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Paper 60
Entered: March 6, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BROADCOM CORPORATION,
Petitioner,

v.

WI-FI ONE, LLC,
Patent Owner.

Case IPR2013-00602
Patent 6,466,568 B1

Before KARL D. EASTHOM, KALYAN K. DESHPANDE, and MATTHEW R. CLEMENTS, *Administrative Patent Judges*.

CLEMENTS, *Administrative Patent Judge*.

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

I. INTRODUCTION

Broadcom Corporation ("Petitioner") filed a Petition requesting *inter partes* review of claims 1–6 (the "challenged claims") of U.S. Patent No. 6,466,568 B1 (Ex. 1001, "the '568 patent"). Paper 2 ("Pet."). Telefonaktiebolaget L. M. Ericsson[1] ("Patent Owner") filed an election to waive its Preliminary Response. Paper 20. On March 10, 2014, we instituted an *inter partes* review of all challenged claims on certain grounds of unpatentability alleged in the Petition. Paper 27 ("Dec. to Inst.").

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 36, "PO Resp.") and a Motion to Amend (Paper 38, "Mot. to Amend"). Petitioner filed a Reply (Paper 46, "Pet. Reply") and an Opposition to Patent Owner's Motion to Amend (Paper 47, "Opp. to Mot. to Amend"). Patent Owner then filed a Reply to Petitioner's Opposition to its Motion to Amend. Paper 49 ("PO Reply). Oral hearing was held on December 8, 2014.[2]

The Board has jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

Petitioner has shown, by a preponderance of the evidence, that claims 1–6 of the '568 patent are unpatentable. Petitoner's Motion to Amend is denied.

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[1] On July 11, 2014, Patent Owner filed an Updated Mandatory Notice indicating that the '568 patent had been assigned to Wi-Fi One, LLC, and that Wi-Fi One, LLC and PanOptis Patent Management, LLC were now the real parties-in-interest. Paper 40.

[2] A transcript of the oral hearing is included in the record as Paper 59.

A. Related Proceedings

Petitioner and Patent Owner indicate that the ’568 patent is involved in a case captioned *Ericsson Inc.,. v. D-LINK Corp.*, Civil Action No. 6:10-cv-473 (E.D. Tex.) (“D-Link Lawsuit”). Pet. 1–2; Paper 6, 1. Patent Owner also identifies an appeal at the Federal Circuit captioned *Ericsson Inc., v. D-LINK Corp.*, Case Nos. 2013-1625, -1631, -1632, and -1633. Paper 6, 1. Petitioner also filed two petitions for *inter partes* review of related patents: IPR2013-00601 (U.S. Patent No. 6,772,215) and IPR2013-00636 (U.S. Patent No. 6,424,625).

B. The ’568 patent

The ’568 patent relates generally to radio communications systems, such as cellular or satellite systems, that use digital traffic channels in a multiple access scheme, such as time division multiple access (“TDMA”) or code division multiple access (“CDMA”). Ex. 1001, 1:13–17.

Figure 2 of the ’568 patent is reproduced below.

FIG. 2

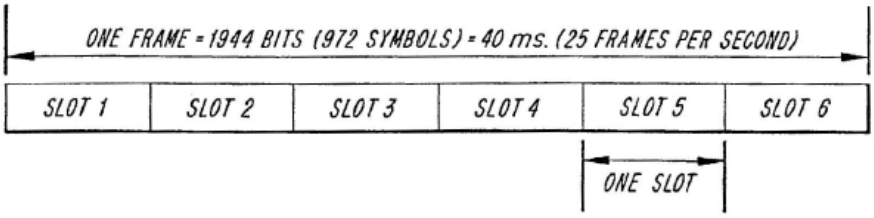


Figure 2 depicts how, in a TDMA system, the consecutive time slots on a radio channel are organized in TDMA frames of, for example, six slots each so that a plurality of distinct channels can be supported by a single radio carrier frequency. *Id.* at 5:11–15. Each TDMA frame has a duration of 40 milliseconds and supports six half-rate logical channels, three full-rate

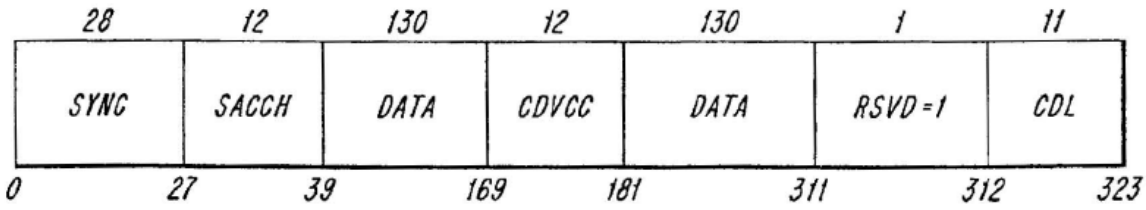
logical channels, or greater bandwidth channels as indicated in the table below:

Number of Slots	Used Slots	Rate
1	1	half
2	1, 4	full
4	1, 4, 2, 5	double
6	1, 4, 2, 5, 3, 6	triple

As shown in the table, a full-rate digital traffic channel ("DTC"), for example, uses two slots of each TDMA frame—i.e., the first and fourth, second and fifth, or third and sixth. *Id.* at 2:8–11.

A conventional downlink DTC slot format is defined as shown in Figure 3, reproduced below.

FIG. 3
PRIOR ART



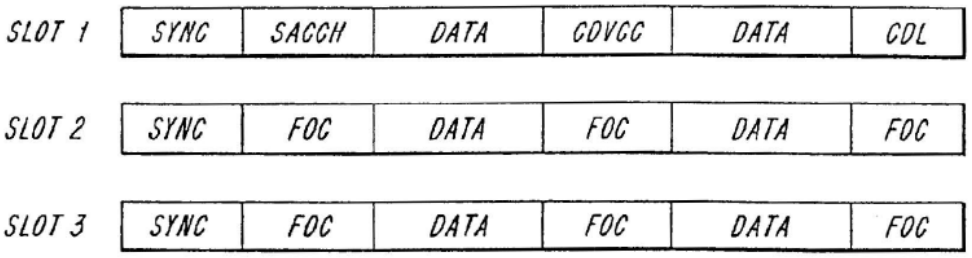
As shown in Figure 3, a slot includes a SYNC field, SACCH field, two DATA fields used to transmit the "payload" of the slot, a CDVCC field, and a reserved bit CDL field. *Id.* at 5:31–47. Conventionally, this format is used for each time slot in a TDMA frame—i.e., all six time slots. *Id.* at 5:47–49. However, if a mobile station is using a triple rate downlink connection—i.e., it is reading the DATA fields of each of time slots 1, 2, and 3—some of the other fields provided in the conventional downlink time slot of Figure 3 need not be transmitted in each time slot. *Id.* at 6:66–7:4. For example, a mobile station need not receive SACCH at triple rate; that is, a mobile station may only need to receive one SACCH for every three time slots. *Id.* at 7:4–8.

Likewise, the CDVCC field need not be transmitted by the base station at triple rate. *Id.* at 7:10–17.

To address these issues, the '568 patent discloses an alternative slot format to accommodate the different communication services described above. *Id.* at 5:50–52.

Figure 6 is reproduced below.

FIG. 6



As illustrated in Figure 6, in one embodiment of the invention, the fields that are conventionally used for SACCH and CDVCC information in slots 2 and 3 can be replaced by FOC information. *Id.* at Fig. 6, 7:8–10. Omitting these fields in time slots 2 and 3 (as well as 5 and 6) provides an opportunity to inform other mobile stations of information pertaining to their uplink connections. *Id.* at 7:21–25. For example, the FOC fields can be used to inform another mobile station that a previously transmitted packet was not properly received and should be retransmitted. *Id.* at 7:26–29.

According to another embodiment of the invention, the FOC may serve the purpose of a service type identifier by providing information relating to the same connection as the payload or data field in that time slot, such as a service type identifier that informs the mobile or base station of the type of information (e.g., voice, video, or data) being conveyed in the

payload. *Id.* at 3:11–16, 9:27–32. This information can be used by the receiving equipment to aid in processing the information conveyed in the payload. *Id.* at 3:16–19. For example, in a multimedia connection, the information being transferred may rapidly vary between voice, data, and video. *Id.* at 9:32–34. In such a case, the FOC can inform a mobile station of the type of information being transmitted so that the mobile station will know how to process the received information. *Id.* at 9:35–38.

C. Illustrative Claim

Of the challenged claims, claim 1 is independent. Claim 1 is reproduced below:

> 1. A communication station comprising:
>
> a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field; and
>
> a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.

D. Prior Art Supporting the Instituted Grounds

The following prior art was asserted in the instituted grounds:

Morley	US 5,488,610	Jan. 30, 1996	Ex. 1002
Adams	US 5,541,662	July 30, 1996	Ex. 1006

E. The Instituted Grounds of Unpatentability

The following table summarizes the challenges to patentability on which we instituted *inter partes* review:

Reference	Basis	Claims challenged
Morley	§ 102	1–6
Adams	§ 103	1–6

II. ANALYSIS

A. 35 U.S.C. § 315(b)

Patent Owner argues that "Petitioner is subject to the 35 U.S.C. § 315(b) bar as a privy to the D-Link Defendants, and because the D-Link Defendants are real parties-in-interest to this action, despite Petitioner's failure to designate them as such under 35 U.S.C. § 312(a)(2)." PO Resp. 8. According to Patent Owner, Petitioner is in privity with defendants named in the D-Link Lawsuit (*Ericsson Inc. v. D-Link Corp.*, 6:10-cv-473) because, *inter alia*, "[Petitioner] has an indemnity relationship with Dell and Toshiba." *Id.* at 8–12. Patent Owner also argues that the defendants named in the D-Link Lawsuit (the "D-Link Defendants") are real parties-in-interest to this proceeding because Petitioner has a "substantive legal relationship with at least Dell and Toshiba," Petitioner used the same prior art references as the D-Link Defendants, and the Petition was filed after the D-Link Defendants abandoned their invalidity case regarding the '568 patent in the D-Link Lawsuit. *Id.* at 12–14.

Petitioner counters that "[Patent] Owner has raised this identical argument twice, and failed each time," and that "[t]his third attempt relies on exactly the same arguments [Patent] Owner made to this Board and the

Federal Circuit and should be rejected for the same reasons." Pet. Reply 1. Petitioner continues that, "[Patent] Owner offers no new reason whatsoever for this Board to reverse its prior decision that [Patent] Owner's proferred 'evidence' and legal authorities fail to amount to anything more than 'speculation' or 'a mere possibility' that [Petitioner] is in privity with the D-Link Defendants or that the D-Link Defendants are real parties-in-interest." *Id.* We find Petitioner's arguments persuasive.

Patent Owner's arguments and evidence are not different substantively from the arguments and evidence presented in its Motion for Additional Discovery (Paper 11). The arguments and evidence are unpersuasive for same reasons explained in our Decision on Patent Owner's Motion for Additional Discovery (Paper 21), which we adopt and incorporate by reference.

B. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also In re Cuozzo Speed Technologies, LLC*, No. 2014-1301, 2015 WL 448667, at *5–*8 (Fed. Cir. Feb. 4, 2015) ("Congress implicitly adopted the broadest reasonable interpretation standard in enacting the AIA," and "the standard was properly adopted by PTO regulation."). Under the broadest reasonable interpretation standard, claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may rebut that presumption

by providing a definition of the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

Independent claim 1 recites "a service type identifier which identifies a type of payload information." Petitioner proposes that this phrase be construed as "an identifier that identifies the type of information conveyed in the payload. Examples of types of information include, but are not limited to, video, voice, data, and multimedia." Pet. 7–8. Petitioner argues that this construction is consistent with the broadest reasonable construction in light of the specification and is consistent with how the term "service" is used in the '568 patent. *Id*. Petitioner further argues that, during prosecution of the '568 patent, Patent Owner distinguished the recited "service type identifier" from a prior art identifier that identified "transmission characteristics." *Id.* at 8 (citing Ex. 1016, 5 (distinguishing the claimed service type identifier as "claiming the use of a field to identify the type of payload information *and not the type of channel coding*.") (emphasis added)). Thus, according to Petitioner, the recited "service type identifier" cannot encompass identifiers of "transmission characteristics" such as channel coding. *Id.*

The language of claim 1 requires that the "service type identifier" identify only "a type of payload information provided in said at least one first field." The '568 patent states the following:

> In addition to voice information being transmitted on the traffic channels, various other types of data can and will be transmitted thereon. For example, facsimile (fax) transmissions are commonly supported by radiocommunication systems. Similarly,

> packet data transmissions, which divide information streams into packets rather than providing dedicated (i.e., "connection-oriented") channels for each information stream, will be supported in radiocommunication systems. Other types of information transmission, e.g., video or hybrid voice, data and video to support internet connections, will likely be supported in the future.
>
> These various types of information communication (also referred to herein as different *"services"*) will likely have different optimal transmission characteristics.

Ex. 1001, 2:25–30 (emphasis added). Thus, the '568 patent uses the term "services" to refer to "various types of information communication" and lists explicitly "facsimile (fax) transmissions . . . , packet data transmissions, . . . [and o]ther types of information transmission, e.g., video or hybrid voice, data and video to support internet connections." *Id.* Accordingly, in the Decision to Institute, we construed "service type identifier" to mean an identifier that identifies the type of information conveyed in the payload, including but not limited to video, voice, data, and multimedia.

Patent Owner argues that our construction is "inconsistent with the intrinsic evidence as it gives no meaning to 'service type' and is therefore unreasonable." PO Resp. 21. Specifically, Patent Owner contends that our construction reads out the requirement that the service type identifier identify a "service type." *Id.* According to Patent Owner, the broadest reasonable construction of "service type identifier which identifies a type of payload information" is "an identifier that identifies a transmission characteristic of the service and the type of information conveyed in the payload." *Id.* at 21–23.

Petitioner counters that "the phrase 'of the service' lacks antecedent basis," and that "neither such occurrence [of the term 'service type identifier' in the Specification] supports [Patent] Owner's proposed construction. Pet. Reply 5.

We find Petitioner's arguments persuasive. Neither instance of "service type identifier" in the '568 patent suggests that a "service type identifier" must identify a transmission characteristic. The first instance describes the "service type identifier" as identifying only "the type of information." Ex. 1001, 3:11–19 ("a service type identifier which informs the mobile or base station of the type of information (e.g., voice, video or data) being conveyed in the payload."). The second instance describes how "the FOC fields may also serve the purpose of the service type identifier." *Id.* at 9:28–29. In this embodiment, "the FOC [i.e., service type identifier] can provide information regarding the type of service which the associated payload is currently supporting, the channel coding *and/or* interleaving associated therewith." *Id.* at 9:29–32 (emphasis added). The use of "and/or" makes clear that a "service type identifier" may provide *only* information regarding the type of service, and need not necessarily also provide information about channel coding, which Patent Owner recognizes as transmission characteristics (Tr. 50:3–6).

We are not persuaded by Patent Owner's argument that Petitioner's reliance on the district court's construction is misplaced (PO Resp. 24) because we did not rely on the district court's construction.

We also are not persuaded by Patent Owner's argument that "the Board erred when it characterized 'services' as 'various types of information

being transmitted on traffic channels'" because "services" refers to "various types of information *transmission.*" PO Resp. 24–25. Patent Owner identifies no support in the '568 patent for its contention that "types of information transmission" includes the characteristics of transmitting that information. Even assuming that the '568 patent defined "service type identifier" in a way that required it to identify transmission characteristics, Petitioner's expert explains how transmission characteristics can be inferred from the type of payload. Pet. Reply 9 (citing Ex. 1023 ¶ 4). We are, therefore, not persuaded that identification of transmission characteristics would necessarily require anything more than identifying the type of payload.

Accordingly, we maintain our construction of "service type identifier" as "an identifier that identifies the type of information conveyed in the payload, including but not limited to video, voice, data, and multimedia."

C. The Challenged Claims – Anticipated by Morley

Petitioner argues that claims 1–6 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Morley. Pet. 18–27. In support of this ground of unpatentability, Petitioner provides detailed explanations as to how each claim limitation is disclosed by Morley, and relies upon the Declaration of Dr. Harry Bims (Ex. 1009). *Id.* (citing Ex. 1009 ¶¶ 29–37).

Patent Owner counters that claim 1 is not anticipated because Morley does not disclose (1) a "service type identifier" as that term is construed by Patent Owner; or (2) any "identifier which identifies a type of payload information provided in said at least one first field," as recited in claim 1. PO Resp. 27–37.

Upon consideration of the parties' contentions and supporting evidence, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–6 are anticipated by Morley.

Morley (Exhibit 1002)

Morley describes a multiplexer for use in a system for transmitting more than one type of data, e.g., voice and data. Ex. 1002, Abstract.

Figure 2 of Morley is reproduced below.

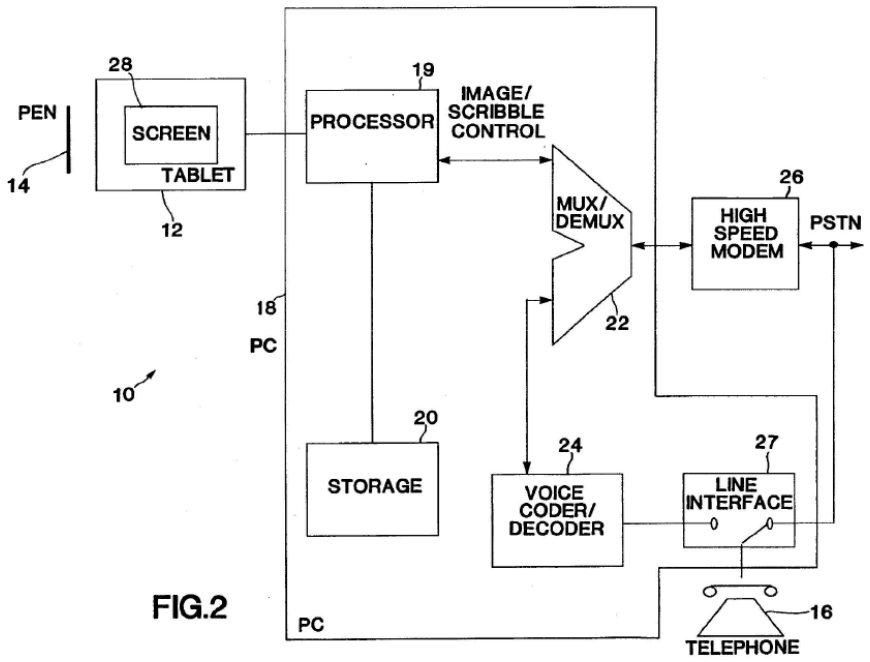


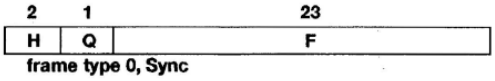
FIG.2

Figure 2 is a block diagram showing the main components of communication system 10 of Morley's invention. *Id.* at 2:52–53, 2:66–67. Controller 18 comprises processor 19, storage means 20, multiplexer/demultiplexer 22, voice coder/decoder 24, and line interface 27. *Id.* at 3:1–9. Communication system 10 can be used to share voice and visual data with another user of a similar system. *Id.* at 3:10–11. Multiplexer 22 multiplexes the voice and data signals, adds synchronization information, and transmits the composite signal to the physical layer (e.g., a

high speed modem (V32bis) connected to the Public Switched Telephone Network (PSTN) or a GSM mobile network). *Id.* at 5:4–6, 5:39–41, 99:40–46. The composite signal is organized into frames each containing a header and one or more complete voice frames and/or other non-voice data. *Id.* at 5:41–44, 5:52–53. The content of each frame is determined by the applications and may change during the call. *Id.* at 5:55–56, 5:63–64.

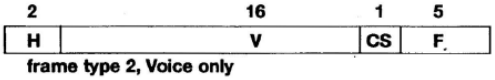
Figures 5a to 5g, reproduced below, show the structures of some possible frames.

FIG.5a



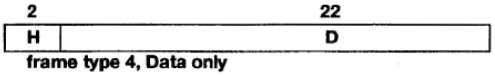
frame type 0, Sync

FIG.5b



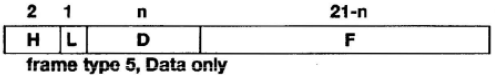
frame type 2, Voice only

FIG.5c



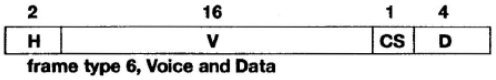
frame type 4, Data only

FIG.5d



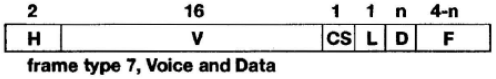
frame type 5, Data only

FIG.5e



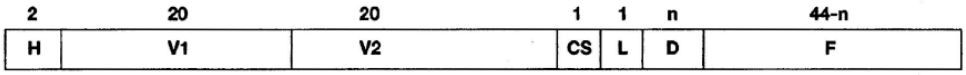
frame type 6, Voice and Data

FIG.5f



frame type 7, Voice and Data

FIG.5g



In Figures 5a to 5g, "H" is a header field that identifies the frame type, which is used to identify the contents of a frame. *Id.* at 6:22–25. Sixteen possible headers for supporting one voice channel and up to three data channels are shown in the table below:

Header Type	Frame Type	Header Value
0	Sync	0 × 19b3
1	Extend	0 × 007f
2	Voice Only	0 × 4ce6
3	Not Defined	0 × 0000
4	Data 0	0 × 34e9
5	Data 0*	0 × 3366
6	Voice + Data 0	0 × 2ad5
7	Voice + Data 0*	0 × 1e3c
8	Data 1	0 × 4b69
9	Data 1*	0 × 52da
10	Voice + Data 1	0 × 552a
11	Voice + Data 1*	0 × 61c3
12	Data 2	0 × 664c
13	Data 2*	0 × 7870
14	Voice + Data 2	0 × 078f
15	Voice + Data 2*	0 × 4b16

Analysis

Independent claim 1 recites

> a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field.

Petitioner relies upon Morley's disclosure of controller 18—e.g., a PC—comprising processor 19—e.g., an Intel 386 processor—and multiplexer 22—e.g., a GMM/Sync 2 CCP intelligent communications card and software. Pet. 20–21; *see also* Ex. 1002, 3:4–9, 3:33–41. Under the direction of processor 19, multiplexer 22 arranges voice and non-voice data for transmission in frames. Ex. 1002, 5:4–6, 5:39–44. A frame may contain at least a field V (voice) or D (non-voice data) in which payload information is disposed. *Id.* at Figs. 5a–5g, 6:4–55. A frame also contains a separate field, H (header), that identifies the frame type—i.e., the type of payload information—as voice only, data only, or voice and data. *Id.* at Figs. 5a–5g, 6:22–32, 7:1–17.

Claim 1 also recites "a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field." Petitioner relies upon Morley's disclosure of high speed modem 26 for transmitting the frames arranged by multiplexer 22 over the PSTN or using GSM. Pet. 21; *see also* Ex. 1002, 3:3, 3:58–59, 4:42–44, 99:40–45.

Claim 5 recites "wherein said communication station is a base station." Claim 6 recites similarly "wherein said communication station is a mobile station." Petitioner relies upon Morley's disclosure of implementing the claimed invention using GSM. Pet. 23 (citing Ex. 1002, 99:40–45). In addition, Petitioner argues that a "base station" and a "mobile station" are inherent in GSM (Pet. 23–24), and Dr. Bims testifies as follows:

> It is inherent that GSM radio communications systems include base stations, and it is also known that base stations can receive data from mobile stations and retransmit data to other mobile stations. It is also inherent that GSM radio communications systems include mobile stations. Base stations and mobile stations in a GSM cellular system, or in other cellular systems, each have a processor for processing data to be sent, and a transmitter for sending data. That processor sends data that has been arranged in frames defined by the GSM protoco1. (*See*, *e.g.*, Mouly and Pautet, GSM, Ex. 1008, pp. 89–99).

Ex. 1009 ¶ 36. We are persuaded by the reasoning in the above-quoted analysis of Dr. Bims.

Petitioner also argues that claims 2–4 are disclosed by Morley. Pet. 22–23.

We are persuaded that Petitioner's citations support Petitioner's contentions. Patent Owner presents several arguments as to why Morley

does not teach all of the limitations of the claims. PO Resp. 27–37. Petitioner responds to these arguments. Pet. Reply 6–11. We address each argument in turn below.

Whether Morley discloses a "service type identifier"

Patent Owner argues that the header of Morley's mux frame is not a "service type identifier" because Morley does not disclose separate services. PO Resp. 32. According to Patent Owner, "separate voice and data services for the mux frame require that the voice frame and data *each* be independently communicated, rather than communicated as a single composite unit." *Id.* (citing Ex. 2020 ¶ 40). Patent Owner acknowledges that Morley's mux frame may contain voice only, data only, or a combination, but argues that a "the mux frame is not optimized for separate communication of the voice and the data." *Id.* at 32–33. Patent Owner concludes that "[b]ecause M[o]rley describes only one type of information communication, it cannot disclose a service type identifier." *Id.* at 33.

We are not persuaded by Patent Owner's argument because it is not commensurate with the language of claim 1. Claim 1 does not require a plurality of types of information communication. Patent Owner attempts to import these limitations into the term "service type identifier," but the language of claim 1 requires only that the "service type identifier" identify a type of payload information, and our construction requires only that it "identifies the type of information conveyed in the payload." Patent Owner concedes that Morley's header identifies the type of information in the payload—i.e., voice only, data only, or a combination. Accordingly, we are

not persuaded that Morley's header does not disclose the claimed "service type identifier."

Patent Owner also argues that Morley does not construe a "service type identifier," as Patent Owner construes that term. PO Resp. 33–35. We decline to adopt Patent Owner's construction of "service type identifier" for the reasons discussed above. As a result, Patent Owner's argument is unpersuasive.

Lastly, Patent Owner argues that Morley's header does not "identif[y] a type of payload information," as recited in claim 1, because it "defines the format (or structure) of the information transmitted, rather than ident[ies] the payload data itself." PO Resp. 35–37. Morley's header identifies the frame type as voice only, data only, or some combination. Pet. 19–20 (citing Ex. 1002, Figs. 5a-g, 6:22–32, 7:1–17. The receiver uses this information to identify the type of payload information in the frame and write it to the appropriate buffer. Pet. 20 (citing Ex. 1002, 10:19–22). By identifying the frame type, the header necessarily identifies the type of payload information in the frame. Accordingly, we are not persuaded that Morley's header does not "identif[y] the type of payload information."

Dependent claims

Patent Owner argues that dependent claims 2–6 are not anticipated by Morley for the same reasons as independent claim 1. PO Resp. 37. We are not persuaded by Patent Owner's arguments regarding independent claim 1 for the reasons discussed above.

Conclusion

We are persuaded that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–6 are unpatentable as anticipated by Morley.

D. The Challenged Claims – Obvious over Adams

Petitioner argues that claims 1–6 are unpatentable under 35 U.S.C. § 103(a) as obvious over Adams. Pet. 45–54. In support of this ground of unpatentability, Petitioner provides detailed explanations as to how each claim limitation is taught or suggested by Adams, and relies upon the Declaration of Dr. Bims (Ex. 1009). *Id*. (citing Ex. 1009 ¶¶ 71–79).

Patent Owner argues that (1) Adams's ID tag is not a "service type identifier" because it does not convey transmission characteristics; (2) Adams's ID tag does not "identif[y] a type of payload information provided in said at least one first field," as recited in claim 1; and (3) Adams does not teach or suggest a "base station" or "mobile station," as recited in claims 5 and 6, respectively. PO Resp. 40–46.

Upon consideration of the parties' contentions and supporting evidence, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–6 are obvious over Adams.

Adams (Exhibit 1006)

Adams describes an interactive video system that processes a video data stream and an associated data stream corresponding to the video data stream. Ex. 1006, Abstract. The interactive video system includes satellite receiver 14, cable television ("CATV") receiver 16, or television broadcast receiver 18. *Id.* at Fig. 1, 4:2–4. Satellite receiver 14 enables reception of

packetized digital data streams over a satellite link. *Id.* at 4:5–6. The packetized digital data streams received by satellite receiver 14 include video data packets, audio data packets, and associated data packets. *Id.* at 4:9–12.

Figure 5 is reproduced below.

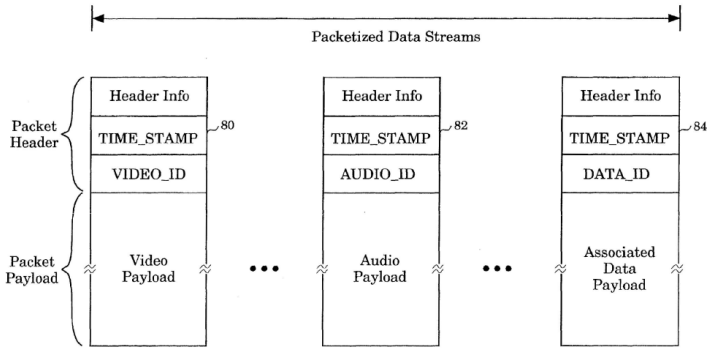


Figure 5

Figure 5 illustrates a packetized digital data stream, including video packet 80, audio packet 82, and associated data packet 84. *Id.* at 7:9–14. Video packet 80, audio packet 82, and associated data packet 84 each comprise a packet header and payload. *Id.* at 7:15–17. Video packet 80 includes (1) a video payload that provides digital video data; and (2) a header with a video identifier (VIDEO_ID) that identifies the packet as carrying video data. *Id.* at 7:22–26. Audio packet 82 includes (1) an audio payload; and (2) a header with an audio identifier (AUDIO_ID) that identifies the packet as carrying audio data. *Id.* at 7:27–31. Associated packet 84 includes (1) an associated data payload; and (2) a header with an associated data identifier (DATA_ID) that identifies the packet as carrying associated data. *Id.* at 7:32–37.

Analysis

Independent claim 1 recites

> a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field.

Petitioner relies upon Adams's teaching of digital video packets that include a first field with payload information—i.e., video payload, audio payload, or associated data payload—and a second field, separate from the first field, with a service type identifier—i.e., VIDEO_ID, AUDIO_ID, or DATA_ID—that identifies the type of payload information provided in the first field. Pet. 47–48 (citing Ex. 1006, 7:9–37).

Petitioner acknowledges that Adams teaches explicitly only a receiver. Pet. 47. Petitioner argues that Adams teaches implicitly "a communication station with a processor for formatting the audio and video data, and a transmitter for transmitting a packetized digital data stream to the device shown in Adams." *Id.* (citing Ex. 1006, Figs. 1, 5, 2:54–65, 3:33–36, 3:65–4:6, 4:9–14, 4:25–34, 6:7–26; Ex. 1009 ¶ 72). Dr. Bims testifies as follows:

> Adams discloses receiving "at least one first field" in which payload information is disposed because in Adams each packet that is received includes an audio payload, a video payload, or a data payload. An object of the invention in Adams is to enable a content programmer to create a video display screen from a programming studio. (*Id.* at 2:21–23.) Because Adams discloses implementing a content programmer, it is obvious (if not inherent) that the communication station sending to Adams include a processor for arranging information for transmission. Adams also discloses receiving "at least one second field, separate from the first field" that identifies a type of payload information because Adams discloses that each video packet

> includes a packet header that includes an identifier that identifies whether audio, video, or data is carried in the packet payload. (*Id*. at Figures 3, 5, and 6, 6:7–58, 7:8–37). One of ordinary skill in the art would have understood the Adams reference to teach a transmitter for transmitting said at least one first field and said at least one second field on said radio channel.

Ex. 1009 ¶ 72. We are persuaded by the reasoning in the above-quoted analysis of Dr. Bims.

Claim 1 also recites "a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field." As with the limitation above, Petitioner acknowledges that Adams teaches explicitly only a receiver, and argues that Adams teaches implicitly the recited "transmitter." Pet. 47 (citing Ex. 1009 ¶ 71). Dr. Bims testifies as follows:

> The subject matter of claim 1 would have been obvious in view of Adams. Adams is focused on a receiver, while the claims are to a transmitting device. However, one of ordinary skill in the art would have understood that the Adams reference implicitly teaches a communication station for transmitting packetized digital data streams, including the three types of payload, in Adams. Therefore it would have been obvious to provide a transmitter for sending the type of data that Adams receives.

Ex. 1009 ¶ 71. We are persuaded by the reasoning in the above-quoted analysis of Dr. Bims.

Claim 5 recites "wherein said communication station is a base station." Petitioner relies upon Adams's teaching of transmission of packetized digital data streams over a satellite link. Pet. 49–50 (citing Ex. 1006, Fig. 1, 4:2–14). Petitioner argues that "[i]t is well-known in the

art that such satellite communication devices include base stations." Pet. 50 (citing Ex. 1009 ¶ 76). Dr. Bims testifies as follows:

> Dependent claim 5 recites that the communication station is a base station. Adams discloses transmission of packetized digital data streams over a satellite link, and thus the transmitter would typically be a base station. (*Id*. at Figure 1, 3:65–5:22). It is well-known in the art that such satellite communications devices include base stations. Adams also discloses communication of an analog or digital video signal over a coaxial transmission line. Transmission over a coaxial transmission line is typically by a head-end, or base station. Further, I believe it would have been obvious to provide Adams over almost any wireless system. Adams does not require any particular type of system, and thus could use systems like cellular systems with base stations. This would be the use of a known technique (of providing payloads and identifiers) applied to a known type of device (base station) to yield the predictable result of allowing the base station to send content and identify the packets that make up the content.

Ex. 1009 ¶ 76. We are persuaded by the reasoning in the above-quoted analysis of Dr. Bims.

Claim 6 recites "wherein said communication station is a mobile station." Petitioner relies upon Adams's teaching of computer system 10 for receiving packetized digital data streams. Pet. 50–51 (citing Ex. 1006, 4:9–12); *see also* Ex. 1006, Fig. 1, 3:65–4:1, 4:12–15. Petitioner argues that it was known for computer systems to *send* video, audio, and data, and that such computer systems could be mobile, such as with laptop computers. Pet. 50–51 (citing Ex. 1009 ¶ 77). Dr. Bims testifies as follows:

> Dependent claim 6 recites that the station is a mobile station. It would have been obvious to provide a protocol for sending voice, video, and data to a mobile station, as a mobile station (e.g., like the laptop in Menand) could create multiple types of

> content to be sent, and therefore it would have been obvious to provide the ability to identify what type of data was included in a packet to allow the packet to be processed appropriately. This would be the use of a known technique (of providing payloads and identifiers) applied to a known type of device (mobile) to yield the predictable result of allowing the mobile to send content and identify the packets that make up the content.

Ex. 1009 ¶ 77. We are persuaded by the reasoning in the above-quoted analysis of Dr. Bims.

Petitioner also argues that claims 2–4 are taught or suggested by Adams. Pet. 48–49.

We are persuaded that Petitioner's citations support Petitioner's contentions.

Patent Owner presents several arguments as to why Adams does not teach all of the limitations of the claims. PO Resp. 37–46. Petitioner responds to these arguments. Pet. Reply 12–15. We address each argument in turn below.

Whether Adams teaches a "service type identifier"

Patent Owner argues that Adams's ID tag is not a "service type identifier" because it is merely a label from which "[n]o transmission characteristics can be gleaned." PO Resp. 40–41. According to Patent Owner, "Adams is essentially silent as to the transmission characteristics," such as, for example, "whether the incoming packets are otherwise compressed or processed." *Id.* at 41. Patent Owner contends that "Adams discloses only one type of encoded information, namely the MPEG encoding," which "negates the need for a 'service type identifier.'" *Id.* Because "Adams discloses an invariant data structure," in Patent Owner's

view, "the ID tag does not allow devices in the system to account for different transmission characteristics of different service types, and therefore cannot be a 'service type identifier.'" *Id.* at 42. Petitioner counters that "[Patent] Owner admits that Adams classifies packets as containing video, audio, or data," and "[t]herefore . . . cannot distinguish the claimed service type identifier from the identifiers discloses in Adams under the Board's construction." Pet. Reply 12. We find Petitioner's argument persuasive.

We decline to adopt Patent Owner's construction of "service type identifier" for the reasons discussed above. As a result, Patent Owner's arguments regarding transmission characteristics are unpersuasive.

Patent Owner also argues that Adams's ID tag does not "identif[y] a type of payload information provided in said at least one first field," as recited in claim 1, because "the receiver in Adams merely transfers the incoming packet to an appropriate queue based on the ID tag," and "[m]erely classifying received data packets as a video, audio, or associated data packet says nothing about the transmission characteristics of the received data packet." PO Resp. 42–43. To the extent that Patent Owner is arguing that Adams's ID tag fails to identify transmission characteristics, that argument is not persuasive because it is not commensurate with the claim language, which requires only "identif[y] a type of payload information in said at least one first field." To the extent that Patent Owner is arguing that Adams's ID tag does not "identif[y] a type of payload information" because it "[m]erely classif[ies] received data packets as a video, audio, or associated data packet," that argument is not persuasive because it is distinction without a difference. Patent Owner concedes that the receiver in Adams uses the ID

tag to transfer the incoming packet to an appropriate queue. The receiver could not transfer the incoming packet to the appropriate queue—i.e., the video queue, audio queue, or data queue—if Adams's ID tag did not "identif[y] a type of payload information" as video, audio, or data.

Whether a transmitter would have been obvious

Patent Owner argues that it would not have been obvious to provide a transmitter for sending the type of data that Adams receives because "the satellite receivers in Adams only receive data" and "have no transmitter functionality," and "Adams does not disclose how data is transmitted." PO Resp. 43–44. According to Patent Owner, "the satellite broadcasting station may simply retransmit the audio, video, and/or associated data," and "its transmitter may not transmit the information recited by the claims." *Id.* at 44. Patent Owner continues that, "[w]ithout knowing the transmission characteristics of the video, audio, and associated data frames, one cannot show that the limitations of the '568 Patent are met by Adams." *Id.* Petitioner counters that "it would have been obvious to provide a transmitter to send data in the format Adams uses to receive data, and this would need to be generated by some processor along with a transmitter." Pet. Reply 13–14 (citing Ex. 1023 ¶ 9). We find Petitioner's arguments to be persuasive. A person of ordinary skill in the art at the time would have understood that Adams's receiver would not receive data in the format taught were it not first transmitted by a transmitter in that format.

Dependent claims 2–6

Patent Owner argues that dependent claims 2–6 are not anticipated by Adams for the same reasons as independent claim 1. PO Resp. 37. We are

not persuaded by Patent Owner's arguments regarding independent claim 1 for the reasons discussed above.

With respect to claim 5, Patent Owner argues that "[o]ne of ordinary skill in the art would understand that satellite communication devices contain earth stations, not base stations." PO Resp. 44–45. Dr. Akl testifies about three differences that preclude equating an Earth station to a base station. Ex. 2020 ¶ 64. Dr. Bims testifies that "[i]t is well-known in the art that such satellite communications devices include base stations." Ex. 1009 ¶ 76. Neither expert cites to any evidence in support of their opinions. As Patent Owner points out, however, the '568 patent states that the "invention relates generally to radio communication systems, e.g., cellular *or satellite* systems." Pet. Reply 14 (citing Ex. 1001, 1:13–14) (emphasis added). Accordingly, we are persuaded that the broadest reasonable interpretation of "base station" includes the satellite communication devices taught in Adams.

With respect to claim 6, Patent Owner also argues that "the satellite receiver disclosed in Adams is not a device that is mobile" because it "is a PC that is connected to a satellite receiver 14." PO Resp. 45–46 (citing Ex. 2020 ¶ 65). Petitioner counters that "it was known and would have been obvious to use a mobile system, such as a laptop computer," and that "[Patent] Owner has failed to address the fact that it was known for satellite systems to include a mobile station with the claimed processor and transmitter for transmitting information. Pet. Reply 15 (citing Ex. 1005, Fig. 1; Ex. 1023 ¶ 10). In this regard, we credit the testimony of Dr. Bims. We are persuaded sufficiently that it was known, in 1996, for computer systems to send audio, video, and data, and that such systems could be mobile.

Conclusion

We are persuaded that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–6 are unpatentable as obvious over Adams.

E. Patent Owner's Motion to Amend

Patent Owner moves to substitute claims 8–13 for challenged claims 1–6, respectively, if we find claims 1–6 unpatentable. Mot. to Amend 1. As stated above, we determine that Petitioner has demonstrated by a preponderance of the evidence that all of the challenged claims are unpatentable, including claims 1–6. Therefore, Patent Owner's Motion to Amend is before us for consideration. For the reasons set forth below, Patent Owner's Motion to Amend is *denied*.

Proposed substitute claim 8, the only independent claim, is reproduced below:

> 8. (Proposed substitute for Original claim 1). A communication station comprising:
>
> a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and providing at least one second field, separate from said first field, which includes a service type identifier which identifies transmission characteristics of a service and a type of payload information provided in said at least one first field; and
>
> a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.

Mot. to Amend 1–2.

A motion to amend claims in an *inter partes* review is not, itself, an amendment. As the moving party, Patent Owner bears the burden of proof to establish that it is entitled to the relief requested. 37 C.F.R. § 42.20(c). Therefore, Patent Owner's proposed substitute claims are not entered automatically, but only upon Patent Owner having demonstrated by a preponderance of the evidence the patentability of those substitute claims. *See, e.g.*, 37 C.F.R. § 42.1(d) (noting that the "default evidentiary standard [in proceedings before the Board] is a preponderance of the evidence").

1. Written Description Support

A motion to amend claims must identify clearly the written description support for each proposed substitute claim. 37 C.F.R. § 42.121(b). The requirement that the motion to amend must set forth the support in the original disclosure of the patent is with respect to *each claim*, not for a particular feature of a proposed substitute claim. The written description test is whether the original disclosure of the application relied upon reasonably conveys to a person of ordinary skill in the art that the inventor had possession of the claimed subject matter as of the filing date. *Ariad Pharms., Inc. v. Eli Lilly & Co*., 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). Thus, the motion should account for the claimed subject matter as a whole, i.e., the *entire* proposed substitute claim, when showing where there is sufficient written description support for each claim feature. *See Nichia Corp. v. Emcore Corp.*, Case IPR2012-00005, slip op. at 4 (PTAB June 3, 2013) (Paper 27).

In its Motion to Amend, Patent Owner addresses the written description support for the claimed subject matter as a whole. Mot. to

Amend 5–10. Petitioner argues that there is not adequate written description support for a "service type identifier" that identifies "transmission characteristics" because neither of the two portions of the '568 patent cited by Patent Owner mentions the term "transmission characteristics." Opp. to Mot. to Amend 2–3. Petitioner acknowledges, however, that the '568 patent describes how "the FOC [i.e., the service type identifier] can provide information regarding the type of service which the associated payload is currently supporting, the channel coding *and/or* interleaving associated therewith." *Id.* at 3–4 (citing Ex. 1001, 9:27–32) (emphasis added). We are unpersuaded by Petitioner's interpretation of this passage to mean that "the service type identifier just identifies the type of information and the receiver infers how to process the information." *Id.* at 4 (citing Ex. 1001, 9:32–38). By using "and/or," the '568 patent clearly describes the service type identifier as being capable of providing information regarding not only the type of information in the payload, but also channel coding. Moreover, Petitioner argues that "interleaving is not a transmission characteristic" (Pet. Reply 5), but does not argue that channel coding is not a transmission characteristic. Accordingly, we are persuaded that Patent Owner has shown adequate written description support for the proposed amendment.

2. Patentability over Prior Art

The patent owner bears the burden of proof in demonstrating patentability of the proposed substitute claims over the prior art in general, and, thus, entitlement to add these claims to its patent. *See Idle Free Systems, Inc. v. Bergstrom, Inc.*, IPR2012-00027, Paper 26, 7. In a motion to amend, the patent owner must show that the conditions for novelty and

non-obviousness are met with respect to the prior art available to one of ordinary skill in the art at the time of the invention. With regard to obviousness as the basis of potential unpatentability of the proposed substitute claims, the patent owner should present and discuss facts which are pertinent to the first three underlying factual inquiries of *Graham*: (1) the scope and content of the prior art, (2) differences between the claimed subject matter and the prior art, and (3) the level of ordinary skill in the art, *with special focus on the new claim features* added by the proposed substitute claims. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The patent owner should identify each new claim feature, and come forward with technical facts and reasoning about that particular feature. Some discussion and analysis should be made about the specific technical disclosure of the closest prior art as to each particular feature, and the level of ordinary skill in the art, in terms of ordinary creativity and the basic skill set of a person of ordinary skill in the art, regarding the feature.

Here, we are unpersuaded that Patent Owner has demonstrated, by a preponderance of the evidence, that the proposed substitute claims are patentable. Specifically, we are not persuaded that the proposed substitute claims are patentable over Morley.

Patent Owner argues "Morley teaches away from transmission characteristics" because "[a]ny change in format in Morley is related only to header type 0, and header type zero does not identify any 'information conveyed in the payload." Mot. to Amend. 11. Patent Owner further argues that "the error correction disclosed in Morley is not associated with any alleged service type identifier (e.g., the header type.)." *Id.* Patent Owner

also argues that "the header or identifier fields in . . . Morley are associated with only one type of data." *Id.* at 14.

Petitioner counters that "Morley discloses identifying a 'transmission characteristic' because Morley discloses using the header to determine the data rate at which to process the received data." Opp. to Mot. to Amend 6 (citing Ex. 1026 (Bims Decl.) ¶ 6). According to Petitioner:

> Morley describes that different buffers are processed at different rates based on the type of data -- the modem data rate is 14400 bps and the voice coder operates at 6800 bps. (Morley at 52:45-47; Ex. 1002). Morley's receiver uses the frame type, which is the type of information, to process voice data at a first rate, and other data at a second rate.

Id. With respect to Patent Owner's argument that Morley discloses only a single service, Petitioner counters that "claim 8 only recites identifying 'transmission characteristics of a service,' not different transmission characteristics for different services." *Id.* at 6–7. Moreover, Petitioner argues, even if claim 8 required a plurality of services, "Morley's different voice and data channels constitute different services." *Id.* at 7.

Patent Owner replies that "[t]he Morley header does not determine, nor affect, the rate of processing the data . . . or the voice frames . . . of a multiplex frame." PO Reply 2 (citations omitted). Patent Owner also argues that "[t]he data and video of a multiplex frame are transmitted together as a single service, whose video and data processing rates are defined by the receiver, not the header in Morley." *Id.*

We find Petitioner's arguments persuasive. Patent Owner's proposed construction of "transmission characteristics" includes transmission rate. Mot. to Amend 4. Morley discloses that the transmission rate of data is

14400 bps whereas the transmission rate of voice is 6800 bps. Ex. 1002, 52:45–47. By identifying a frame type as voice only or data only, the header necessarily identifies the transmission rate as either 14400 bps or as 6800 bps. As a result, Morley's header identifies a transmission characteristic of a service.

Moreover, we agree with Petitioner that proposed substitute claim 8 does not require a plurality of services. Even if it did, however, we are not persuaded by Patent Owner's argument that Morley's voice-only mux frame is the same "service" as Morley's data-only mux frame for the reasons discussed above in the analysis of original claims 1–6.

3. Conclusion

For the foregoing reasons, Patent Owner has not, in its Motion to Amend, satisfied its burden of proof.

III. CONCLUSION

Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–6 of the '568 patent are unpatentable under 35 U.S.C. § 102(b) as anticipated by Morley, and under 35 U.S.C. § 103(a) as obvious over Adams. Patent Owner's Motion to Amend is denied.

IV. ORDER

Accordingly, it is

ORDERED that claims 1–6 of the '568 patent are held unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Amend is *denied*; and

FURTHER ORDERED that, because this is a Final Written Decision, the 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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