.

Based on the evidence in this record, we determine that the claim term "concurrently transmitting the alphanumeric data and commands" should be given its ordinary and customary meaning. *See Phillips*, 415 F.3d at 1312.

"first processor means" and "second processor means"

Claims 1 and 18 each recite:

> A *method for* displaying data and processing appearances . . .
>
> enabling *first processor means* at the handset for displaying keyed alphanumeric data on the screen and concurrently transmitting the alphanumeric data and commands to the base station;
>
> enabling *second processor means* at the base station for receiving the alphanumeric data and commands, retrievably storing the data in a first submemory of the base station and operably responding to the commands;

Ex. 1001, 12:57–13:8, 15:26–42 (emphases added).

Spherix argued in the district court proceeding that the claim elements "first processor means" and "second processor means" are *not* means-plus-

function limitations subject to § 112, ¶ 6, because they are in *method* claims and the claims themselves disclose the necessary structure for performing the recited function. PO Resp. 26; Ex. 1009, 14–23. In contrast, Spherix urges us in this *inter partes* review to construe these claim elements as means-plus-function limitations, and that VTech's Petition is defective for applying Spherix's proposed claim constructions previously presented in the District Court. PO Resp. 26–30; Pet. 8–10.

We are unpersuaded by Spherix's argument that we must hold the Petition as defective. It was reasonable for VTech to treat these claim elements in dispute as non-means-plus-function limitations at the time of filing the Petition because Spherix, who is the patent owner and drafter of the claims, maintained that these claim elements are *not* means-plus-function limitations in the district court proceeding. Spherix also concedes that, at the time of filing of the Petition, the parties were engaged in a *good faith* dispute as to whether these claim elements are in fact means-plus-function limitations under § 112, ¶ 6. *See* PO Resp. 26. Moreover, as Spherix acknowledges, the District Court recognized that having a means-plus-function limitations in a *method* claim is a "somewhat novel issue." *Id*. at 26 n.4; Ex. 2005, 89–95, 102–107. Based on the totality of the circumstances, we decline to hold VTech's Petition as defective.

With regard to the issue of whether the "processor means" claim elements should be construed as means-plus-function limitations in this *inter partes* review, we observe at the outset that this claim construction determination does not affect the patentability determination of claims 1–7

and 18 of the '599 patent, based on the prior art in this record. In other words, our determination on patentability of claims 1–7 and 18 of the '599 patent is the same whether or not we adopt the District Court's claim constructions as to these claim terms. For convenience, we reproduce those District Court's claim constructions below (Ex. 2012, 104).

"first processor means at the handset for displaying keyed alphanumeric data on the screen and concurrently transmitting the alphanumeric data and commands to the base station" ('599 Patent)	Governed by 35 U.S.C. §112 ¶ 6 **Function:** Displaying keyed alphanumeric data on the screen and concurrently transmitting the alphanumeric data and commands to the base station. **Corresponding Structure:** microprocessor 96, liquid crystal display (LCD) module 98, LCD driver 99, LCD screen 16, dialpad 15, ROM 94, EEPROM 97, modem 95, and transceiver 77
"second processor means at the base station for receiving the alphanumeric data and commands, retrievably storing the data in a first submemory of the base station and operably responding to the commands" ('599 Patent)	Governed by 35 U.S.C. §112 ¶ 6 **Function:** Receiving the alphanumeric data and commands, retrievably storing the data in a first submemory of the base station and operably responding to the commands. **Corresponding Structure:** microprocessor 33, NVRAM 34, bidirectional data bus 37, data bus 48, microprocessor 39, ROM 45, modem 51, and transceiver 53.

B. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter 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. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying

factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. The Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art at the time of the invention, we note that various factors may be considered, including "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)).

In its Preliminary Response, Spherix raised the issue of whether VTech articulated in its Petition the knowledge of a person with ordinary skill in the art. Prelim. Resp. 24–25. In our Decision on Institution, we determined that Spherix's arguments are unpersuasive. Dec. 9–12. After institution, Spherix does not maintain those arguments, but rather proffers its own definition as to a person with ordinary skill in the art, in the context of the '599 patent. PO Resp. 20–21.

At the outset, we observe that VTech's Petition provides a description of the technology in the relevant art at the time of the claimed invention of the '599 patent, including a discussion regarding caller identification and cordless telephone systems in general with supporting factual evidence.

Pet. 2–7. For instance, VTech explains that caller identification technology dates back to the late 1960's and early 1970's, and that, by the time of the '599 patent filing date, caller identification standards and protocols were adopted and set forth in Bellcore Technical References. Pet. 2 (citing Exs. 1012, 1013). Indeed, according to the '599 patent, the feature of calling number identification "refers to a contemporary method and protocols of data transfers which are defined in Bellcore Technical References" (Exs. 1012, 1013). Ex. 1001, 4:4–8.

Further, it is well-settled that the level of ordinary skill in the art may be reflected by the prior art of record, as here. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). One of ordinary skill is presumed to be aware of all pertinent prior art. *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 454 (Fed. Cir. 1985). In that regard, VTech explains that cordless telephone handsets, having a display screen and features for creating and modifying telephone directories from the cordless handset, were well known in the art, as evidenced by the prior art of record, including Martensson, Nishihara, and Silver. Pet. 4–6 (citing Ex. 1002; Ex. 1008; Ex. 1015). Indeed, according to the '599 patent, cordless telephones were popular, at the time of the invention, in domestic, business, and industrial environments, due to their unrestricted freedom of movement. Ex. 1001, 1:12–19. Telephone services in both voice and data communications were available to support a wide range of applications in the network. *Id*. at 1:20–26. It was also common to store and display a telephone directory at the subscriber's telephone device. *Id*. at 1:26–36.

In support of its contentions, VTech further directs us to a Declaration of Dr. David Lyon. *See, e.g.*, Pet. 2–7 (citing Ex. 1006 ¶¶ 36–46). Dr. Lyon testifies that a "person of ordinary skill in the relevant art of the '599 Patent would have had a Bachelor of Science in electrical engineering, computer science, or another related field such as applied physics, and *two to four* years of experience working with and/or designing telecommunication systems." Ex. 1006 ¶ 28 (emphasis added). In its Patent Owner Response, Spherix alleges that a person having ordinary skill in the art would have a bachelor's degree in electrical engineering with *two to three years* of experience designing and coding processor-based circuits and systems for communications systems and devices, or the equivalent. PO Resp. 20 (citing Ex. 1009; Ex. 1022 ¶ 12). Spherix acknowledges that the minor differences in the parties' definitions have no practical consequence. PO Resp. 20–21.

For the foregoing reasons, we are persuaded that VTech's description of the caller identification and cordless telephone technology known in the art, at the time of the invention, suffices as an articulated discussion on the knowledge and skill of a person with ordinary skill in the art to substantiate VTech's obviousness analysis.

D. Obviousness

VTech asserts that claims 1–7 and 18 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Figa and Martensson. Pet. 44–52. In support of this asserted ground of unpatentability, VTech provides detailed explanations as to how the combination of cited prior art

references renders the claims at issue obvious. *Id.* VTech also relies upon Dr. Lyon's Declaration. Ex. 1006.

Spherix responds that the combination of Figa and Martensson does not disclose every claim element. PO Resp. 36–41. Spherix also argues that VTech fails to articulate a rationale to combine the technical teachings disclosed in the prior art references. *Id*. at 32–36. To support its contentions, Spherix relies upon a Declaration of Dr. Franzon. Ex. 2010.

In our discussion below, we begin with a brief overview of Figa and Martensson, and then we turn to the contentions presented by the parties, focusing on the deficiencies alleged by Spherix.

Figa

Figa discloses an automatic telephone caller identification system, which utilizes the Automatic Number Identification service offered by the telephone company. Ex. 1004, 1:8–12, 3:47–50. The system includes a directory of telephone numbers and parties associated with the telephone numbers. *Id*. at 2:45–47. The system has a detector to identify the incoming call number. *Id*. at 3:65–67. The system compares the incoming call number with the telephone numbers listed in the directory to identify the party associated with the incoming call, and then displays the incoming call number and the identified associated party. *Id*. at 2:48–53. The system also records the incoming call number and the date and time of the call. *Id*. at 2:53–56.

Figure 2 of Figa, reproduced below, illustrates a telephone caller identification system implemented within a portable telephone console (*id*. at 4:12–14).

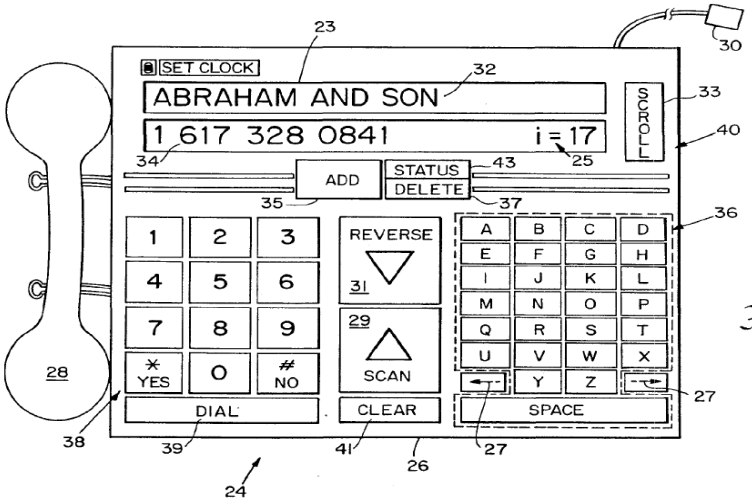

Fig. 2

As depicted in Figure 2 of Figa, the telephone system has console 24 (a base station) and hand receiver 28 (a hand set). Console 24 includes control panel 26 (a user interface), having display 23, alpha keypad 36, numeric keypad 38, and control keypad 40. *Id*. at 4:12–19. Display 23 is used to display information regarding incoming or outgoing telephone calls. *Id*. at 4:19–22.

Martensson

Martensson describes a cordless telephone system, comprising a base station coupled to a telephone network, and a cordless handset capable of communicating with other telephones on the network via radio communication with the base station. Ex. 1002, 1:7–11. According to Martensson, a variety of cordless telephone systems existed at the time of

the invention. *Id*. at 1:14–15. A common feature of these well-known systems is a cordless handset having a display and keypad for dialing telephone numbers, displaying data stored in memory, and performing other functions. *Id*. at 1:43–50.

First submemory and second submemory

The preambles of claims 1 and 18 recite "wherein said base station comprises a memory device, and wherein said memory device comprises *first and second submemories*." Ex. 1001, 12:62–4, 15:31–33 (emphasis added). As discussed above, these preambles are entitled to patentable weight. Claims 1 and 18, in the body, further recite "retrievably storing the [alphanumeric] data in a *first submemory* of the base station," and "retrievably storing the valid [service] data in a *second submemory* of the base station." *Id*. at 13:7–8, 13–14, 15:41–42, 16:3–4 (emphases added). By virtue of their dependency, each of challenged claims 2–6 also requires these "submemory" limitations.

Spherix argues that neither VTech's Petition nor Dr. Lyon's Declaration discusses a "first submemory" and a "second submemory." PO Resp. 40–41. Spherix also alleges that "Martensson does not disclose separate submemories in the base station for storing information in *logically distinct portions* of the memory." *Id*. (emphasis added). Spherix further submits that Figa does not disclose "a *cordless* telephone base station with memories." *Id*. (emphasis added).

Spherix's arguments are unavailing. At the outset, Spherix overlooks VTech's explanations as how the combination of Figa and Martensson discloses every limitation of the claims, and VTech's claim charts that point out the specific portions of Figa, Martensson, and Dr. Lyon's Declaration as support. Pet. 2–7, 45–52 (citing Ex. 1002, Ex. 1004, Ex. 1006). To the extent that Spherix requires the prior art or Dr. Lyon's testimony to use the exact terminology as the claim language, an obviousness analysis is not an *ipsissimis verbis* test. *See In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009). Rather, a prima facie case of obviousness is established when the prior art itself would appear to have suggested the claimed subject matter to an artisan. *In re Rinehart*, 531 F.2d 1048, 1051 (CCPA 1976).

Spherix's argument that "Martensson does not disclose separate submemories in the base station for storing information in *logically distinct portions* of the memory" is misplaced. PO Resp. 40–41 (emphasis added). As discussed above, we decline to adopt Spherix's proposed claim constructions for the claim terms "first submemory" and "second submemory" that improperly import an extraneous feature into the claims—namely, "a logically distinct portion of a physical memory." *See Renishaw*, 158 F.3d at 1249. Rather, these claim terms are given their ordinary and customary meaning as would be understood by a person with ordinary skill in the art, in that the term "submemory" means "a portion of the memory."

Applying the proper claim construction, we determine that VTech has shown by a preponderance of the evidence that Figa in view of Martensson renders the "submemory" limitations obvious. Notably, Martensson

describes a telephone system having a base station and a cordless handset. Ex. 1002, 1:7–11. The system allows the user at the cordless handset to select a service from a predetermined set of services, including *storing or retrieving a telephone number in or from a memory*. *Id*. at 2:66–3:6; 6:5–59.

Martensson discloses several ways in which users can enter a telephone number into a memory and retrieve the number from the memory. In particular, Martensson discloses: (1) a cordless handset having a conventional user interface—a display and keypad that includes a set of alphanumeric keys and a set of function and menu keys (*id*. at 1:43–67); (2) a cordless handset having a voice-activated dialing function (*id*. at 4:12–5:21); and (3) a cordless handset having a display and keypad that allows the user to select the desired number and commands through menu options (*id*. at 6:5–51, Fig. 2). It is reasonably clear from Martensson's disclosure that features of one embodiment are combinable with features in another embodiment. *Id*. at 2:18–22, 6:52–59. For example, Martensson discloses a cordless handset having both the conventional user interface and the voice-activated dialing function (*id*. at 2:18–22), and a cordless handset that accepts a combination of spoken commands and menu selected options (*id*. at 6:54–59).

Figure 2 of Martensson is reproduced below.

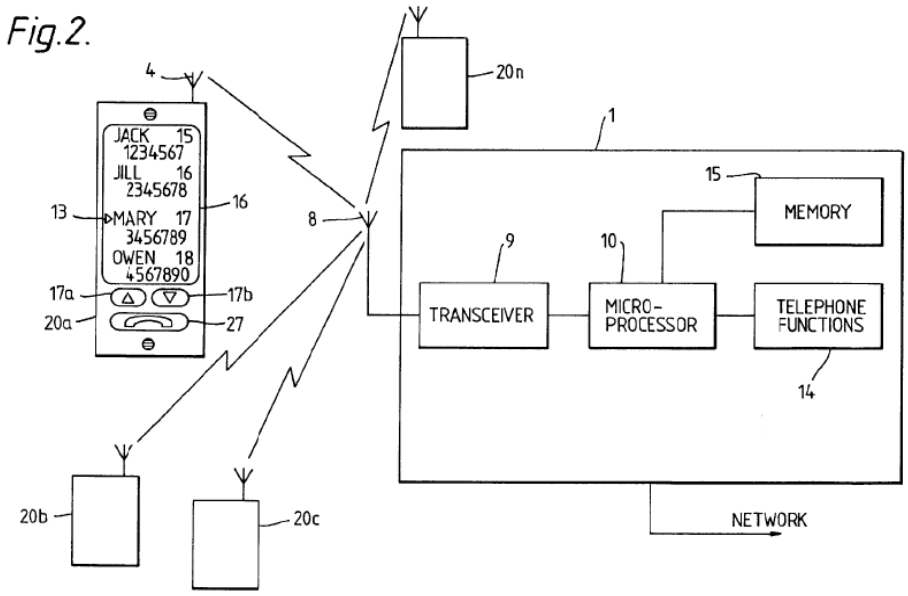

Figure 2 of Martensson depicts cordless handset 20a, having display 16, talk key 27, and scroll keys 17a, 17b. *Id*. at 6:5–11. Messages and instructions are transmitted by radio communication between cordless handset 20a and base station 1 in the form of a private branch exchange. *Id*. at 3:41–48; 6:15–17, 44–51.

To place a call, the user presses talk key 27 at handset 20a, and then base station 1 returns a message to handset 20a, which causes display 16 to show what options are available in a menu format—"1. MAKE CALL; 2. TRANSFER NO.; 3. RETRIEVE NO." *Id*. at 6:24–30. If the user selects MAKE CALL, base station 1 returns a message, causing display 16 to show a list of all the names and/or telephone numbers and/or locations stored in *the associated memory portion of base station memory 15*. *Id*. at 6:32–36. When the user selects an option using scroll keys 17a, 17b, and

confirms the selection by depressing talk key 27, an instruction will be generated by the local microprocessor and relayed to base station 1, which will respond accordingly and perform the requested service. *Id*. at 6:24–51.

Base station 1 also directs incoming calls to the respective handset. *Id*. at 5:50–52. If the incoming call includes a Calling Line Identification signal identifying the caller, base station 1 generates an announcement of the call and transmits the message to handset 20a. *Id*. at 5:55–60. Then, a message is displayed in menu format on display 16. *Id*. at 6:15–17. The user can move cursor 13 to point to a particular option by depressing scroll keys 17a, 17b, and select the desired option by depressing talk button 27 when cursor 13 is pointed at the appropriate option. *Id*. at 6:15–22.

Memory 15 may "have portions associated respectively with each of the other handsets 2b, 2c . . . 2n, and thus constituting a remote telephone directory for each handset." *Id*. at 5:6–21. Additionally, Dr. Franzon acknowledges that "[t]echniques for partitioning a single physical memory into separate registers for different types of data or functions would have been well known to a POSITA in December 1993." Ex. 2010 ¶ 66.

Given the evidence before us, we determine that an ordinarily skilled artisan would have recognized that Martensson discloses storing telephone numbers, telephone directories, messages, instructions, and other data in respective portions or submemories of a memory device at the base station in a manner that they are retrievable—i.e., disclosing a base station that has a "memory device comprises first and second submemories," and is capable

of "retrievably storing the [alphanumeric] data in a first submemory of the base station," as required by claims 1–7 and 18.

In addition, Spherix's argument that Figa does not disclose a *cordless* telephone base station with memories is without merit. PO Resp. 40–41. Spherix's argument is premised that Figa's handset is not *cordless*. Attacking the references individually does not undermine VTech's showing of obviousness, as VTech's asserted ground is based upon the combination of Figa and Martensson. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

As VTech points out, Figa discloses a telephone system with a display screen, microprocessor, and memory, for displaying caller identification information. Pet. 2–4, 44; Ex. 1004, 1:50–3:12, Figs. 2, 3. Also, VTech asserts that it would have been obvious to combine Figa's system with Martensson's cordless telephone. Pet. 45. Indeed, the evidence in this record shows that an ordinarily skilled artisan would have readily appreciated the advantages of substituting a cordless handset for a corded handset. Ex. 1001, 1:12–14 ("Cordless telephones have proven to be popular in domestic, business and industrial environments due to their unrestricted freedom of movement."); Ex. 1002, 1:64–67 ("Both displays and keypads [on the telephone handset itself] have certainly gained universal acceptance in the cordless telephone industry and indeed there is a high level of commonality of the keypad for telephone applications generally."). Therefore, the combination of Figa and Martensson discloses a telephone system having a *cordless* handset and a base station. Pet. 44–52.

Spherix's arguments also fail to consider Figa as a whole. *See In re Hedges*, 783 F.2d 1038, 1041 (Fed. Cir. 1986) (noting that when evaluating claims for obviousness, "the prior art as a whole must be considered."); *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (noting that a reference "must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole").

Notably, Figa discloses a portable telephone console (base station) that receives caller information, logs incoming and outgoing calls, stores a directory of names and telephone numbers, and has the capability to search, add to, delete from, or edit the directory. Ex. 1004, 3:53–64, Fig. 2.

Figure 3 (sheet 1 of 3) of Figa is reproduced below:

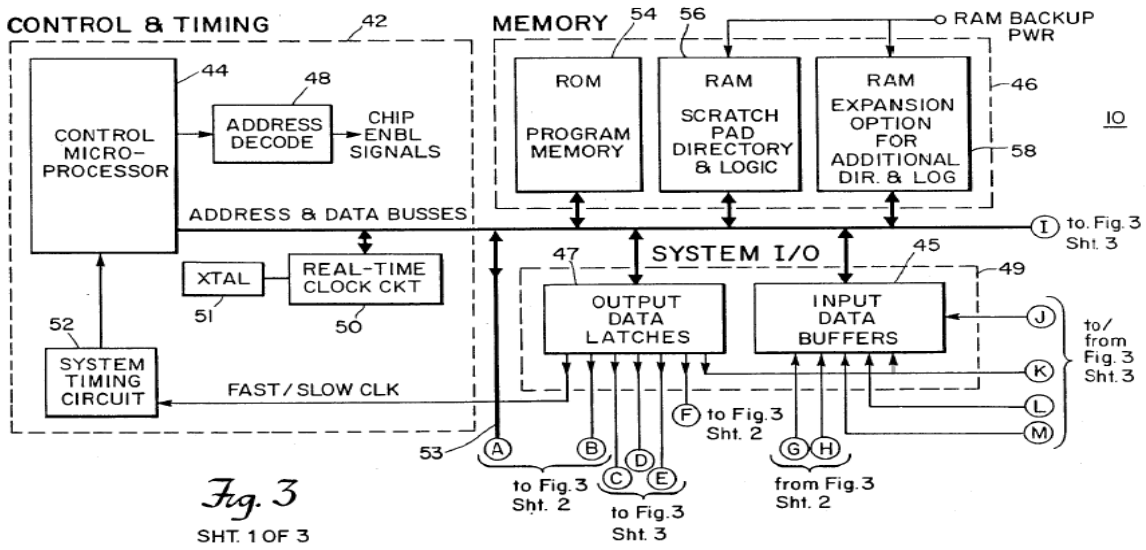

Fig. 3
SHT. 1 OF 3

As shown in Figure 3 (sheet 1 of 3), Figa's base station comprises control and timing circuit 42, memory 46, address and data buses, and system I/O circuit 49. Circuit 42 includes microprocessor 44, which controls system 10 by executing instructions that are stored in memory 46. Ex. 1004,

5:12–26. Memory 46 utilizes programmable read-only memory (PROM) 54 for storing program code and random access memory (RAM) 56 for storing telephone log and directory data. *Id.* In a preferred embodiment PROM 54 consists of 24 Kbytes of memory area and RAM 56 is an 8-K static RAM. *Id.* With this RAM capacity, it is possible to store approximately 40 directory entries (at 51 bytes each) and 80 log entries (at 26 bytes each). *Id.* Additionally, as we previously discussed in the Decision on Institution, Figa discloses receiving data messages that include the incoming telephone numbers and checksum data, and testing the service data at the base station to confirm its validity. Dec. 18–21; Ex. 1004, 3:47–50, 4:12–14, 6:12–30, Figs. 2–3; Ex 1012, 5–6, Figs. 1–2; Ex. 1013; Ex. 1014, 4:10–30, Fig. 3. In that light, one with ordinary skill in the art would have recognized that Figa discloses storing telephone log and directory data, including incoming data messages and valid service data, in respective portions or submemories of a memory device at the base station in a manner that they are retrievable—i.e., disclosing a base station that has a "memory device comprises first and second submemories," and is capable of "retrievably storing the valid [service] data in a second submemory of the base station," as required by claims 1–7 and 18.

For the foregoing reasons, we determine that VTech has demonstrated by a preponderance of the evidence that the combination of Figa and Martensson renders obvious the aforementioned "first submemory" and "second submemory" limitations as required by claims 1–7, and 18. We also note that, even if we were to adopt Spherix's claim constructions,

requiring "submemory" to mean a logically distinct portion of a physical memory (PO Resp. 24–25), the combination of Figa and Martensson would still render these claim limitations obvious because, during cross-examination, Dr. Franzon implies that storing two lists in one memory device necessarily means that those lists have to be *logically separate*, and further explains that *logically separate*, "in the view of the person of ordinary skill in the art, is to treat those two lists as . . . not being one joint list, . . . because you have got to find the information again." Ex. 1024, 108:3–25.

As to other structural features recited in the preambles of claims 1 and 18, we also determine that VTech has demonstrated by a preponderance of the evidence that combination of Figa and Martensson discloses those structural features. *See, e.g.*, Pet. 2–7, 44–45; Ex. 1002, 1:43–63, 3:40–4:4, 6:5–59, Fig. 2; Ex. 1004, 4:12–19, 5:12–26, Figs. 2, 3.

Concurrently transmitting alphanumeric data and commands

In its Patent Owner Response, Spherix contends that the combination of Figa and Martensson does not disclose the "concurrently transmitting" limitation—namely, "concurrently transmitting the [keyed] alphanumeric data and commands to the base station," as recited in claims 1 and 18. PO Resp. 36–39. In that regard, Spherix advances several arguments. *Id.*

First, Spherix argues that the Petition and supporting evidence are silent as to whether the prior art references disclose that limitation. PO Resp. 38. We are not persuaded by that argument because Spherix again

overlooks VTech's explanations and claim charts set forth in the Petition (Pet. 2–7, 44–52), and improperly requires the Petition, prior art, and Dr. Lyon's testimony to use the exact terminology as the claim language. *See Gleave*, 560 F.3d at 1334.

Second, Spherix argues that the "concurrently transmitting" limitation is "intrinsic to the way in which the disclosed 'predialing' embodiment is expressed in the claims," and it is "also essential to the way in which handset battery life is optimized in the system architecture disclosed in the '599 Patent." PO Resp. 36–37. However, nothing in the claims requires us to read the "predialing" embodiment or the handset battery life disclosure from the Specification into the claims. *See Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1354 (Fed. Cir. 2012) (explaining that one must not import limitations from the specification that are not part of the claim).

Third, Spherix argues that Martensson does not disclose the "concurrently transmitting" limitation because Martensson's handset has no alphanumeric keys, and does "not generate alphanumeric data from key presses at all." PO Resp. 36–39. According to Spherix, there is no express disclosure that the alphanumeric data is transmitted from the handset to the base station, and Martensson already stored the data at the base station. *Id*. at 39. Spherix further contends that Martensson specifically discloses that the alphanumeric data and commands are not concurrently transmitted. *Id*. at 38–39 (citing Ex. 1002, 4:65–5:5; Ex. 2010 ¶ 86).

Spherix's arguments are unavailing. As the initial matter, the arguments are not commensurate with the scope of the claims. *See In re*

Self, 671 F.2d 1344, 1348 (CCPA 1982) (stating that limitations not appearing in the claims cannot be relied upon for patentability). Spherix attempts to limit the claim term "*keyed* alphanumeric data" narrowly to require the alphanumeric data to be the specific telephone number being dialed and to be generated by a key pad that has an individual key for each digits of 0–9. Nothing in the claims requires such a key pad, much less generating alphanumeric data or telephone number by pressing a separate key for each digit, as Spherix essentially alleges. PO Resp. 36–38. Rather, claim 1 recites "generating predetermined command and *alphanumeric data from selected ones of key operations* at the handset." Ex. 1001, 12:65–67 (emphasis added).

As discussed above, Martensson discloses a cordless handset, having a display and keypad that enables a user to generate predetermined commands and alphanumeric data from selected key operations by utilizing the display, talk key, and scroll keys. Ex. 1002, 6:5–51, Fig. 2. In particular, to place a call, the user presses the talk key to establish the communication between the handset and the base station. *Id*. at 6:24–27. The base station then returns a message to the handset, which causes the display to show the available options. *Id*. at 6:27–30. The user points to the desired option using the scroll keys, and confirms the selection by depressing the talk key. *Id*. at 6:31–32. If the user selects the option of making a call, the base station returns another message, displaying a list of the names/telephone numbers/locations stored in the memory. *Id*. at 6:32–36. When the user selects the desired telephone number using the scroll

keys and confirms the selection by depressing the talk key, an instruction is generated by the local microprocessor at the handset and relayed by radio communication to the base station. *Id*. at 6:37–51. Viewing Martensson as a whole, we are persuaded that the local microprocessor and other features of the cordless handset are enabled to display the keyed alphanumeric data on the display screen and to transmit concurrently the keyed alphanumeric data and commands to the base station, as required by the claims at issue.

Even if the claim language was to require a traditional numeric keypad to generate the "keyed alphanumeric data" as Spherix essentially alleges, such a feature was well known in the art, as described in Martensson. Ex. 1002, 1:43–63. Martensson discloses a keypad that comprises: a set of alphanumeric keys that includes a key for each of the digits 0–9, and a set of function and menu keys. *Id*. Therefore, viewing Martensson as a whole, we are not persuaded by Spherix's argument that Martensson's handset does not have alphanumeric keys or it does not generate alphanumeric data from pressing the keys.

Nor are we persuaded by Spherix's contention that Martensson already stored the alphanumeric data at the base station. PO Resp. 39. Again, Spherix's contention is not commensurate with the scope of the claims. *See Self*, 671 F.2d at 1348. To the extent that Spherix is interpreting the claim language to require the alphanumeric data to be pre-dialed *immediately* before the transmission, such interpretation would import improperly an extraneous feature into the claims. *See Renishaw*, 158 F.3d at 1249. As noted by the district court in its Claim Construction Order, the

Specification of the ’599 patent “does not state that each time an alphanumeric data is keyed, it is concurrently transmitted.” Ex. 2012, 25; Ex. 1001, 9:2–28 (the displayed number is not transmitted to the base station until the users strikes the command key to dial the number). Importantly, as discussed above, the telephone numbers were entered or generated by the user at the handset. Ex. 1002, 2:66–3:20 (the predetermined set of services includes remote dialing and storing or retrieving a telephone number in or from a memory); 5:17–21 (“[M]emory 15 may also have portions associated respectively with each of the other handsets . . . and thus constituting *a remote telephone directory for each handset*.” (emphasis added).).

Also, Spherix’s contention that Martensson discloses that the alphanumeric data and commands are *not* concurrently transmitted is without merit. PO Resp. 38–39 (citing Ex. 1002, 4:65–5:5; Ex. 2010 ¶ 86). Spherix’s contention and supporting expert testimony are based improperly on the premise that Martensson’s data are “being transmitted one data element at a time.” Ex. 2010 ¶ 86 (citing Ex. 1002, 4:65–5:5 (“As *each digit* is recognized by the voice recognition device 12 in the PBX 1 . . .”) (emphasis added by Dr. Franzon). The passage of Martensson relied upon by Dr. Franzon is silent as to how the alphanumeric data are being *transmitted* to the base station, but instead merely discloses how the voice recognition device recognizes the telephone number at the base station. Ex. 1002, 4:65–5:5. In fact, as discussed above, Martensson discloses that the selected telephone number and commands are transmitted concurrently as an instruction generated by the local microprocessor, from the cordless

handset to the base station when the user selects the desired telephone number and confirms the selection by depressing the talk key. *Id*. at 6:5–51 ("Also, when a menu option is chosen and confirmed by actuation of the handset key 27 an appropriate instruction will be generated by the handset under control of a local microprocessor and relayed by radio communication to the PBX 1 which will respond accordingly and remotely perform the requested service on behalf of the handset 20a."), Fig. 2.

For the foregoing reasons, we determine that VTech has demonstrated by a preponderance of the evidence that the combination of Figa and Martensson renders obvious the aforementioned "concurrently transmitting" claim limitation, as required by claims 1–7 and 18.

First processor means and second processor means

Spherix argues that VTech fails to map the claim elements "first processor means" and "second processor means" to the prior art. PO Resp. 39–40. As support, Dr. Franzon testifies that none of the references discloses the specific structural components that are required by "first processor means" and "second processor means," as construed by the District Court. Ex. 2010 ¶¶ 80, 84, 95.

We are not persuaded by Spherix's argument and supporting expert testimony. As we discussed above, it was reasonable for VTech to treat these claims elements as non-means-plus-function limitations at the time of filing the Petition. Although VTech did not identify specifically the corresponding structures in its Petition, as Dr. Franzon testified in the district

court proceeding, an ordinarily skilled artisan nevertheless would have been able to derive the corresponding structures from the claim language itself, including the structural components recited in the preamble. Ex. 1022 ¶¶ 30, 45. Dr. Franzon also indicated that an artisan would have understood that "such a cordless telephone would necessarily consist of a handset and a base station, each consisting of a processor, a modem, a keypad and a memory (among other hardware components)." *Id*. In its Petition, VTech explains how the combination of Figa and Martensson discloses every limitation of the claims, and points out the specific portions of Figa, Martensson, and Dr. Lyon's Declaration as support. *See, e.g.*, Pet. 2–7, 45–52; Ex. 1006, ¶¶ 89–98. Based on VTech's explanations and supporting evidence, it would have been reasonably clear to an ordinarily skilled artisan that the combination of Figa and Martensson discloses the "processor means" claim elements, as construed by the District Court.

Significantly, neither Spherix's argument nor Dr. Franzon's testimony identifies a single feature of the corresponding structures that is not known in the art or is not disclosed in the prior art of record. PO Resp. 39–40; Ex. 2010 ¶¶ 80, 84, 95. In fact, Dr. Franzon testified in the district court proceeding that a person having ordinary skill in the art would have understood how to program the cordless handset processor and the base station processor to perform each of the recited functions; and, in its off-the-shelf state, each processor "would be configured to send and receive both commands and data with a host of peripheral devices such as keypads, modems, display devices, and storage." Ex. 1022 ¶¶ 30–32, 45–47.

Moreover, as discussed above, the combination of Figa and Martensson discloses: (1) a cordless handset that includes a local microprocessor, display, keypad, transceiver, two-way communication system, and memory, "for displaying keyed alphanumeric data on the screen and concurrently transmitting the alphanumeric data and commands to the base station," as required by claims 1 and 18; and (2) a base station that includes a processor, transceiver, data buses, two-way communication system, and memory, "for receiving the alphanumeric data and commands, retrievably storing the data in a first submemory of the base station and operably responding to the commands," as required by claims 1 and 18. *See, e.g.*, Ex. 1002, 1:43–63, 3:49–4:4, 4:34–21, 6:5–59, Fig. 2; Ex. 1004, 4:12–19, 5:12–26, Figs. 2, 3.

In short, the corresponding structures for performing the recited functions of the "processor means" claim elements, as construed by the District Court, are no more than combining known elements according to their established functions, yielding predictable results. *See KSR*, 550 U.S. at 417 (noting that the predictable use of prior art elements according to their established functions is obvious). Therefore, even if we were to adopt the District Court's claim constructions for the "processor means" elements in the instant *inter partes* review, it would have been obvious to one with ordinary skill in the art to utilize such processor means in a cordless telephone system, in view of Figa and Martensson.

Rationale to combine Figa and Martensson

Spherix contends that VTech fails to provide reasoning with rational underpinning to combine Figa and Martensson. PO Resp. 32–35. In that regard, Spherix advances several arguments. *Id*.

First, Spherix argues that VTech fails to explain why one with ordinary skill in the art "would have been motivated to combine Figa and Martensson to solve the technical problem addressed by the '599 patent." PO Resp. 32–35. This argument is misplaced because "the problem motivating the patentee may be only one of many addressed by the patent's subject matter." *KSR*, 550 U.S. at 420. "Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id*. In short, VTech's reasons to combine "are not limited to the same motivation that may have motivated the inventors." *See PAR Pharm., Inc., v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197 (Fed. Cir. 2014); *Alcon Reasearch, Ltd. v. Apotex Inc.*, 687 F.3d, 1362, 1369 (Fed. Cir. 2012) (noting that the courts "have repeatedly held that the motivation to modify a prior art reference to arrive at the claimed invention need not be the same motivation that the patentee had"). "Motivation to combine may be found in many different places and forms." *Allergan, Inc. v. Sandoz, Inc.*, 726 F.3d 1286, 1292 (Fed. Cir. 2013); *see also Alza Corp. v. Mayland Labs., Inc.*, 464 F.3d 1286, 1294 (Fed. Cir. 2006) (stating that the motivation to combine does not have to be explicitly stated in the prior art, and can be

supported by testimony of an expert witness regarding knowledge of a person of skill in the art at the time of invention).

Here, as Dr. Lyon testifies, cordless phones were invented in the late 1960's and 1970's, and, at the time of the invention, cordless phones with handsets that included microprocessors and displays were well known. Ex. 1006 ¶ 43. Indeed, according to the '599 patent, at the time of the invention, "[c]ordless telephones have proven to be popular in domestic, business and industrial environments due to their unrestricted freedom of movement." Ex. 1001, 1:12–19. Additionally, a cordless handset that has a display and keypad was well known in the art and gained universal acceptance in the cordless telephone industry, as evidenced by Martensson. Ex. 1002, 1:14–67, 2:24–34, 6:5–59, Fig. 2. Given the evidence regarding the various advantages of a cordless handset, we are persuaded by VTech's contention that it would have been obvious to an ordinarily skilled artisan, in view of Martensson, to use a cordless handset with Figa's telephone system, providing the convenience and advantages of a cordless handset—e.g., unrestricted freedom of movement and not limited by the length of a cord. *See KSR*, 550 U.S. at 417 ("[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.").

Second, Spherix argues that VTech provides "just one argument in support of combining Figa and Martensson – that the references are both directed to 'caller ID,'" and that the Board in the Decision on Institution

articulated its own rationale to combine the prior art teachings. PO Resp. 33–34. Spherix's argument, however, narrowly focuses on one aspect of the reasons articulated by VTech for combining Figa and Martensson, and also characterizes the Decision on Institution incorrectly.

VTech's Petition and supporting evidence articulate at least five reasons to combine the prior art teachings—e.g., "[i]mproving Figa by making the simple addition of a cordless handset" and "[u]sing Figa's disclosure in a cordless phone as the industry moved from corded to cordless phones." Reply 21 (citing Pet. 14, 29–30, 44–45). Furthermore, Dr. Lyon testifies that "[a]s phones developed over time, features from corded phones were used in cordless phones and later in cellular phones." Ex. 1006 ¶ 94.

Spherix does not address all of the reasons articulated by VTech for using a cordless handset in Figa's telephone system. PO Resp. 33–34. Instead, Spherix focuses on one aspect of VTech's explanation regarding the advantages of implementing caller identification capabilities and telephone directories in telephone systems (Pet. 2–3). PO Resp. 33–34. In its Patent Owner Response, Spherix acknowledges that engineers in the industry at the time of the invention were tasked with expanding cordless phone technology to include corded phone functionality, which confirms that an ordinarily skilled artisan would have readily appreciated the convenience and advantages of a cordless telephone handset. *Id*. at 6–7.

Contrary to Spherix's characterization that the Board entered its own rationale to combine, we determined in the Decision on Institution that VTech explains sufficiently how the combination of Figa and Martensson

discloses every limitation of the claims, and that VTech's reasons to combine the prior art teachings are supported by the evidence in the record, including the prior art disclosures that describe various advantages of using a cordless handset. *See* Dec. 12–26; Ex. 1001, 1:12–19; Ex. 1002, 1:14–67.

Third, Spherix, based on Dr. Franzon's testimony, argues that an ordinarily skilled artisan would not have been motivated to combine Figa and Martensson "due to Martensson's negative drain on handset battery life." PO Resp. 36. Dr. Franzon's testimony, however, is premised improperly upon his own conjecture that "Martensson would have a significant impact on the battery life of the handset because they require a longer radio connection between the handset and base station as compared to a 'predialing' embodiment as shown in the '599 Patent." Ex. 2010 ¶ 92. Dr. Franzon does not explain with sufficient specificity why Martensson would have a "significant impact" on the battery life of the handset. Dr. Franzon's testimony narrowly focuses on Martensson's voice recognition disclosure and ignores other teachings of Martensson. *See, e.g.*, Ex. 1002, 6:5–51, Fig. 2. The passage of Martensson relied upon by Dr. Franzon's testimony, in fact, is silent as to how the alphanumeric data are being transmitted to the base station, the battery life of a handset, and the length of the radio communication; that passage of Martensson merely discloses how the voice recognition device recognizes the telephone number at the base station. *Id*. at 4:62–5:5. Additionally, the Specification of the '599 patent, at most, describes a generic battery and a conventional means for charging the battery. Ex. 1001, 3:1–5 ("Although not appearing in

FIG. 1, it will be understood that an electrical connection for battery charging is established in a conventional manner by means of corresponding mating electrical contacts in the handset 13 and the cradle 14.").
Dr. Franzon does not explain why an ordinarily skilled artisan would not have been able to charge Martensson's cordless handset using a conventional means.

Finally, Spherix argues that Martensson would not enable an artisan to overcome the technical challenges of implementing the relevant functionality of Figa in a cordless phone system. PO Resp. 34–35 (citing Ex. 2010 ¶¶ 89–92). Spherix also alleges that Martensson teaches away from the suggested combination because Martensson's invention is directed toward eliminating the alphanumeric keys on the cordless handset. *Id*.

Spherix's argument, however, does not identify in particularity what the technical challenges are. PO Resp. 34–35; Ex. 2010 ¶¶ 89–92. In fact, the Specification of the '599 patent acknowledges that cordless telephones are popular in various environments, and telephones having displays and directories are quite common. Ex. 1001, 1:12-36. The Specification only identifies a single problem in connection with a cordless handset not having an all-function display. *Id*. at 1:37–46. But, a cordless handset having such a display and a keypad for entering data and performing other functions is a well-known feature at the time of the invention. Ex. 1002, 1:42–67, 6:5–59.

Also Spherix's arguments again fail to consider Martensson as a whole, in light of the general knowledge of an ordinarily skilled artisan. *See Perfect Web Techs., Inc. v. InfoUSA, Inc*., 587 F.3d 1324, 1329 (Fed. Cir.

2009) (The obviousness analysis may include "recourse to logic, judgment, and common sense available to the person of ordinary skill that do not necessarily require explication in any reference or expert opinion."). "A reference must be considered for everything it *teaches* by way of technology and is not limited to the particular *invention* it is describing and attempting to protect." *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (Fed. Cir. 1985); *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298 (Fed. Cir. 2012). When considering whether a claimed invention would have been obvious, "the knowledge of such an artisan is part of the store of public knowledge that must be consulted." *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013); *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015).

Viewing Martensson as a whole in light of the general knowledge of an artisan, we are not persuaded by Spherix's argument that Martensson teaches away from using a keypad for generating alphanumeric data. *See In re Susi*, 440 F.2d 442, 446 n.3 (CCPA 1971) (noting that disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure of non-preferred embodiments.). A reference does not teach away, if it merely expresses a general preference for an alternative invention, but does not "criticize, discredit, or otherwise discourage" investigation into the invention claimed. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Spherix's argument focuses solely on Martensson's voice-recognition disclosure, and ignores all other teachings of Martensson. *See Merck & Co., Inc. v. Biocraft Labs. Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) ("[A]ll

disclosures of the prior art, including unpreferred embodiments, must be considered." (quoting *In re Lamberti,* 545 F.2d 747, 750 (CCPA 1976)). In fact, Martensson specifically discloses that using a keypad for generating alphanumeric data was well known at the time of the invention. Ex. 1002, 1:43–63. Martensson also indicates that "[b]oth displays and keypads have certainly gained universal acceptance in the cordless telephone industry and indeed there is a high level of commonality of the keypad for telephone applications generally." *Id*. at 1:64–67. More importantly, Martensson discloses a cordless handset, having both voice-recognition capability and manual dialing keypad. *Id*. at 2:19–22; 6:52–57. Therefore, we do not discern that Martensson criticizes, discredits, or otherwise discourages using a keypad for generating alphanumeric data.

Viewing the evidence in this entire record, we observe that Spherix does not provide sufficient or credible evidence that explains why utilizing a cordless handset in a telephone system, such as the one disclosed in Figa, would be "uniquely challenging" or otherwise beyond the level of an ordinary skilled artisan, in light of Martensson. *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418) (finding that Leapfrog failed to present evidence that the inclusion a "reader" into the device as issue was "uniquely challenging"). Based on the foregoing, we determine that VTech has articulated reasoning with rational underpinnings for combining Figa with Martensson.

Conclusion on Obviousness

For the reasons discussed above, we determine that VTech has demonstrated by a preponderance of the evidence that claims 1–7 and 18 of the '599 patent are unpatentable under § 103(a) over the combination of Figa and Martensson.

E. Motion to Exclude Evidence

Spherix filed a Motion to Exclude Evidence, seeking to exclude a portion of the deposition transcript of Dr. Franzon (Ex. 1024, 124:17–125:8) and four paragraphs of the Declaration of Dr. Lyon (Ex. 1025 ¶¶ 4, 8, 9, 10), because the evidence purportedly exceeds the proper scope of a reply under 37 C.F.R. § 42.23(b). Paper 35 ("Mot."), 1–3.

Notwithstanding that Spherix acknowledges that a motion to exclude evidence is not an appropriate mechanism for presenting arguments that a reply or reply evidence exceeds the proper scope of reply under 37 C.F.R. § 42.23(b), Spherix ignores our Order (Paper 16, 3), as well as the Board's trial rules and practice, by presenting such arguments in its Motion to Exclude Evidence. Mot. 3 n.1. Spherix could have sought relief under 37 C.F.R. § 42.20 during this trial, but did not do so. *See Belden Inc. v. Berk-Teck LLC*, 805 F.3d 1064, 1081–82 (Fed. Cir. 2015) (noting that "if the petitioner submits a new expert declaration with its Reply, the patent owner can respond in multiple ways"); *see also id.* ("The tribunal has broad discretion to regulate the presentation of evidence under Fed. R. Evid. 611(a)."). We remind counsel of Spherix that they are required to comply

with the Office Patent Trial Practice Guide and the Board's Rules of Practice for Trials, as set forth in Part 42 of Title 37, Code of Federal Regulations.

In any event, we did not rely upon the evidence that Spherix seeks to exclude, and, therefore, it is not necessary for us to assess the merits of Spherix's Motion to Exclude Evidence. Accordingly, Spherix's Motion to Exclude Evidence is *dismissed* as moot.

III. CONCLUSION

For the foregoing reasons, we determine that VTech has demonstrated by a preponderance of the evidence that claims 1–7 and 18 of the '599 patent are unpatentable under § 103(a) over the combination of Figa and Martensson.

IV. ORDER

In consideration of the foregoing, it is:

ORDERED that claims 1–7 and 18 of the '599 patent are held *unpatentable*;

FURTHER ORDERED that Spherix's Motion to Exclude Evidence is *dismissed* as moot; and

FURTHER ORDERED that, because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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