

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

PERSONALIZED MEDIA COMMUNICATIONS LLC,
Patent Owner.

Case IPR2016-01520
Patent 8,559,635 B1

Before KARL D. EASTHOM, KEVIN F. TURNER, and
GEORGIANNA W. BRADEN, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*.

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

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6(b), and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 3, 18, 20, 32, and 33, of the instituted claims of U.S. Patent No. 8,559,635 B1 (Ex. 1003, “the ’635 Patent”), are unpatentable. We dismiss consideration of claims 4, 7, and 13, as discussed below. We also determine that the proposed substitute claims in Patent Owner’s Motion to Amend do not meet the requirements of 37 C.F.R. § 42.121, and they are not patentable over the art of record, and thus, we deny the Motion to Amend.

A. Procedural History

Apple Inc. (“Petitioner”) filed a petition to institute an *inter partes* review of claims 3, 4, 7, 13, 18, 20, 21, 28–30, 32, and 33 of the ’635 Patent. Paper 1 (“Pet.”). Personalized Media Communications LLC (“Patent Owner”) filed a preliminary response. Paper 5 (“Prelim. Resp.”). Pursuant to 35 U.S.C. § 314(a), we instituted an *inter partes* review on four grounds: (1) Claims 13, 18, 20, and 32 under 35 U.S.C. § 102 as anticipated by Chandra,¹ (2) Claim 33 under 35 U.S.C. § 103(a) as unpatentable in view of Chandra and Nachbar,² (3) Claims 4 and 7 under 35 U.S.C. § 102 as

¹ US Patent No. 4,817,140, filed Nov. 5, 1986 (Ex. 1041) (“Chandra”).

² Daniel Nachbar, *When Network File Systems Aren’t Enough: Automatic Software Distribution Revisited*, USENIX Conference Proceedings, June 9–13, 1986 (Ex. 1042) (“Nachbar”).

anticipated by Seth-Smith,³ and (4) Claim 3 under 35 U.S.C. § 103(a) as unpatentable Campbell.⁴ See Paper 7 (“Dec. to Inst.”), 58.

After institution of trial, Patent Owner then filed a Patent Owner Response (Paper 17, “PO Resp.”), to which Petitioner filed a Reply (Paper 26, “Pet. Reply”). In addition, Patent Owner also filed a Contingent Motion to Amend (Paper 16, “Mot. Amend.”), to which Petitioner filed an Opposition (Paper 25, “Opp.”). Patent Owner then filed a Reply (Paper 30, “PO Reply”) to Petitioner’s Opposition to the Contingent Motion, and Petitioner filed a Sur-Reply (Paper 36, “Sur-Reply”) supporting the Opposition.

An oral argument was held on October 26, 2017. A transcript of the oral argument is included in the record. Paper 37 (“Tr.”).

B. Additional Proceedings; Dismissal of Claims

Petitioner informs us that the ’635 Patent is the subject of a lawsuit: *Personalized Media Communications, LLC v. Amazon.com, Inc.*, No. 2:15-cv-1366-JRG–RSP (E.D. Tex. filed July 30, 2015). Pet. 61. We note that Petitioner filed a first petition challenging the ’635 Patent, for which we determined certain claims, specifically claims 4, 7, 13, 21, and 28–30, as being unpatentable on September 19, 2017. *Apple, Inc. v. Personalized Media Comm. LLC*, IPR2016-00754, slip op. at 72 (PTAB Sept. 19, 2017) (Paper 41). Patent Owner has sought rehearing of that latter decision, which is being determined concurrently. Petitioner also lists a number of related

³ US Patent No. 4,886,770, filed Aug. 14, 1986 (Ex. 1043) (“Seth-Smith”).

⁴ US Patent No. 4,536,791, PCT filed Mar. 31, 1981 (Ex. 1044) (“Campbell”).

patents involved in district court cases and other related patents involved in *inter partes* reviews. Pet. 61–62.

As noted above, of the challenged claims, claims 4, 7, and 13 were found to be unpatentable. Under 35 U.S.C. § 315(e)(1), Petitioner may not maintain a proceeding before the Office with respect to those claims previously found to be unpatentable, since they were found to be unpatentable in the prior final written decision. As discussed at Oral Hearing, both parties agreed that claims 4, 7, and 13 should be dismissed from the instant proceeding, and those claims were not discussed during that oral hearing. *See* Tr. 3–6. Given the instant facts, we need not entertain a motion to dismiss those claims 4, 7, and 13, because we *sua sponte* dismiss them from consideration in the instant proceeding. Given this dismissal, we need not consider the anticipation ground over Seth-Smith, applied against claims 4 and 7, and we also need not consider the anticipation ground over Chandra with respect to claim 13.

C. The '635 Patent

The '635 Patent is titled “Signal Processing Apparatus and Methods” and generally relates to a unified system of programming communication. Ex. 1003, Abstr. The challenged claims relate to methods of controlling the decryption of programming at a subscriber station or a receiver station. Independent claims 3 and 18 are considered representative and are reproduced below:

3. A method of controlling a remote transmitter station to communicate program material to a subscriber station and controlling said subscriber station to process or output a unit of programming, said method comprising the steps of:

receiving a control signal which operates at the remote transmitter station to control the communication of a unit of programming and one or more first instruct signals and communicating said control signal to said remote transmitter station;

receiving a code or datum identifying a unit of programming to be transmitted by the remote transmitter station, said remote transmitter station transferring said unit of programming to a transmitter;

receiving at said remote transmitter station one or more second instruct signals which operate at the subscriber station to identify and decrypt said unit of programming or said one or more first instruct signals, said remote transmitter station transferring said one or more second instruct signals to said transmitter; and

transmitting from said remote transmitter station an information transmission comprising said unit of programming, said one or more first instruct signals, and said one or more second instruct signals, said one or more first instruct signals being transmitted in accordance with said control signal.

Id. at 286:29–53.

18. A method of processing signals at a receiver station comprising the steps of:

receiving at least one encrypted digital information transmission, wherein the at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission;

locating code;

passing said code to a processor;

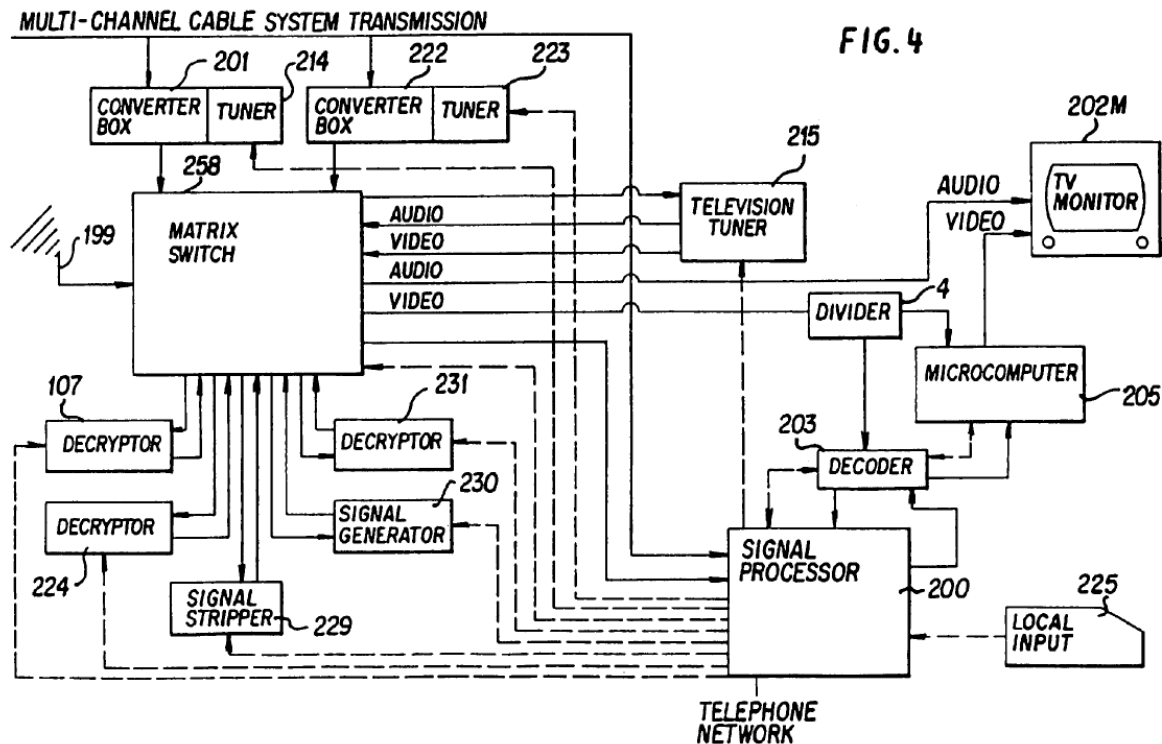
controlling a decryptor that decrypts encrypted digital data to decrypt in a specific fashion on the basis of said code;

decrypting a portion of said at least one information transmission in said specific fashion; and

passing said decrypted portion of said at least one encrypted digital information transmission to one of said processor and an output device.

Id. at 288:10–25.

The '635 Patent describes access control to transmitted content at a receiver station. Ex. 1003, Abstr. Figure 4 of the '635 Patent, reproduced below, illustrates a receiver station:



As shown above in Figure 4, the '635 Patent discloses a receiver station having signal processor 200 to control tuners 214, 215, and 223, the switching of matrix switch 258, and decrypting by decryptors 107, 224, and 230. *Id.* at 148:30–35. In one example described in the Specification, the “Wall Street Week” program is transmitted to the receiver station by a cable television head end. *Id.* at 149:23–26. Prior to transmission, the cable head end “encrypts the digital audio information of said transmission, in a fashion

well known in the art, using particular cipher algorithm C and cipher key Ca, then transmits the information of said program on cable channel 13.” *Id.* at 149:26–30. Furthermore, a SPAM message consisting of an “01” header, local-cable-enabling-message (#7), is transmitted with instructions that enable the “Wall Street Week” programming. *Id.* at 150:24–33. Executing the instructions causes controller 20 to receive the cable channel transmission, select the information of a cipher key Ca from among the information portion, and transfer the cipher key to decryptor 107. *Id.* at 152:10–16, 44–48. Once the cipher key is received by decryptor 107, decryptor 107 then decrypts “using said key information and selected decryption cipher algorithm C, and output[s] the decrypted information of the audio portion of the ‘Wall Street Week’ program transmission.” *Id.* at 152:48–51.

Subsequently, a second SPAM message that consists of an “01” header provides “1st-stage-enable-WSW-program” instructions as the information segment information. *Id.* at 153:38–43. Executing the “1st-stage-enable-WSW-program” instructions causes controller 20 to affect a first stage of decrypting the video information of the “Wall Street Week” program transmission. *Id.* at 153:66–154:2. Controller 20 selects the decryption cipher key Ba and transfers it to selected decryptor 224. *Id.* at 154:28–30. Controller 20 causes decryptor 224 to commence decrypting the received information using decryption cipher key Ba and decryption cipher algorithm B. *Id.* at 154:28–33.

A third SPAM message provides “2nd-WSW-program enabling-message” instructions, causing the controller to affect a second stage of decrypting the digital video information of “Wall Street Week.” *Id.* at

156:62–157:5. The second stage of decrypting the video information of the “Wall Street Week” program transmission is completed using the decryption cipher key Aa. *Id.* at 158:22–29. Finally, controller 20 causes the receiver station to commence the transfer of the decrypted television information of the “Wall Street Week” program to microcomputer 205 and monitor 202M. *Id.* at 159:55–59.

II. DISCUSSION

A. Priority Date for the Challenged Claims of the '635 Patent

Patent Owner argues that all of the prior art references cited by the Petitioner were filed or published after November 3, 1981, the priority date which Patent Owner argues is applicable to claims of the '635 Patent; thus, Patent Owner argues that the references do not constitute prior art and cannot render each of the challenged claims unpatentable. PO Resp. 4–42.

Petitioner responds that the challenged claims are not entitled to the earlier priority date. Pet. Reply 1–17. We address the parties' contentions below.

The prior art status of the prior art hinges on the effective priority date for the '635 patent with respect to support for the challenged claims.

Petitioner contends that the earliest effective priority date for the challenged claims of the '635 patent (through a series of continuation patents) is the filing date of U.S. Patent No. 4,965,825 (“’825 patent”) on September 11, 1987. *See* Pet. 5. The '635 patent claims Continuation-in-Part (“CIP”) status from September 11, 1987 to a chain of continuing applications purportedly having a priority date of November 3, 1981—the filing date of the earliest-filed ancestor patent in the chain, U.S. Patent No. 4,694,490 (“’490 patent”). *See* Ex. 1003, [63]. Patent Owner contends that the

effective priority date of the challenged claims of the '635 patent is the filing date of the '490 patent on November 3, 1981. PO Resp. 1, 4–5.

Patent Owner contends “[t]he sufficiency of the written-description requirement for priority must be judged as of the filing date of the earlier application based on what the language of the specification would have meant to one of ordinary skill in the art as of the filing date of the earlier application.” PO Resp. 5 (citing *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1355–57 (Fed. Cir. 2010); *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008); *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64, 66 (Fed. Cir. 1991)). As a preliminary matter, Patent Owner disputes the propriety of the analysis of Mr. Wechselberger, Petitioner’s declarant. *Id.* at 6–9. Even accepting, arguendo, that Mr. Wechselberger’s analysis was conducted from the wrong viewpoint, i.e., from the perspective of one of ordinary skill in the art in 1987, instead of 1981, we are not convinced that Petitioner’s case against the earlier priority date rests solely on their declarant’s testimony. We disagree that the testimony should be “given no weight” (*id.* at 9), and we review the testimony, along with other arguments presented by Petitioner, as well as the testimony and arguments of Patent Owner, in determining the proper priority for the claims.

1. “programming”

Claim 3 of the '635 Patent recites the term “programming.” The '490 patent discloses “provid[ing] techniques whereby, automatically, single channel, *single medium transmissions, presentations, be they radio, or other electronic transmissions*, [which] may be recorded, [and] co-ordinated in time with other programing previously transmitted and recorded.” Ex. 1004,

3:51–56 (emphasis added). On the other hand, the later-filed ’635 patent states that “[t]he term ‘programming’ refers to *everything* that is transmitted electronically to entertain, instruct or inform, including television, radio, broadcast print, and computer programming as well as combined medium programming.” Ex. 1003, 6:31–34 (emphasis added).

Therefore, the broad disclosure in the ’635 patent potentially includes not only “combined medium programming” and “computer programming,” it also includes “*everything* . . . transmitted electronically” (subject to the quoted qualifiers) at the time of filing of the ’635 patent (i.e., assuming for the sake of argument written description exists for “everything” so transmitted). The earlier disclosure, however, in context, only includes “other electronic transmissions”—i.e., in context, those “other” transmissions that were similar to conventional “single channel, single medium,” “television” or “radio” transmissions at the time of filing of the ’490 patent. *Compare* Ex. 1003, 6:31–34, *with* Ex. 1004, 3:51–56, 10:48–49.

Petitioner argues that the broader 1987 definition of “programming” expands the scope of the subject matter; thus, claim 3 is not entitled to the 1981 priority date. Pet. 12. More particularly, Petitioner argues the Federal Circuit instructed in *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299 (Fed. Cir. 2008) that “where a claim term would receive a broader or more inclusive claim construction in view of the later specification, the claim is not entitled to the benefit of the earlier filing date.” Pet. 12 (citing *PowerOasis*, 522 F.3d at 1310–11).

We acknowledge that Patent Owner and its declarant, Dr. Alfred Weaver, point out where claim 3 finds support in the ’490 patent. PO Resp.

10–13 (citing Ex. 2023 ¶¶ 105–37; Ex. 1004). As discussed above, the change in the meaning of “programming,” in the contexts of the different specifications, constitutes a change sufficient such that the 1981 Specification does not provide proper written description support, as we determined in the Institution Decision. *See* Dec. to Inst. 10. We continue to determine that whatever the term “programming” meant in 1987, it meant something different in 1987 than it did in 1981, because it grew to encompass many different types of known analog and digital programming not contemplated in 1981 according to the ’490 patent. As noted, the 1987 ’635 patent Specification broadened the meaning of programming to encompass “*everything* that is transmitted electronically to entertain, instruct or inform, including television, radio, broadcast print, and computer programming as well as combined medium programming.” Ex. 1003, 6:31–34 (emphasis added). Even considering Patent Owner’s arguments, discussed below, we continue to determine that claim 3 cannot correctly claim priority to the 1981 priority date.

Patent Owner argues that *PowerOasis* is inapplicable because the proper inquiry in determining priority is whether the earlier filed application alone provides written description support for the claim in question and that it is legally improper to compare two specifications. PO Resp. 14–15 (citing *Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1333–34 (Fed. Cir. 2008)). Patent Owner’s argument contradicts the holding of *Power Oasis*, as the Federal Circuit considered both the original application and a continuation-in-part application in that case, and ultimately determined that support did not exist in the original application for a variation of the customer interface later introduced in the continuation-in-part application.

PowerOasis, 522 F.3d at 1310 (“Because none of this support was present in the Original Application and because the Original Application did not disclose a customer interface apart from the vending machine, the asserted claims are only entitled to the 2000 CIP Application filing date of June 15, 2000.”). Accordingly, notwithstanding Patent Owner’s characterization of the holding of *PowerOasis*, 522 F.3d at 1306, we determine Patent Owner impermissibly broadened the scope of the claim term “programming” in the ’635 patent, relative to the disclosure of the term in the ancestor 1981 ’490 patent.

Patent Owner also argues that “the ’490 Patent discloses the same type of ‘programming’ as described in the 1987 Specification.” PO Resp. 25. Patent Owner argues that the meaning of “programming,” in the ’490 patent is not limited to a single channel or medium and can include everything that is transmitted electronically. *Id.* at 15–16 (citing Ex. 2023 ¶¶ 112–31). It is telling, however, that the citations to the ’490 Patent (Ex. 1004, 3:3–41, 48–60, 10:15–39) do not recite “everything that is transmitted electronically,” but rather discloses coordination, delivery, channels, and media of transmission, while still detailing programming to be used with a single channel and a single medium. The 1987 Specification clearly contemplates known analog and digital programming, whereas the 1981 Specification does not. *Compare* Ex. 1003, 235:33–38, *with* Ex. 1004 (with the former disclosing “digital television transmissions,” and no equivalent in the latter). This example is further buttressed by Petitioner, pointing out that Patent Owner’s declarant acknowledges that the transmission of digital television signals were “experimental” in 1981. Pet. Reply 5 (citing Ex. 1049, 42:18–43:11, 77:21–79:5, 88:11–15). Although the term

“programming” is used in both specifications, the meaning of that term changed over the course of time.

Patent Owner also argues that “[w]hether additional examples of ‘programming’ were known or developed after November 3, 1981 is not relevant to the priority analysis under Section 120.” PO Resp. 19. We do not agree. Under *PowerOasis*, we are charged with determining if claim terms have different meanings based on different specifications, and determining whether support exists in the earliest, original application for a variation on that claim term. It is not the case that the instant claims utilize “programming” as it would have been understood in the context of ordinarily skilled artisans in 1981.

Although Petitioner raised additional support issues of claim 3 (*see* Pet. 13), we need not reach those arguments based on the conclusions made herein. Therefore, we determine that Patent Owner has failed to sufficiently rebut Petitioner’s contention that the 1981 ’490 patent does not support at least claim 3 of the ’635 patent and that the earliest effective priority date for this claim is no earlier than that of the ’825 patent on September 11, 1987.

2. “*unaccompanied by any non-digital information transmission*”

Claim 18 of the ’635 Patent recites “receiving at least one encrypted digital information transmission, wherein the at least one encrypted digital information transmission is *unaccompanied by any non-digital information transmission*” (claims 20, 32, and 33 provide similar recitations) (emphasis added). As discussed below, we have previously determined with respect to the ’635 Patent that the broadest reasonable construction of the limitation “at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission” means “the at least one encrypted

digital information transmission does not include non-digital information such as analog information.” *Apple Inc., v. Personalized Media Communications LLC*, Case No. IPR2016-00754 (“the ’754 IPR”), slip. op. at 10 (PTAB Sept. 21, 2016) (Paper 8) (“’754 Inst. Dec.”). We do not deviate from the construction, as described below. Petitioner argues that the negative limitation that transmissions are “unaccompanied by any non-digital information transmission” is never described in the 1981 ’490 patent. Pet. 6 (citing Ex. 1001 ¶¶ 83–87).

Petitioner’s declarant, Mr. Wechselberger, states that the 1981 ’490 patent describes receiving a “recipe in encoded digital form,” but this recipe is received via a cable television channel. Ex. 1001 ¶ 84 (citing Ex. 1004, 20:28–37). Mr. Wechselberger states that the 1981 ’490 patent explains that these signals are embedded into programs and “lie outside the range of the television picture displayed on a normally tuned television set.” *Id.* (citing Ex. 1004, 4:5–6, 4:18–22). Mr. Wechselberger testifies that person of ordinary skill in the art would have understood, in view of this disclosure, that the transmission of the recipe is accompanied by conventional analog programming. *Id.* Accordingly, Petitioner argues that the 1981 ’490 patent fails to support the claim recitation that the transmissions are “unaccompanied by any non-digital information transmission.” Pet. 7.

As we determined in the Institution Decision, we continue to determine that the 1981 ’490 patent fails to describe or indicate, expressly or inherently, support for the limitation of “at least one encrypted digital information transmission,” where any non-digital information is prohibited from that transmission. *See* Dec. to Inst. 15.

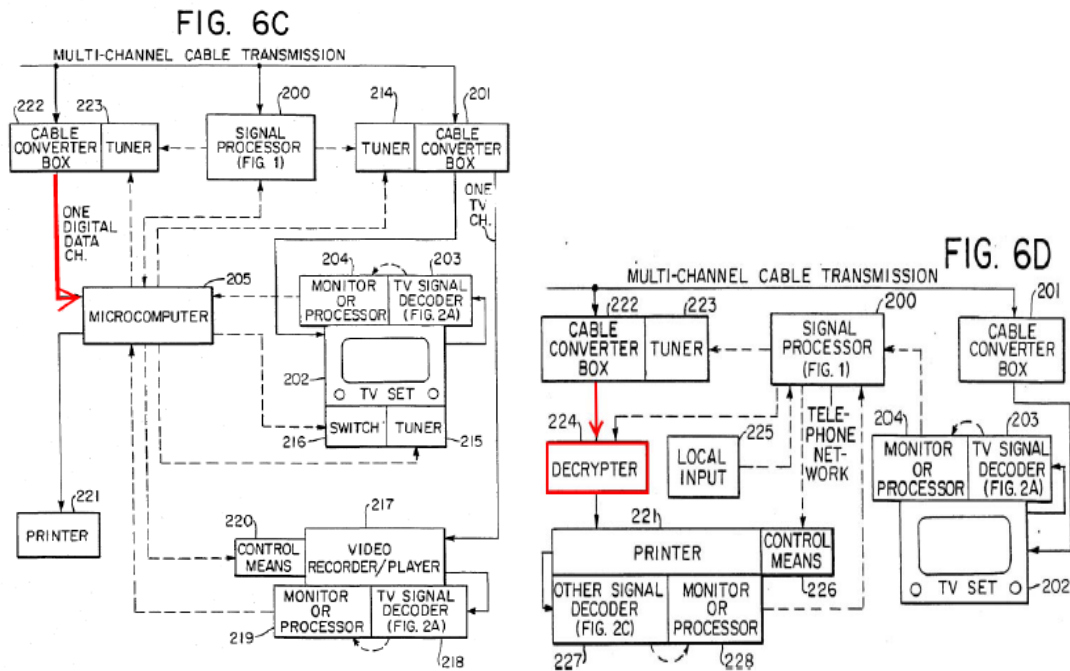
In response, Patent Owner argues that certain embodiments in the 1981 '490 patent support the negative limitation. PO Resp. 29–42. For example, Patent Owner points to information transmitted via a telephone link, citing the statement that a signal processor may “telephone a remote site to get an additional signal or signals necessary for the proper decryption and/or transfer of incoming programming transmissions.” *Id.* at 29–31 (citing Ex. 1004, 15:20–25). Patent Owner continues that those signals are made of “signal words,” described as being all-digital, and that “a receiver station could make a connection via the telephone line to receive an all-digital information transmission made up of digital signal words used for proper decryption of an incoming programming transmission.” *Id.* at 29–30 (citing Ex. 1004, 3:6–7, 20:38–43, 8:39–40; Ex. 2023 ¶¶ 172–77). We do not agree.

As Petitioner counters, the limitation in question is of “at least one *encrypted* digital information transmission,” and Patent Owner’s discussion of encryption refers to encryption of cable television transmissions, and not telephone transmissions. Pet. Reply 9 (citing PO Resp. 30–31) (emphasis added). Even if the “signal words” are used for encryption or decryption, it does not necessarily follow that those “signal words” themselves would be encrypted, in order to support the claim limitations. Further, Patent Owner’s assertion that “a receiver station *could* make a connection” speaks to probabilities and possibilities without relevant context, rather than demonstrating proper written description support.

Patent Owner also argues that Petitioner’s position is undercut by its citation to Chandra, in the unpatentability ground, which is said to disclose receiving a transmission via a telephone line. PO Resp. 30 (citing Pet. 30).

We are convinced, however, per the discussion in later sections, that Chandra describes transmitting encrypted data over a telephone line, in distinction with the 1981 '490 patent that does not specify that data transmitted over the telephone line are encrypted. As such, we are convinced that the explicit disclosure in Chandra informs one of transmitting encrypted data over a telephone line, but the 1981 '490 patent does not.

Patent Owner also argues that Figures 6C and 6D of the '490 patent (Ex. 1004) provide examples of the claimed limitation. PO Resp. 31–37. Those figures, annotated by Patent Owner, are reproduced below:



Patent Owner asserts that the Wall Street Week example (Fig. 6C) and the Julia Child example (Fig. 6D) illustrate support for “receiving at least one encrypted digital information transmission, wherein the at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission.” *Id.* Patent Owner argues that news services “transmit news on different channels carried on the multi-channel

cable transmission to converter boxes, 222 and 201, and to signal processor, 200,” and that the receiver station receives multiple channels of data, at least one of which is a digital data channel with stock information. *Id.* at 31–32 (citing Ex. 1004, 18:43–68, Fig. 6C; Ex. 2023 ¶¶ 178–187). With respect to the other example, Patent Owner argues that the cable converter box 222 tunes to one channel of several available channels to receive a transmission that only contains an encrypted “recipe in encoded digital form,” which is separate from any cable television transmission. *Id.* at 35–36 (citing Ex. 1004, 20:35–37, Fig. 6D; Ex. 2023 ¶¶ 184–185). We do not agree with Patent Owner’s assessment.

As Petitioner counters, the multi-channel cable transmission, in Figure 6C, is made up of multiple channels, and Patent Owner acknowledges that it is “one channel of several available channels” received by the receiver station together. Pet. Reply 10–11 (citing PO Resp. 35; Ex. 1049, 48:19–49:8). Petitioner points out that conventional analog television programming and signals are included in the received channels, and thus the digital data channel with stock information will be accompanied by non-digital information. *Id.* at 11–12. Petitioner also points out that nothing in the 1981 ’490 patent details that the stock information is encrypted, such that the digital data channel cannot provide support for the subject limitation of claims 18, 20, 32, and 33.

With respect to the Figure 6D example, we also agree with Petitioner that nothing in the 1981 ’490 patent specifies that an appropriate channel to receive the encrypted recipe must be a separate, all-digital data channel. *Id.* at 13 (citing Ex. 1004, 20:11–68). The “alternative method” describes receiving the recipe utilizing the same channel that the French Chef is

broadcast, such that the “primary embodiment” would utilize a separate channel, but there is no suggestion in the 1981 ’490 patent that this should be an all-digital data channel. More likely, as Petitioner suggests (*id.*), the recipe would be received on a conventional cable television channel, albeit different from the one on which the television program is received. As such, we determine that the encrypted recipe in encoded digital form cannot provide support for the subject limitation of claims 18, 20, 32, and 33.

Patent Owner also argues that Figure 6E, directed to the “How to Grow Grass” example in the ’490 patent, illustrates support for the subject negative limitation. PO Resp. 37–42. Patent Owner argues that the receiver station in the 1981 ’490 patent can receive all-digital information from laser videodisc system 232, in order to print out the contents of a digital book. *Id.* at 37 (citing Ex. 1004, 21:1–22:4; Ex. 2023 ¶¶ 188–198). Patent Owner continues that signal words are received from the videodisc player, and are used to decode the book information, and that the specification does not disclose the existence of any analog information in the videodisc player’s signal. *Id.* at 38 (citing Ex. 1004, 21:20–51; Ex. 2023 ¶ 191). We do not agree with Patent Owner’s interpretation.

The specific embodiment uses “conventional laser videodisc equipment and techniques, well known in the art.” Ex. 1004, 21:10–12. The 1981 ’490 patent does not specify that the output of the videodisc player only contains digital information. Patent Owner argues that videodisc systems could store “all-digital information” in “bit-oriented optical digital disc” by “us[ing] one recorded pit for each bit of information.” PO Resp. 39 (citing Ex. 1047, 13–14; Ex. 2023 ¶¶ 192–195). We agree with Petitioner, however, that the cited section in Exhibit 1047 refers to “optical digital disc

technology,” which is not necessarily the same as conventional videodisc systems, especially in the context of 1981. Pet. Reply 16 (citing Ex. 1051, 77:8–12, 80:25–81:4; Ex. 1047, 7–14; Ex. 1053 ¶ 9). We are persuaded that conventional, consumer videodisc systems, in 1981, need not output digital-only information. *See id.* As such, we determine that the output of the laser videodisc system in the 1981 ’490 patent cannot provide support for the subject limitation of claims 18, 20, 32, and 33.

In addition, even if the relied-upon prior art system at Figure 6E pertains to locally stored digital information, such a prior art system simply transmits information from one local piece of equipment to another in an entirely local transmission within the same receiver station. This does not provide support for the full range of the challenged claims, which read on receiving transmissions from larger distances and include all manner of digital modulation types not contemplated by the 1981 ’490 patent.

Accordingly, we determine Patent Owner fails to describe sufficiently how the embodiments in the 1981 ’490 patent provide support for the limitations in claim 18, and similar recited limitations in claims 20, 32, and 33. Therefore, we determine that Patent Owner fails to rebut sufficiently Petitioner’s contention that the 1981 ’490 patent does not support at least claims 18, 20, 32, and 33 of the ’635 patent, and that the earliest effective priority date for these claims is no earlier than that of the ’825 patent on September 11, 1987.

3. Conclusions Regarding Priority Date of Challenged Claims

In view of the above, we determine Petitioner shows by a preponderance of evidence that Chandra, Nachbar, and Campbell qualify as prior art against challenged claims 3, 18, 20, 32 and 33 of the ’635 Patent.

B. Claim Construction

Consistent with the statute and the legislative history of the Leahy-Smith America Invents Act,⁵ the Board will interpret claims of an unexpired patent using the broadest reasonable construction in light of the Specification of the patent. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard as the claim interpretation standard to be applied in *inter partes* reviews). Petitioner and Patent Owner dispute several claim terms that require construction.

1. “executable instructions”

Patent Owner asserts a specific construction for the claim term “executable instructions.” PO Resp. 43 (citing Ex. 2023 ¶¶ 75–78). As this claim term is found only in claim 13 of the ’635 Patent, no longer considered in this proceeding, we need not consider any specific construction of the term.

2. “decrypt”

All of the independent claims, specifically claims 3, 18, 20, 32, and 33, recite the phrase above. Citing passages from the ’635 Patent, a related IPR decision, its Declarant, and a related district court case, Petitioner contends that decryption and encryption are not limited to operations on digital information, but include descrambling and scrambling operations on analog information. *See* Pet. 3–4 (citing Ex. 1001 ¶¶ 62–65; Ex. 1003, 160:52–55; Ex. 1011, 7–11; Ex. 1012, 2–5; Ex. 1013, 25–26; Ex. 1014, 2–4;

⁵ Pub. L. No. 112-29, 125 Stat. 284 (2011).

Ex. 1017, 29).

Patent Owner, citing the '635 Patent, which claims priority to U.S. Patent No. 4,694,490 ("490 patent"), related patent reexaminations, a District Court case, and other evidence, contends that in line with convention, the '635 Patent makes a distinction between encryption and scrambling, with the former limited to digital data and the latter limited to analog data. *See* PO Resp. 45–47 (citing Ex. 1003, 144:8–19; Ex. 2003, 68–69; Ex. 2005, 53–54; Ex. 2009, 2; Ex. 2012, 1330, 1362; Ex. 2023 ¶¶ 46–54, 58–71).

The '635 Patent discloses that programming includes all manner of programming, including conventional analog television signals. "The term 'programming' refers to everything that is transmitted electronically to entertain, instruct or inform, including television, radio, broadcast print, and computer programming as well as combined medium programming." Ex. 1003, 6:31–34. Similar to the challenged claims, and as the cited passages by Patent Owner show, the '490 patent and the '635 Patent describe decryptors as applying to *programming*. For example, "[a]s regards decoders and decryptors, many different systems exist, at present, that enable programming suppliers to restrict the use of transmitted programming to only duly authorized subscribers." Ex. 1003, 5:28–31. The '635 Patent also states that "[t]his prior art, too, is limited. It has no capacity for *decrypting combined media programming*." *Id.* at 5:38–39 (emphasis added). Similarly, the '490 patent discloses that "[t]he *signals that enable the decrypt[o]r/interrupter, 101, to decrypt and/or transfer program[m]ing uninterrupted may be embedded in the program[m]ing or may be elsewhere*." Ex. 1004, 13:17–20 (emphasis added).

These passages (and others) explicitly show that decrypting programming includes decrypting the programming itself (i.e., including analog signals) *and* the digital keys “embedded in the program[m]ing.” *See id.* During the Oral Hearing, Patent Owner acknowledged that the ’490 patent and the ’635 Patent deal with protecting all types of programming (after arguing that the “Julia Child’s” “The French Chef” television show example involves “decryption” of a digital recipe):

JUDGE EASTHOM: I understand there are digital --

MR. KLINE: Right.

JUDGE EASTHOM: -- the recipe was digitally encrypted, I understand that. So my question is, wasn’t the thrust of the whole patent to protect all manner of transmissions?

MR. KLINE: I certainly -- in a variety of ways, and it’s very -- even -- you know, relative to the ’87 specification, the ’490 specification, it certainly is not as voluminous, but it is still quite thorough on its own, longer than most applications. *So it certainly describes a wide variety of transmissions and a wide variety of programming.*

This will come up again quite a bit when we talk about priority, which is in the next IPR proceeding that we are going to move on to. *So the ’490 specification certainly describes a variety of programming as a subject of its disclosure, absolutely.*

IPR2016-00754, Paper 40, 39:5–18 (emphases added).

We continue to find, notwithstanding Patent Owner’s evidence and arguments, the ’490 patent and the ’635 Patent describe encrypting and decrypting analog data, because both encompass decrypting general or conventional television programming, as also discussed above.

The ’635 Patent states that “the invention is not to be unduly restricted” and lists “for example, the ‘Wall Street Week’ transmission may be of conventional analog television, and the *decrypt[o]rs*, 107, 224, and

231, *may be conventional descramblers*, well known in the art, that descramble analog television transmissions and are actuated by receiving *digital* key information.” Ex. 1003, 160:51–55 (emphasis added). This passage further supports Petitioner’s view by equating decryption and descrambling with respect to certain embodiments, using “digital key information.” See Pet. 3 (citing Ex. 1003, 160:52–55; Ex. 1013, 25–26); Pet. Reply 1–4 (discussing the “controversial” passage).

Having defined “programming” broadly, as discussed above, Patent Owner does not clearly narrow it to “digital programming” by lexicography, prosecution history, or otherwise. As noted above, according to the ’635 Patent, “[t]he term ‘programming’ refers to everything that is transmitted electronically to entertain, instruct or inform, including television, radio, broadcast print, and computer programming as well as combined medium programming.” Ex. 1003, 6:31–34. Of course, “embedded signals contain digital information,” according to the ’635 Patent. *Id.* at 7:58–59. Patent Owner, however, does not dispute that “programming” includes “everything that is transmitted electronically.” As discussed above, the ’635 Patent describes *encrypted programming* and *encrypted signals in programming*—thereby showing that encrypting or decrypting programming does not transform the programming into digital programming. An example follows: “In FIG. 4E, the signal or signals needed to operate decryptor/interrupt[e]r, 115, correctly may be on *a separate channel of programing that is, itself, encrypted in transmission.*” Ex. 1004, 15:11–14 (emphasis added).

Patent Owner argues that the ’635 Patent Specification “explicitly defines decryption to be a process applied to digital data, and more

particularly, as a process that is distinct from “descrambling,” which involves analog data.” PO Resp. 45 (citing Ex. 1003, 144:8–19). Although we agree that the cited passage refers to encryption and decryption of digital portions, we are not persuaded the cited passage necessarily distinguishes encryption/decryption from scrambling/descrambling. Patent Owner asserts the cited passage as an explicit definition, we are not persuaded in the context of overall disclosure, as discussed above.

Patent Owner also provides arguments that rely on past Board decisions and other court decisions. *See* PO Resp. 46–47 (citing Ex. 2003, 68–69; Ex. 2005, 53–54; Ex. 2009, 2). Those arguments, however, fail to acknowledge that the prior decisions did not have the benefit of this record evidence. Specifically, the prior decisions did not consider (1) the cited passage in the ’635 Patent regarding decryptors that may be descramblers, or (2) the cited passages in the ’635 Patent and ’490 patent that specifically describe decrypting signals and signals within programming—the latter a generic term that includes “everything that is transmitted electronically.”

Furthermore, in at least one cited reexamination proceeding (Reexam. Control No. 90/006,563), Patent Owner contended (in a reply brief to the Board) that it was acting as a “*lexicographer*,” so that “the inventor expressly advised the reader that by the terms encryption and decryption he means something *beyond the conventional* scrambling/descrambling relied upon by the Examiner, *such as the use of a decryption key*, which is not disclosed or suggested in any of the references relied upon by the Examiner.” Ex. 2006, 41 (emphases added). This reexamination argument contradicts Patent Owner’s arguments here that its construction tracks the plain meaning of encrypting and decrypting programming, because a

lexicographer's definition necessarily departs from the plain meaning of a term, indicating that skilled artisans normally interchanged scrambling and encrypting at time of invention (at least when scrambling employs some type of a decryption key). Patent Owner does not argue here that the '635 Patent sets forth a lexicographic definition of a decryption or encryption.

Furthermore, (then) Patentee's reexamination argument in its reply brief shows that Patentee attempted to capture "conventional scrambling/descrambling" that includes "*the use of a decryption key, which is not disclosed or suggested in any of the references relied upon by the Examiner.*" See Ex. 2006, 41 (emphasis added).

Patent Owner also points to the appeal decision in that reexamination proceeding. PO Resp. 46–47 (citing Ex. 2003, 68–69). Significantly, the Board noted in the '563 patent reexamination that there was "*nothing in the instant ['563 patent] Specification that would guide such an interpretation*" of decryption to include descrambling. *Id.* (emphasis added). Here, however, the opposite is true. The Specification of the '635 Patent expressly provides that the term decrypting, used within the '635 Patent, includes descrambling. See Ex. 1003, 160:40–55.

Patent Owner also cites to the "inventor's disclaimer during the prosecution of the '635 Patent." PO Resp. 46. Patent Owner continues that "the inventors unequivocally disclaimed descrambling from decryption by asserting the claims' decryption term was 'not broad enough to read on scrambling and unscrambling'; that encryption was limited to processing of 'digital' information; and that the prior art was distinguishable because it described descrambling, rather than encrypting." *Id.* (citing Ex. 2012, 1330). We do not agree.

Patent Owner's citation to general statements allegedly disavowing the scope of encryption and decryption as not including scrambling, and descrambling during prosecution of other patents similarly do not account for the specific claim terms at issue in this proceeding. For example, our construction here is consistent with that of the '563 reexamination, because Patent Owner argues "encryption and decryption" only differ "beyond . . . conventional scrambling/descrambling" by "the use of a decryption key." Ex. 2015, 41 (Patent Owner's reply brief in the 90/006,563 reexamination proceeding).

In addition, as discussed above and further below, challenged claims claims 18, 20, 32, and 33 recite "at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission." If all encryption and decryption of transmissions involves only "digital information," no need exists to recite "encrypted digital information transmission" or "unaccompanied by any non-digital information transmission." Also, claim 18 recites "receiving at least one encrypted digital information transmission, wherein the at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission" and then recites "*controlling a decryptor that decrypts encrypted digital data* to decrypt in a specific fashion on the basis of said code," and also recites "*decrypting a portion of said at least one information transmission.*" (Emphasis added). These two uses of "decryptor" for "digital data," and the more generic "decrypting a portion of said at least one information transmission," further implies decrypting need not apply to only digital information. The prosecution history simply does not address this claim language, which must be interpreted in conjunction

with decrypt and programming.

The “doctrine [of prosecution history (file wrapper) estoppel] is an equitable tool for determining the permissible scope of patent claims.” *Builders Concrete, Inc. v. Bremerton Concrete Prods. Co.*, 757 F.2d 255, 258 (Fed. Cir. 1985). Based on the unclear nature of the prosecution history, and arguments that fail to clarify the meaning of the disputed phrases under a broadest reasonable construction, the public should not be bound via a doctrine of equity to a construction that would render the claims superfluous, and contradict the meaning of decrypting and programming as described in the patents by stripping their breadth to all-digital applications. *See Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973 (Fed. Cir. 2014) (The court “observes that *the PTO is under no obligation* to accept a claim construction proffered as a prosecution history disclaimer.” (Emphasis added)).

Accordingly, we construe the term “decrypt” with respect to the ’635 Patent to include descrambling.

3. “*at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission*”

The claim limitation “at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission” is recited in claim 18, and similarly in claims 20, 32, and 33. In the Institution Decision, we determined, in view of the plain language of the claim limitation, that the “at least one encrypted digital information transmission” must not include any non-digital information in at least one transmission. Dec. to Inst. 22. We also determined that the broadest reasonable construction of the limitation “at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission” recited in claim 18, and similarly in claims 20, 32, and 33,

means “the at least one encrypted digital information transmission does not include non-digital information such as analog information.” *Id.*

Patent Owner requests that we maintain that construction, and Petitioner argues that because Patent Owner “does not raise any argument on that issue,” it agrees to the construction for purposes of resolving the disputes in the instant proceeding. PO Resp. 48; Pet. Reply 20. As such, we maintain our construction for the instant decision.

C. 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).

In that regard, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *see also In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). “If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, § 103 likely bars its patentability.” *KSR*, 550

U.S. at 401. “A court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.* After *KSR*, the Federal Circuit has recognized that obviousness is not subject to a “rigid formula,” and that “common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not.” *Leapfrog Enters. v. Fisher–Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007).

KSR expanded the sources of information for a properly flexible obviousness inquiry to include market forces; design incentives; the “interrelated teachings of multiple patents”; “any need or problem known in the field of endeavor at the time of invention and addressed by the patent”; and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) (quoting *KSR*, 550 U.S. at 418–21).

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. See *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 2016 WL 3974202, No. 2015-1300, slip op. at 25 (Fed. Cir. July 25, 2016).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

D. Level of Ordinary Skill in the Art

According to Petitioner’s Declarant, Mr. Wechselberger, a person of ordinary skill in the art relevant to the ‘635 Patent would have “bachelor’s degree in electrical engineering, or equivalent experience, and two to four years of experience in the broadcast or cablecast television transmission fields.” Ex. 1001 ¶ 98. Similarly, Patent Owner’s Declarant Dr. Weaver defines a person of ordinary skill in the art relevant to the ‘635 Patent to have a “bachelor’s degree or equivalent in digital electronics, electrical engineering, computer engineering, computer science, or a related technical degree, with 2-5 years of post-degree work experience in system engineering (or equivalent).” Ex. 2001 ¶ 33.

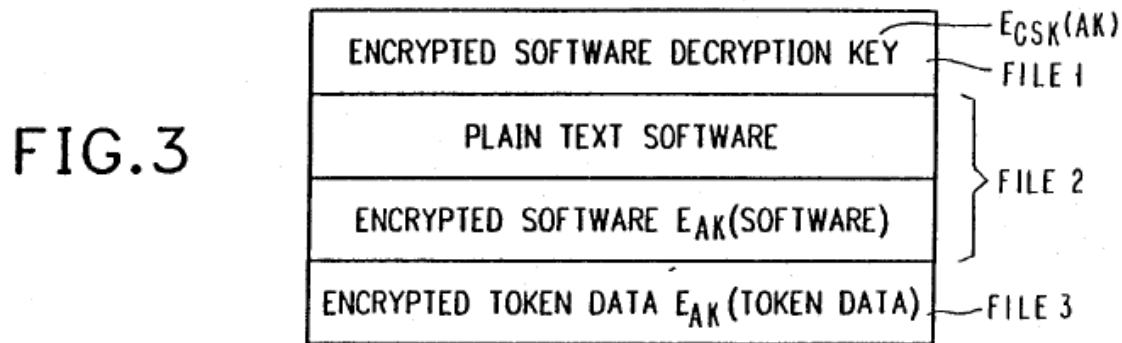
Based on our review of the ‘635 Patent, the types of problems and solutions described in the ‘635 Patent and cited prior art, and the testimony of Petitioner’s declarant and Patent Owner’s declarant, we adopt Patent Owner’s definition of a person of ordinary skill in the art at the time of the claimed invention. We note that the applied prior art also reflects the appropriate level of skill at the time of the claimed invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

E. Asserted Anticipation Based on Chandra

1. Overview of Chandra

Chandra is titled “Software Protection System Using a Single-Key Cryptosystem, a Hardware-Based Authorization System and a Secure

Coprocessor” and describes a software protection system in which the software is partitioned into an encrypted portion and an optional, unencrypted, plain text portion. Ex. 1041 [54], Abstr. The software is distributed with an encrypted software decryption key. *Id.* at Abstr. A coprocessor decrypts the software decryption key so it can thereafter decrypt the protected software, for execution of the software. *Id.* A software set may be provided to the coprocessor via a communication link, such as a telephone line or CATV. *Id.* at 8:14–22. Fig. 3 of Chandra illustrates a distributable software set and is reproduced below:



As shown above in Fig. 3, the software contains encrypted (E_{AK} (SOFTWARE)) and unencrypted (plain text) portions, and an encrypted software decryption key AK also is provided to the coprocessor. Ex. 1041, 3:55–57, 4:29–36, 14:15–39. The software decryption key AK is encrypted using an encryption key CSK. *Id.* at 4:29–36, 5:36–46, 6:7–10, 14:15–39. In the case that there are multiple CSKs, the encrypted software decryption key AK contains a header, index, or address to identify the appropriate CSK. *Id.* at 4:33–36, 23:4–14, 26:28–32. The coprocessor uses the specified encryption key CSK to decrypt the software decryption key AK, and thereafter employs the software decryption key AK to decrypt the protected software, for execution of the software. *Id.* at Abstr., 14:15–39, 24:64–68.

2. *Analysis of Asserted Anticipation by Chandra*
a. *Alleged Anticipation of Claim 18*

Petitioner argues that Chandra discloses the method of processing signals at a receiver station recited in claim 18 by disclosing a digital content protection scheme that involves processing signals representing encrypted software, plain text software, and an encrypted software key in a composite computing system. Pet. 29–30 (citing Ex. 1001 ¶ 114; Ex. 1041, 3:52–63, 4:29–36, 5:36–66, 6:7–10, 6:33–42). Petitioner argues that the claimed “receiving at least one encrypted digital information transmission, wherein the at least one encrypted digital information transmission is unaccompanied by any non-digital information transmission” is met by Chandra’s disclosure of receiving a transmission via a communication link (telephone line, CATV, etc.), the transmission containing encrypted software, plain text software, an encrypted software decryption key, and a header, index, or address. Pet. 30 (citing Ex. 1001 ¶¶ 115–116; Ex. 1041, 8:14–19, 12:26–28, 14:15–41, 23:1–9, 25:13–19, 26:28–32). Specifically, Petitioner contends that “[a]ll of these are digital, at least some are encrypted, and no non-digital information transmission accompanies this digital information transmission.” *Id.* (citing Ex. 1001 ¶¶ 115–116).

Petitioner argues that the claimed “locating code” is met by Chandra’s disclosure of system firmware commands “‘which the PC may request from the coprocessor,’ one of which is a ‘[l]oad, decrypt, and run application (LDR)’ command.” *Id.* (citing Ex. 1001 ¶¶ 117–120; Ex. 1041, 15:62–68). In addition, Petitioner argues that Chandra’s disclosure of a fetch operation in which instructions are retrieved from memory meets the claim limitation “locating code.” Pet. 31 (citing Ex. 1041, 16:64–17:6, 17:15–19, 17:43–47;

Ex. 1001 ¶ 120). Petitioner argues that the claimed “passing said code to a processor” is met by Chandra’s disclosure of passing the code (i.e., load, decrypt, and run application (LDR) firmware commands) to a processor (i.e., coprocessor CPU). *Id.* (citing Ex. 1001 ¶¶ 117–121; Ex. 1041, 27:34–49, 24:58–68, Fig. 9B).

Furthermore, Petitioner argues that the claimed “controlling a decryptor that decrypts encrypted digital data to decrypt in a specific fashion on the basis of said code” is met by Chandra’s disclosure of controlling a coprocessor that decrypts encrypted software in accordance with the instructions which comprise the load, decrypt, and run application (LDR) process. Pet. 32 (citing Ex. 1001 ¶¶ 122–123; Ex. 1041, 27:34–49, 24:58–68, Fig. 9B). Petitioner also argues that the claimed “decrypting a portion of said at least one information transmission in said specific fashion” is met by Chandra’s disclosure of decrypting the protected software in accordance with the instructions that comprise the LDR process. *Id.* (citing Ex. 1001 ¶¶ 122–124; Ex. 1041, 27:34–49, 24:58–68, Fig. 9B).

Finally, Petitioner argues that the claimed “passing said decrypted portion of said at least one encrypted digital information transmission to one of said processor and an output device” is met by Chandra’s disclosure of storing the decrypted software application in temporary memory of the coprocessor. Pet. 32–33 (citing Ex. 1001 ¶¶ 125–127; Ex. 1041, 27:45–51). Petitioner contends that the coprocessor executes the decrypted software application and that, in order to do this, the operating instructions of the decrypted software application are passed from the temporary memory to the coprocessor CPU. *Id.* at 33 (citing Ex. 1041, 24:58–68; Ex. 1001 ¶ 127).

In the Institution Decision, we weighed the evidence and arguments put forth by Petitioner and Patent Owner and determined that Petitioner established a reasonable likelihood of prevailing in showing that claim 18 is anticipated by Chandra. Dec. to Inst. 30. Considering Patent Owner's arguments (PO Resp. 62–64) and Petitioner's reply (Pet. Reply 20–22), we determine that Petitioner has shown by a preponderance of the evidence that claim 18 is unpatentable as being anticipated by Chandra. The specific arguments of the parties are discussed below.

Regarding the claim limitations “passing said code to a processor” and “controlling a decryptor that decrypts encrypted digital data to decrypt in a specific fashion on the basis of said code,” Patent Owner argues that Petitioner cites to the same component, the coprocessor's CPU, to teach both the “processor” element and the “decryptor” element of claim 18. PO Resp. 62 (citing Ex. 1001 ¶¶ 121–126; Ex. 1041, 17:58–67; Ex. 2023 ¶ 297). Petitioner responds that the CPU of Chandra's coprocessor was cited for the “processor” element and to Chandra's coprocessor was cited for the “decryptor” element. Pet. Reply 20–21. The coprocessor in Chandra has multiple components and performs multiple functions, including, as part of the LDR sequence, loading, decrypting, and running applications. Ex. 1041, 19:16–25.

Patent Owner also argues that Chandra fails to disclose “receiving at least one encrypted digital information transmission . . . unaccompanied by any non-digital information transmission” because Patent Owner “has not cited to any evidence that explicitly or inherently discloses that these transmissions [Pet. 30] are not accompanied by any non-digital information.” PO Resp. 63 (citing Ex. 2023, ¶¶ 292–93; Ex. 2020, 64:17–

65:2, 68:23–69:5). In response, Petitioner cites to Dr. Weaver’s deposition, where he provided the following:

Q So in the situation where the software set is going to be distributed over a telephone line, would you agree with me that such a transmission would be unaccompanied by any non-digital information transmission?

A Yes.

Ex. 1051, 118:1–6. As such, Petitioner has shown that Chandra discloses receiving a transmission via a telephone line containing digital information, some of which is encrypted, and no non-digital information. *See* Pet. 30; Ex. 1001 ¶¶ 115–16; Ex. 2020, 65:15–22.

b. Alleged Anticipation of Claim 20

Claim 20 is similar to claim 18 and Petitioner’s challenge of anticipation of claim 20 by Chandra primarily relies upon the same disclosures cited with respect to claim 18. Pet. 33–35. Claim 20 also recites “detecting a plurality of signals on said at least one encrypted digital information transmission,” which Petitioner argues is met by Chandra’s disclosure of receiving a transmission including a plurality of signals (i.e., encrypted software, plain text software, an encrypted software decryption key, and a header, index, or address). Pet. 33–34 (citing Ex. 1001 ¶¶ 115–116, 130; Ex. 1041, 8:14–19, 12:26–28, 14:15–41, 23:1–9, 25:13–19, 26:28–32). According to Petitioner, the signals are detected in and extracted from the information transmission. *Id.* at 34 (citing Ex. 1041, 22:50–53, 24:60–65, 26:20–24).

Petitioner argues that the claimed “decrypting at least one of said plurality of signals, said at least one decrypted signal embedded with at least one instruct signal which is effective to instruct” is met by Chandra’s

disclosure of decrypting the received encrypted software and that such decrypted software contains “operating instructions,” which are instruct signals effective to instruct. *Id.* (citing Ex. 1001 ¶¶ 124, 131; Ex. 1041, 6:33–60, 24:58–68, 27:34–57). Petitioner further argues that the claimed “passing the at least one decrypted instruct signal to a controllable device” is met by Chandra’s disclosure of storing the decrypted software application in the temporary memory of the coprocessor. *Id.* at 34–35 (citing Ex. 1001 ¶¶ 125–127, 132; Ex. 1041, 27:45–51). Specifically, Petitioner contends that Chandra discloses the coprocessor executing the decrypted software application, and that in order to execute the application, the operating instructions of the decrypted software application are passed from the temporary memory to the coprocessor CPU, which is controllable. *Id.* at 35 (citing Ex. 1041, 24:58–68; Ex. 1001 ¶ 132).

Finally, Petitioner argues that Chandra meets the claim limitation “controlling said controllable device on the basis of decrypted information included in said at least one decrypted instruct signal” in that Chandra’s coprocessor executes the operating instructions of the decrypted software application. Pet. 35 (citing 1001 ¶¶ 125–127, 133; Ex. 1041, 24:58–68). According to Petitioner, “[b]y executing the operating instructions of the decrypted software application, the coprocessor CPU is controlled thereby.” *Id.* (citing Ex. 1001 ¶ 133).

Patent Owner provides no additional arguments with respect to claims 20, other than those made and discussed above regarding claim 18. PO Resp. 62–64. Based on the foregoing discussion and record developed during this proceeding, we determine that Petitioner has shown by a

preponderance of the evidence that claim 20 is unpatentable as being anticipated by Chandra.

c. Alleged Anticipation of Claim 32

Claim 32 is similar to claims 18 and 20 and Petitioner's challenge of anticipation of claim 32 based on Chandra primarily relies upon the same disclosures cited with respect to claims 18 and 20 for the majority of the limitations in claim 32. Pet. 35–38.

Claim 32 also recites “detecting a plurality of signals on said one or more encrypted digital information transmissions, at least a first of one of said plurality of signals including a control signal,” which Petitioner argues is met by Chandra's disclosure of a plurality of signals on the encrypted digital information transmission (i.e., encrypted software, plain text software, an encrypted software decryption key, and a header, index, or address). *Id.* at 36 (citing Ex. 1001 ¶¶ 130, 136–137). Specifically, Petitioner contends that a header, index, or address in the encrypted software key AK controls which of multiple coprocessor supervisor keys CSK is used to decrypt the encrypted software key AK, and that the received header, index, or address is thus a control signal. *Id.* (citing Ex. 1041, 23:1–9, 26:28–32; Ex. 1001 ¶ 137).

Petitioner argues that the claim limitation “controlling a decryptor that decrypts encrypted digital data in response to said control signal” is met by Chandra's decryptor (i.e., coprocessor) decrypting the encrypted software decryption key AK using the coprocessor supervisor key CSK, which is selected in response to the received header, index, or address. Pet. 36–37 (citing Ex. 1001 ¶¶ 136–138; Ex. 1041, 23:1–9, 26:28–32).

Furthermore, Petitioner argues that the claimed “decrypting or enabling communication of at least a second of said plurality of signals on the basis of said step of controlling said decryptor” is met by Chandra’s disclosure of decrypting encrypted software on the basis of the controlling step. *Id.* at 37–38 (citing Ex. 1001 ¶¶ 136–137, 139; Ex. 1041, 23:1–9, 26:28–32, 6:33–46, 24:58–68, 27:34–57). Specifically, Petitioner argues that Chandra’s header, index, or address controls the coprocessor supervisor key CSK used to decrypt the encrypted software key AK, which then is used as the basis for decrypting the received encrypted software. *Id.*

Patent Owner provides no additional arguments with respect to claims 32, other than those made and discussed above regarding claim 18. PO Resp. 62–64. Based on the foregoing discussion and record developed during this proceeding, we determine that Petitioner has shown by a preponderance of the evidence that claim 32 is unpatentable as being anticipated by Chandra.

As discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner’s contention that Chandra anticipates claims 18, 20, and 32. Accordingly, in light of the foregoing and our analysis of secondary considerations discussed below, we determine Petitioner has shown by a preponderance of evidence that claims 18, 20, and 32 are anticipated by Chandra.

F. Asserted Obviousness Based on Chandra and Nachbar

Petitioner argues that claim 33 would have been obvious in view of Chandra and Nachbar. Pet. 41–45.

1. Overview of Nachbar

Nachbar is titled “When Network File Systems Aren’t Enough: Automatic Software Distribution Revisited” and describes a system that automates installing new releases of software. Ex. 1042, Abstr., 159. A subscriber machine may request new copies of files that are more current than its own. *Id.* at 161. The system includes a measure of currentness, e.g., the time of last modification, of each file and distributes file copies to authorized subscribers upon request. *Id.* at 161–162.

2. Analysis of Alleged Obviousness of Claim 33 In View of Chandra and Nachbar

Claim 33 is similar to claims 18 and 20. Petitioner’s challenge of obviousness of claim 33 based on Chandra and Nachbar primarily relies upon the same disclosures recited with respect to claims 18 and 20 for the majority of the limitations in claim 33. Pet. 42–45.

Claim 33 also recites “selecting, by processing selection criteria, a first signal of said plurality of signals including downloadable code.” Petitioner argues that “Chandra in combination with Nachbar teaches selecting, by processing selection criteria (*i.e.*, time of last modification, as disclosed by Nachbar), a first signal of the plurality of signals including downloadable code (*i.e.*, encrypted and/or plaintext software files, as disclosed in Chandra).” *Id.* at 43 (citing Ex. 1001 ¶¶ 145–50). According to Petitioner, Chandra discloses receiving a transmission that includes encrypted and plain text software. *Id.* (citing Ex. 1041, 8:14–19, 12:26–28, 14:15–41, 25:13–19, Fig. 3). Petitioner adds that “Nachbar discloses using ‘the time of last modification as its measure of currentness’ and that ‘a subscriber machine ... request[s] new copies of files that are more current than its own.’” *Id.* (citing Ex. 1042, 161–162). Petitioner argues that it

would have been obvious to a person of ordinary skill in the art to modify Chandra such that the transmitted software files are accompanied by their time of last modification, as disclosed by Nachbar, so that the recipient computer would select and install more current software. *Id.* (citing Ex. 1001 ¶ 149). Petitioner also argues that Nachbar discloses “distributing bug fixes as well as new releases of software packages or even [operating system software]” and that a person of ordinary skill in the art would have been motivated to apply Nachbar’s software update methods to Chandra’s software transmission methods to provide updates or bug fixes for the system firmware, including the LDR command instructions in Chandra. *Id.* at 43–44 (citing Ex. 1042, 166; Ex. 1001 ¶ 149).

Petitioner also argues that the claimed “passing said downloadable code to a processor” is met by Chandra in combination with Nachbar because it would have been obvious to a person of ordinary skill in the art to pass updated LDR instructions to the coprocessor CPU. *Id.* at 44 (citing Ex. 1001 ¶¶ 151–154; Ex. 1041, 27:34–49, 24:58–68, Fig. 9B). Petitioner further argues that the claimed “controlling a decryptor that decrypts encrypted digital data to decrypt in a specific fashion on the basis of said downloadable code” is met by Chandra in combination with Nachbar. *Id.* at 44–45 (citing Ex. 1001 ¶¶ 122–123, 145–150, 155–158; Ex. 1041, 27:34–39, 24:58–68, Fig. 9B). Specifically, Petitioner argues that Chandra in combination with Nachbar discloses controlling a decryptor (i.e., coprocessor, as disclosed by Chandra) to decrypt in a specific fashion on the basis of the downloadable code (i.e., updated LDR firmware commands, as suggested by Chandra in view of Nachbar). *Id.*

In the Institution Decision, we weighed the evidence and arguments put forth by Petitioner and Patent Owner and determined that Petitioner established a reasonable likelihood of prevailing in showing that claim 18 is anticipated by Chandra. Dec. to Inst. 30. Considering the record anew with Patent Owner's arguments (PO Resp. 59–62), and Petitioner's reply (Pet. Reply 22–23) and the evidence cited therein, we now determine that Petitioner has shown by a preponderance of the evidence that claim 33 is unpatentable as being obvious over Chandra and Nachbar. The specific arguments of the parties are discussed below.

Patent Owner argues that Chandra in view of Nachbar fails to disclose “selecting, by processing selection criteria,” the first signal as claimed. PO Resp. 59 (citing Ex. 2023 ¶¶ 271–272). Specifically, Patent Owner asserts that the limitation would have been understood as “selecting, by processing a plurality of rules for selecting a signal, said first signal.” *Id.* Patent Owner argues that a “modification date,” as cited by Petitioner in Chandra, is not “selection criteria” as claimed because it is not a plurality of rules that are processed by the receiver device in order to determine how to select a signal. *Id.* Patent Owner adds that even if the “time of last modification” is considered to be a selection *criterion*, there is not a plurality of criteria, as required by claim 33. *Id.*

We continue to be persuaded by Petitioner's argument that Chandra, combined with Nachbar's disclosure of selecting software using “the time of last modification as its measure of currentness” to provide updates or bug fixes, and that “a subscriber machine ... request[s] new copies of files that are more current than its own,” teaches or suggests the claim limitation “selecting, by processing selection criteria, a first signal of said plurality of

signals including downloadable code,” because these criteria disclosed in Nachbar determine when an update is necessary. *See* Pet. 43 (citing Ex. 1042, 161–162, 166); Pet. Reply 22.

With respect to the multiplicity of the criteria, we determine that it would have been obvious to use multiple criteria even if “time of last modification” is a single criterion. As Mr. Wechselberger testifies, “[i]n installing additional decryption algorithms would also accommodate the decryption and processing of software applications that have been encrypted differently.” Ex. 1001 ¶ 150 (emphasis added). Given the choice between algorithms, there must be multiple criteria to allow for selections to be made.

Similar to its arguments regarding claim 18 above, Patent Owner argues that Chandra combined with Nachbar fails to disclose the “unaccompanied by any non-digital information transmission” limitation recited in claim 33. PO Resp. 60. As with claim 18, we are unpersuaded by this argument with respect to claim 33.

Patent Owner further argues that one of ordinary skill in the art would not have modified Chandra using Nachbar in the manner that Petitioner contends. PO Resp. 60–62. Patent Owner, based on the opinion of Dr. Weaver, contends that combining Chandra and Nachbar “would not be an obvious, simple task,” because Chandra’s coprocessor is not a general-purpose device, but rather is specialized and operates under a different operating system architecture. *Id.* at 60–61 (citing Ex. 2023 ¶¶ 276–284). We are not persuaded by this argument, as Petitioner’s proposed combination is not limited to a bodily incorporation of the features of one reference into another. *See* Pet. 42–45; *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

Patent Owner further contends combining Chandra with Nachbar to “update or add decryption algorithm[s]” would render the coprocessor incompatible and unable to decrypt keys and computer programs previously encrypted using an old algorithm. PO Resp. 61 (citing Ex. 2023 ¶ 284). We are not persuaded, however, that by updating the LDR instructions in Chandra, all previous encryption algorithms necessarily must be deleted. As explained by Petitioner’s Declarant, Mr. Wechselberger, Chandra’s “architecture mirrors most of the ‘moving parts’ required to implement the teachings of Nachbar” and that “one of ordinary skill in the art would have understood that there may be a need to update or add decryption algorithms . . . for example, to recover from a compromised (hacked) decryption algorithm.” Ex. 1001 ¶¶ 148, 150.

Patent Owner also argues that the Chandra architecture teaches away from allowing direct modification to a coprocessor’s decryption algorithm and the data stored therein because Chandra provides security by separating the functions of the coprocessor from the user computer, and such modification would be counter to key security principles of Chandra. PO Resp. 61–62 (citing Ex. 2023 ¶¶ 277–278, 281; Ex. 1041, 14:30–37, 18:61–19:15; Ex. 1001 ¶ 150).

We are not persuaded by Patent Owner’s arguments because the Supreme Court has determined that the conclusion of obviousness can be based on the interrelated teachings of multiple patents, the effects of demands known to the design community or present in the marketplace, and the background knowledge possessed by a person having ordinary skill in the art. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007). The skilled artisan is “a person of ordinary creativity, not an automaton.” *Id.*

at 421. Based on its arguments and supporting evidence, we are persuaded, at this stage of the proceeding, that Petitioner has articulated sufficient reasoning to support its conclusion of obviousness. *See id.* at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Accordingly, as discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner's contention that Chandra and Nachbar render claim 33 obvious. Accordingly, in light of the foregoing and our analysis of secondary considerations discussed below, we determine Petitioner has shown by a preponderance of evidence that claim 33 is obvious in view of Chandra and Nachbar.

G. Asserted Obviousness By Campbell

Petitioner argues that claim 3 is obvious over Campbell. Pet. 55–60.

1. Overview of Campbell

Campbell is titled “Addressable Cable Television Control System with Video Format Data Transmission” and describes a system for controlling the transmission of television and data signals between a cable head end station and remote subscribers at user stations. Ex. 1044, Abstr, Fig. 1, 4:43–45. Fig. 1 of Campbell illustrates a cable television system and is reproduced below:

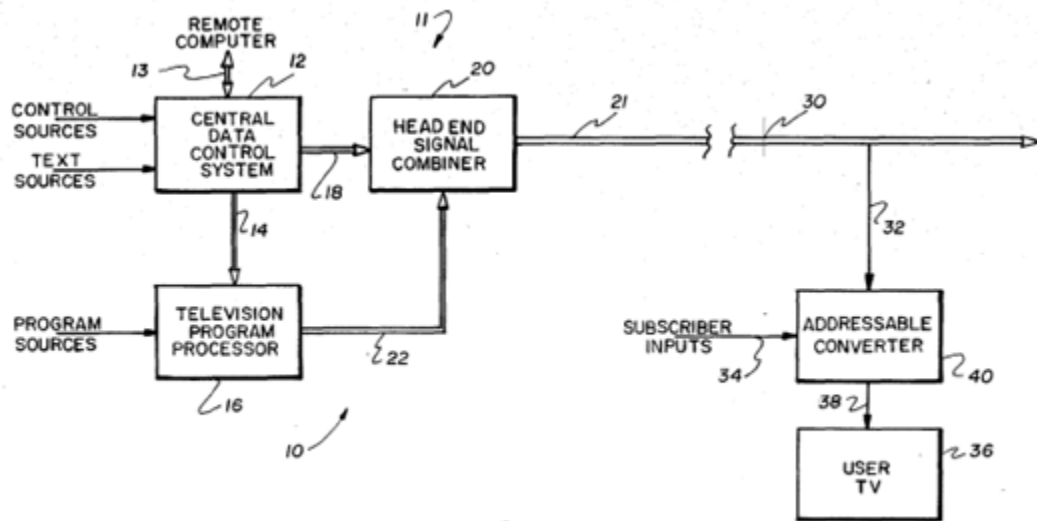


FIG. I

As shown above in Fig. 1, head end station 11 includes central data control system 12 linked with a remote computer, “which may be used for central control and billing functions.” Ex. 1044, 4:24–33. Within central data control system 12 is a programming control system (PCS) that generates a mixture of channel control signals and subscriber addressing signals, including a channel control word and event enable word. *Id.* at Fig. 2, 4:64–67, 13:1–3, 14:1–2. An excerpt of Fig. 11 is reproduced in part below:

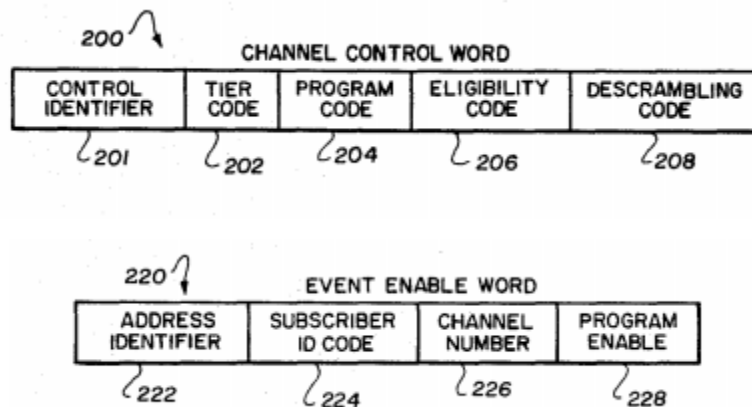


FIG. II

Ex. 1044, Fig. 11. Fig. 11 above depicts channel control word 200 and event enable word 220. Channel control word 200 is used by each subscriber's converter to determine the subscriber's authorization to receive each television program and to control descrambling of video signals. Ex. 1044, 5:27–35, 13:1–9. Channel control word 200 includes program identification code 204, which indicates whether the television program in question is a special event requiring further limitation on viewers' access. *Id.* at 13:9–14. Event enable word 220 contains data to enable a subscriber's converter so that the user can view the special event. *Id.* at 13:61–68.

The system additionally provides a “pay-per-view premium programming feature . . . similar to the special event limited access feature described above except no advance authorization is required for the viewer . . .” *Id.* at 17:50–53. An intelligent converter at the user location allows the user to request pay-per-view programming via a keyboard. *Id.* at Abstr., 17:53–55. The control system commands the converter to allow or disallow the selected program. *Id.* at 17:55–64.

2. Analysis of Alleged Obviousness in View of Campbell

Claim 3 recites a “method of controlling a remote transmitter station to communicate program material to a subscriber station and controlling said subscriber station to process or output a unit of programming,” which Petitioner argues is met by Campbell's disclosure of controlling a remote transmitter station (i.e., cable head end station) to communicate programming material (i.e., television programming) to a subscriber station (i.e., subscriber converter box) and controlling the subscriber converter box to output television programming. Pet. 55–56 (citing Ex. 1001 ¶¶ 206–207; Ex. 1044, 4:24–33, 5:2–4, 7:21–25, 2:68–3:4).

Petitioner argues that the claimed “receiving a control signal which operates at the remote transmitter station to control the communication of a unit of programming and one or more first instruct signals and communicating said control signal to said remote transmitter station” is met by Campbell’s disclosure of receiving a control signal (i.e., pay-per-view programming request) which operates at the cable head end to control the communication of television programming and a first instruct signal (i.e., event enable word 220) and communicating the pay-per-view programming request to the cable head end. *Id.* at 56–57 (citing Ex. 1001 ¶¶ 208–210; Ex. 1044, 17:42–64, 12:26–33, 12:58–64, 13:61–14:8, 14:67–15:65).

Specifically, Petitioner asserts that, in a two-way interactive embodiment of Campbell, a subscriber requests access to pay-per-view programming via the keyboard of his converter, and the converter sends the request to a data control system at the head end. *Id.* at 56 (citing Ex. 1044, 17:42–64). According to Petitioner, access to pay-per-view programming in Campbell is enabled by event enable word 220, which is an instruct signal transmitted between the data control system and the converter. *Id.* at 56–57 (citing Ex. 1044, 12:26–33, 12:58–64, 13:61–14:8, 14:67–15:65).

Regarding the claim limitation “receiving a code or datum identifying a unit of programming to be transmitted by the remote transmitter station, said remote transmitter station transferring said unit of programming to a transmitter,” Petitioner contends that Campbell suggests receiving a code or datum (i.e., program identification code 204) identifying a unit of television programming to be transmitted by the cable head end, said cable head end transferring said unit of television programming to a transmitter (i.e., head end signal combiner). Pet. 57–58 (citing Ex. 1001 ¶¶ 211–214; Ex. 1044,

13:1–14, 4:64–5:4, 7:21–25, Figs. 1–3). According to Petitioner, in Campbell, a programming control system (PCS) generates codes, including program identification code 204, that identify the program to the converter at the user station. *Id.* at 57 (citing Ex. 1044, 13:1–14). Petitioner argues that it would have been obvious to one of ordinary skill in the art to modify Campbell “such that the functions of the PCS are performed at the ‘remote computer’ described by Campbell.” *Id.* at 57–58 (citing Ex. 1001 ¶ 214). In particular, Petitioner asserts that Campbell’s remote computer is connected to the head end station via a two way link for various control functions, and that a person of ordinary skill in the art would have been motivated to modify Campbell in order to “allow for the system operator to control various geographically distinct head end stations from a single central location.” *Id.* at 58 (citing Ex. 1044, 5:2–4, 7:21–25, Figs. 1–3; Ex. 1001 ¶¶ 211–214). Modifying Campbell in this way, Petitioner asserts, would result in program identification code 204 being transmitted via the two-way communication link and received at the head end station. *Id.* (citing Ex. 1001 ¶¶ 211–214).

With respect to the claimed “receiving at said remote transmitter station one or more second instruct signals which operate at the subscriber station to identify and decrypt said unit of programming or said one or more first instruct signals, said remote transmitter station transferring said one or more second instruct signals to said transmitter,” Petitioner argues that Campbell suggests receiving at the cable head end a second instruct signal (i.e., channel word 200) which operates at the head end to identify and decrypt said unit of television programming, the head end transferring channel word 200 to the head end signal combiner. Pet. 58–59 (citing

Ex. 1001 ¶¶ 213–217; Ex. 1044, 4:24–5:4, 5:42–51, 13:1–24, 14:67–15:65, Figs. 11–12). Specifically, Petitioner asserts that Campbell’s PCS generates channel control word 200, which is an instruct signal combined with television programming and sent to head end signal combiner 20 for transmission to subscribers. *Id.* at 58 (citing Ex. 1044, 4:24–5:4, 5:42–51, 13:1–7). According to Petitioner, Campbell’s channel control word 200 includes various codes, including program identification code 204, that identify the program to the converter at each user station. *Id.* at 59 (citing Ex. 1044, 13:1–24, 14:67–15:65, Figs. 11–12). Petitioner reasserts that a person of ordinary skill in the art would have found it obvious to modify Campbell such that the functions of the PCS would be performed at the remote computer and channel control word 200 is transmitted via the two-way communication link and received at the head end station. *Id.* (citing 1001 ¶¶ 213–214, 217).

Finally, Petitioner argues that the claimed “transmitting from said remote transmitter station an information transmission comprising said unit of programming, said one or more first instruct signals, and said one or more second instruct signals, said one or more first instruct signals being transmitted in accordance with said control signal” is met by Campbell’s disclosure of transmitting television programming, event enable word 220, and channel control word 200 from the cable head end station to remote subscribers, the event enable word 220 being transmitted in accordance with the pay-per-view programming request. Pet. 59–60 (citing Ex. 1001 ¶¶ 218–219, 208–210; Ex. 1044, 4:24–45, 2:53–58, 4:64–5:4).

In the Institution Decision, we weighed the evidence and arguments put forth by Petitioner and Patent Owner and determined that Petitioner

established a reasonable likelihood of prevailing in showing that claim 3 is obvious over Campbell. Dec. to Inst. 57. Considering Patent Owner's arguments (PO Resp. 48–57) and Petitioner's reply (Pet. Reply 24–27), we determine that Petitioner has shown by a preponderance of the evidence that claim 3 is unpatentable as being obvious over Campbell. The specific arguments of the parties are discussed below.

Patent Owner argues that the claim limitation “decrypt[ing] said unit of programming or said one or more first instruct signals” is not met because Campbell involves scrambling and descrambling, but not decryption. PO Resp. 49 (citing Ex. 2023 ¶¶ 227–231; Ex. 1044, 2:64–66, 5:31–35, 7:51–57, 10:37–41, 21:22–26). As discussed above with, we have determined that “decrypting” encompasses descrambling. Thus, we are persuaded that Petitioner establishes sufficiently that Campbell discloses the claimed “decrypt[ion].”

Patent Owner also argues that, in Campbell, neither the channel control word 200 nor the program identification code 204 is received at the head end station and that, rather, they are generated at the head end station by the station's PCS. PO Resp. 49–51 (citing Ex. 2023 ¶¶ 233–235, 237–239; Ex. 1044, 13:9–14, 14:1–9, 15:37–40, 17:50–61). As discussed above, Petitioner's proposal to modify Campbell to perform functions of the PCS at the remote computer provides for both the program identification code 204 and the channel control word 200 to be transmitted via the two-way communication link and received at the head end station. *See* Pet. 58–59 (citing Ex. 1001 ¶¶ 211–214, 217).

Patent Owner also argues that in Campbell, a pay-per-view request cannot cause an event enable word to be transmitted because the special

event and pay-per-view features are entirely distinct, the special event access is provided well in advance and requires additional access clearance. PO Resp. 49–50 (citing Ex. 1044, 14:1–9, 15:37–40, 17:50–53). Petitioner responds that the features in Campbell are similar, and that in either implementation, “the mechanism by which the data control system ‘allows’ a particular program is the ‘program enable code’ of the “event enable word.” Pet. Reply 24–25 (citing Ex. 1044, 12:26–33, 13:61–68, 17:50–53, Fig. 12; Ex. 1001 ¶ 210; Ex. 1051, 102:21–103:2, 103:20–104:7). We agree with Petitioner.

We determine that Campbell teaches or suggests that the pay-per-view function includes transmission of event enable word 220. *See* Ex. 1001 ¶¶ 208–210, 218. Even if the transmission of event enable word is only sent to provide special event access, in Campbell, it would have been an obvious variation to provide enable code or word for pay-per-view programs.

Patent Owner contends that Petitioner’s proposed modification of Campbell is based on hindsight. Prelim. Resp. 52–54 (citing Ex. 2023 ¶¶ 236, 241–252). Specifically, Patent Owner argues that one of ordinary skill in the art would not have been motivated to modify Campbell in order to control geographically distinct head end stations from a central location, as Petitioner asserts, because Campbell’s system already allows the remote computer to control the head-end stations. *Id.*

As Petitioner counters, Patent Owner’s argument considers only the limited remote control capability disclosed in Campbell and fails to consider to the improved capability provided by the proposed modification, which “would allow for the system operator to control various geographically

distinct head end stations from a single location.” Pet. Reply 26 (citing Pet. 58; Ex. 1001 ¶ 214). According to Mr. Wechselberger:

one of ordinary skill in the art would have been motivated to perform such control fu[nc]tions from a remote computer to control multiple, geographically spread out head end stations from a central control location. As such it would have been obvious to receive program codes, including program identification code 204 from a remote computer at head end station 11.

Ex. 1001 ¶ 214.

We are unpersuaded by Patent Owner that Petitioner’s proposed modification of Campbell to transmit the program identification code 204 and channel control word 200 from the remote computer to the head end station would not yield any additional benefit of centralized remote control as described by Petitioner.

Patent Owner further argues that modifying Campbell in Petitioner’s alleged manner is impractical and would render the system inoperable. PO Resp. 54–55 (citing Ex. 2023 ¶¶ 247–248; Ex. 1044, Figs. 2, 10, 7:35–8:1, 19:29–34). Specifically, Patent Owner argues that “it is the head-end, not the remote computer, that receives pay-per-view [requests],” and that moving the functionality of the PCS from the head end to the remote computer would not allow “the PCS to know what programs are being requested by each receiver.” *Id.* (emphasis omitted).

Petitioner argues sufficiently, however, that one of ordinary skill in the art would have been able to modify Campbell’s system in such a way that pay-per-view requests would be properly received and processed while program identification code 204 and channel control word 200 were generated at the remote computer. *See* Pet. 58–59. Furthermore, Patent

Owner contends that “moving the PCS to a remote location” is “impractical and inefficient, if not impossible,” because it would require a single PCS to handle all subscribers in an entire, national system. *Id.* at. 47 (citing Ex. 1044, 12:61–14:4; Ex. 2001 ¶ 149). We are unpersuaded by Patent Owner’s assertion that modifying Campbell necessarily results in a single, entire PCS at the remote computer, because Petitioner’s proposed modifications focus on moving the PCS functions of generating program identification code 204 and generating channel control word 200, not the entire PCS, to the remote computer. *See* Pet. 57–59.

Patent Owner also argues that a person of ordinary skill in the art would not have been motivated to modify the system as alleged because doing so “would run counter to Campbell’s express goals and architecture.” PO Resp. 55–57 (citing Ex. 2023 ¶¶ 249–252; Ex. 1044, 1:55–57, 2:9–13, 12:61–14:4). We agree, however, with Petitioner that those arguments assume modifications not proposed in the Petition. Pet. Reply (citing Ex. 1053 ¶ 14).

Accordingly, as discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner’s contention that Campbell render claim 3 obvious. Accordingly, in light of the foregoing and our analysis of secondary considerations discussed below, we determine Petitioner has shown by a preponderance of evidence that claim 3 is obvious in view of Campbell.

H. Secondary Considerations

As Petitioner argues, Patent Owner fails to show a nexus to its alleged secondary considerations of non-obviousness: “None of the purported

‘evidence’ specifically relates to the ‘635 Patent, let alone the instituted claims.” Pet. Reply 27. By way of example, Patent Owner does not put its licenses in evidence or tie a challenged claim in the ‘635 Patent to any single one of them. *See* PO Resp. 64. Patent Owner alleges it “has received professional acclaim and industry recognition of its inventions.” *Id.* Again, Patent Owner does not even allege a nexus to challenged claims in the ‘635 Patent. Similar remarks apply to Patent’s allegation of citations to the ‘635 patent family. *Id.*; *see Therasense, Inc. v. Becton, Dickinson and Co.*, 593 F.3d 1289, 1299 (Fed. Cir. 2010) (“Abbott is incorrect in contending that it was entitled to the presumption of a nexus. This is not a situation where the success of a product can be attributed to a single patent, because Abbott’s Exactech product embodied at least two patents”) (emphasis added).

The proffered evidence of secondary considerations only would be relevant to the claims instituted on obviousness grounds and not an anticipation challenge, namely, claims 3 and 33. Patent Owner does not cite to anything in its secondary considerations that relates to showing the unobviousness of these claims. To the extent relevant, we incorporate by reference our similar findings from a related case, wherein Patent Owner presented the same or similar evidence with respect to a different patent and different patent claims. *See* Ex. 1037, 45–54. Even if some loose nexus exists, considering the evidence as a whole, including the anticipation and obviousness discussions above and Patent Owner’s arguments regarding secondary considerations, we conclude Petitioner has shown by a preponderance of evidence that challenged claims 3 and 33 would have been obvious.

III. MOTION TO AMEND

Patent Owner moves to amend the claims on a contingent basis, with consideration of the new claims only in the event we determine the challenged claims are unpatentable. Mot. Amend 1. Patent Owner proposes eight new claims, namely claims 41–48, based on the number of originally challenged claims. *Id.* As noted above, we have dismissed consideration of claims 4, 7, and 13 of the '635 Patent in the instant proceeding based on a final written decision issued after the filing of the Motion to Amend. *See Apple, Inc. v. Personalized Media Comm. LLC*, IPR2016-00754, slip op. at 72 (PTAB Sept. 19, 2017) (Paper 41). We also note that we considered substitute claims with respect to issued claims 4, 7, and 13, in that proceeding, but ultimately denied the motion to amend with respect to those substitute claims based on a lack of written description support and patentability over the prior art of record. *Id.* at 65, 71. Because of this, proposed claims 42, 43, and 44, proposed as substitutes for claims 4, 7, and 13, are not considered herein.⁶ As such, we consider Patent Owner's Motion to Amend claims 3, 18, 20, 32, and 33, through new claims 41 and 45–48, only.

Petitioner opposes the Motion (Opp. 1–25), to which Patent Owner replies (PO Reply 1–12) in support of its Motion, and Petitioner provides further opposition (Sur-Reply 1–10). *See also* Paper 16, Claim Appendix ("Claim App'x") (claim listing of proposed new claims for the Motion to

⁶ As noted above, both parties agreed at oral hearing that claims 4, 7, and 13 should be dismissed from the instant proceeding, and those claims were not discussed during that oral hearing. *See* Tr. 3–6.

Amend).

A. Procedural Requirements

A motion to amend must meet the statutory requirements of 35 U.S.C. § 326(d) (i.e., propose a reasonable number of substitute claims, and propose substitute claims that do not enlarge scope of the original claims of the patent or introduce new matter). In addition, a patent owner must meet the regulatory requirements for a motion to amend under 37 C.F.R. § 42.121 or § 42.221, as applicable.

The U.S. Court of Appeals for the Federal Circuit ruled on motion to amend practice in post-grant proceedings, determining that the patentability of proposed substitute claims should be made without placing the burden of persuasion on the patent owner. *See Aqua Products, Inc. v. Matal*, 872 F.3d 1290, 1296 (Fed. Cir. 2017). Although the consensus of the *en banc* Court was narrow and included multiple opinions, most of those opinions addressed the procedural requirements that patent owners must fulfill to have a motion to amend be considered by the Board.

[W]e believe that the only reasonable reading of the burden imposed on the movant in § 316(d) is that the patent owner must satisfy the Board that the statutory criteria in § 316(d)(1)(a)–(b) and § 316(d)(3) are met and that any reasonable procedural obligations imposed by the Director are satisfied before the amendment is entered into the IPR.

Id. at 1305–1306. “There is no disagreement that the patent owner bears a burden of production in accordance 35 U.S.C. § 316(d). Indeed, the Patent Office has adopted regulations that address what a patent owner must submit in moving to amend the patent.” *Id.* at 1341. “[C]ertain PTO regulations imposing burdens of production on the patent owner are undisturbed and

therefore applicable on remand in this case.” *Id.* at 1342. “The statute delegates rulemaking authority to the Patent and Trademark Office for the conduct of inter partes reviews generally, and to set procedures for the amendment of claims specifically.” *Id.* at 1358.

In light of the *Aqua Products* decision, as discussed in Guidance recently provided by the Chief Judge, the Board will not place the burden of persuasion on a patent owner with respect to the patentability of substitute claims presented in a motion to amend. *See* “Guidance on Motions to Amend in view of Aqua Products” (Nov. 21, 2017) (https://www.uspto.gov/sites/default/files/documents/guidance_on_motions_to_amend_11_2017.pdf) (“Guidance”). As also explained in the Guidance, and noted above, a motion to amend still must meet the statutory requirements of 35 U.S.C. § 316(d) and the procedural requirements of 37 C.F.R. § 42.121 or § 42.221, as applicable. *Id.*

Accordingly, we base our decision on the substitute claims provided in the Motion to Amend on the entirety of the record before us. Petitioner’s arguments regarding the patentability of the substitute or new claims, as well as Patent Owner’s Reply thereto, are considered below, after consideration of the procedural requirements of Rule 121 and 35 U.S.C. § 326(d).

B. Nature of Substitute Claims

Patent Owner proposes substitute claims 41 and 45–48 in its Motion to Amend, with all of those claims being independent. *See* Claim App’x. Patent Owner characterizes the substitute claims as retaining all of the limitations of the original claims and further requiring: “(1) the encrypted content is digital; (2) unique digital data is received and decrypted by the

receiver station, and then communicated to a remote site; and (3) encrypted content is decrypted, and then customized based on subscriber specific digital data that is stored at the receiver station prior in time to receipt of the encrypted content.” Mot. Amend 2. Patent Owner also indicates that the substitute claims are responsive to a ground of unpatentability involved in the proceeding. *Id.* at 3.

Patent Owner “adopts the Board’s claim construction set forth in the Institution Decision for the purposes of this Motion only,” and seeks to clarify further limitations relevant to the substitute claims. *Id.* at 3–4. Given our evaluation of the substitute claims, we do not find it necessary to address Patent Owner’s clarification of claim terms as those claim terms appear only in claims 45–48.

For the reasons discussed below, upon review of the Motion to Amend, Patent Owner has not met all of the requirements of 37 C.F.R. § 42.121 of substitute claims 45–48. Although we determine that substitute claim 41 meets the requirements of 37 C.F.R. § 42.121, we are not persuaded that the patentability of substitute claim 41 over the prior art of record has been demonstrated.

C. Evaluation of the Substitute Claims

a. Written Description and Enablement Support for the Proposed Substitute Claims

A motion to amend claims must identify clearly the written description support for each proposed substitute claim. 37 C.F.R. § 42.121(b); *see also* 35 U.S.C. 316 (d) (an “amendment” may not introduce “new matter”). 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. In other words, it is inadequate to show written description support for just the claim feature added by the proposed substitute claim. The motion must 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*, IPR2012-00005, slip op. at 4 (PTAB June 3, 2013) (Paper 27).

In the Motion to Amend, Patent Owner asserts that the substitute claims find support under 35 U.S.C. § 112 “by the methodology described in the ’413 application.” Mot. Amend 8–15 (citing Appendix B (with a claim chart providing correspondence between elements of substitute claims and the ’413 application (Ex. 2208))). We note that all of the proposed, substitute claims, save one (claim 41, proposed as a substitute for claim 3), recite, in part, a digital information transmission “*unaccompanied by any non-digital information transmission.*”

Patent Owner’s Motion to Amend appears to point to the “Exotic Meals of India” portion of the ’413 application with respect to this limitation, also, referring to the declarations of Drs. Dorney and Weaver in support of the Motion to Amend (Exs. 2223, 2213). *See* Mot. Amend 2, 10–11, 14–15. Patent Owner asserts that Figure 7F encompasses channels that are all digital, with an “ITS transmit[ting] a digital message (comprising, for example, a news article on AT&T) on a digital data channel [] of the multi-channel cable transmission shown in Fig. 7F.” *Id.* at 14 (citing Ex. 2208, 421:18–22, 422:4–22). Patent Owner continues that “the ’413 application discloses, a ‘television frequency’ is used for the digital transmission, but the signals in the channel of the ‘television frequency’ have neither TV

(conventional or digital) signals, nor any other non-digital information.” *Id.* at 15 (citing Ex. 2208, 423:11–26).

In response, Petitioner argues that the “Exotic Meals of India” embodiment does not illustrate the subject limitation, i.e., “receiving [at least one/one or more] encrypted digital information transmission[s] ... unaccompanied by any non-digital information transmission.” Opp. 15. Rather, Petitioner argues, the disclosure of the digital channel “comes from an entirely unrelated embodiment, which describes the transmission of ‘news service’ information on ‘digital channels A and B.’” *Id.* (citing Ex. 1053 ¶ 34). Similar to the arguments discussed above, in Section II.A.2, the message is embedded in a second particular transmission that is different from the transmission of the “Exotic Meals of India” programming, but the application does not describe this different transmission as digital data channels A and B. *Id.* at 15–16 (citing Ex. 1053 ¶ 35; Ex. 2208, 476:34–477:29, 469:3–6, Fig. 7F).

Responding to Petitioner, Patent Owner argues that the same cable converter box 222, disclosed as outputting “one digital data channel,” appears in Figure 7F, and outputs to digital decryptor 224 that decrypts the digital second message, such that the output from converter 222 in Figure 7F must be a digital data channel. PO Reply 7 (citing Ex. 2208 Figs. 7C, 7F; Ex. 2223 ¶¶ 83–88). Petitioner replies that Patent Owner’s argument “relies on a false premise,” i.e., that the “all signal decoder” can only receive digital signals. Sur-Reply 6. Petitioner continues that the “413 Application describes that the purpose of the all signal decoder is to receive analog transmissions, such as television and radio, and to detect and extract digital signals embedded therein.” *Id.* at 6–7 (citing Ex. 2208, 316:19–317:1,

19:18–28, 36:1–14). Upon review of the parties’ arguments, we agree with Petitioner’s arguments.

Whether a patent claim satisfies the written description requirement of 35 U.S.C. § 112, first paragraph, depends on whether the description clearly allows persons of ordinary skill in the art to recognize that the inventor invented what is claimed. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562–63 (Fed. Cir. 1991). In view of the plain language of the claim limitation in question, “unaccompanied by any non-digital information transmission,” we determine that the “digital information transmission,” or equivalent, must not include any non-digital information therein. In substitute claims 45–48, this limitation is recited as a “negative” limitation, i.e., by what should not be included. The Federal Circuit has determined that simply describing alternative features without articulating advantages or disadvantages of each feature can support a negative limitation. *Inphi corp. v. Netlist, Inc.*, 805 F.3d 1350, 1356–57 (Fed. Cir. 2015). Therefore, to provide written description support, Patent Owner set forth those alternatives for the substitute claims. We determine that the entirety of the record fails to establish proper written description support for certain claims, as discussed below.

As discussed above, the portion of the ’413 application relied upon by Patent Owner as disclosing “receiving [at least one/one or more] encrypted digital information transmission[s] ... unaccompanied by any non-digital information transmission” is not supportive. The ’413 application describes that the purpose of the all signal decoder is to receive analog transmissions, such as television and radio, and to detect and extract digital signals embedded therein. *See* Ex. 2208, 316:19–317:1, 19:18–28, 36:1–14. The

fact that the decoder *outputs* an all-digital signal does not support claims 45–48, where those claims recite “*receiving* at least one encrypted digital information transmission.”

We can find nothing in the ’413 application that addresses alternative features that demonstrate that the inventors would have considered digital information transmission that expressly excluded non-digital information. We note further that disclosures that a transmission includes digital information would not necessarily be the same as forbidding non-digital information. As such, we are not persuaded that Patent Owner has demonstrated that substitute claims 45–48 have proper written description support.

As to claim 41, proposed as a substitute for claim 3, we conclude that Patent Owner has demonstrated that the claim has proper written description support. Our review of Appendix B of the Patent Owner’s Contingent Motion to Amend for substitute claim 41 (Paper 16, B7–B18) illustrates that Patent Owner has demonstrated sufficiently that claim 41 has proper written description support in the ’413 application. We acknowledge that Petitioner has alleged a lack of support for the “receiving” step of claim 41 and that the specific instructions relied upon for the “first instruct signal” are not transmitted by the remote transmitter station. Opp. 8–9.

Patent Owner responds persuasively that claim 41 requires communicating to said remote transmitter station, which is supported by the ’413 application. PO Reply 3–4 (citing Ex. 2223 ¶ 33). Patent Owner also responds persuasively that the message incorporates the signal, such that the ITS both receives and transmits the signal. *Id.* at 4 (citing Ex. 2223 ¶ 39). We have reviewed the counter-arguments in Petitioner’s Sur-Reply (Sur-

Reply 3–4), but we do not find them to be persuasive. Based on our review, we are persuaded that substitute claim 41 has proper written description support in the '413 application.

b. Patentability of Claim 41 in view Campbell

Based on the analysis in Section II.G.2 above, we determine that Petitioner has shown by a preponderance of evidence that claim 3 is obvious over Campbell. Claim 41 is based on claim 3, with the following additions: that the program material or programming is “digital,” and

wherein said remote transmitter station encrypts, absent any scrambling, said unit of digital programming using one of a plurality of cipher algorithms preprogrammed at said subscriber station, wherein a cipher algorithm identification transmitted by said remote transmitter station may be changed to a different one of said plurality of cipher algorithms.

Mot. Amend A-2–3. We incorporate our prior analysis herein with respect to proposed substitute claim 41.

Patent Owner argues that the prior art does not disclose these limitations. Mot. Amend 16–17. Patent Owner correctly points out that Campbell’s digital programming is either scrambled or transmitted in the clear, and is silent with respect to a cipher algorithm. *Id.* at 17 (citing Ex. 1044, 7:51–57, 8:18–38, 9:3–10). Petitioner counters that claim 41 is obvious over Campbell, to which Patent Owner counters, and to which Petitioner responds. Opp. 18–20; PO Reply 9–10; Sur-Reply 8–9.

In light of the analysis below and our analysis of secondary considerations discussed above, we determine Petitioner has shown by a preponderance of evidence that claim 41 is obvious over Campbell and

Pailen⁷.

Petitioner alleges that substitute claim 41 is obvious over Campbell, considered in the context of one of ordinary skill in the art and considered with Pailen. Opp. 18–20. Petitioner alleges that the pay-per-view capabilities of Campbell could have been used to deliver digital programming, which included “‘pay-per-listen’ digital audio.” *Id.* at 18 (citing Ex. 1060, 4; Ex. 1043, 9:46–55; Ex. 1053 ¶¶ 38–40). Petitioner also asserts that one of ordinary skill in the art would have been motivated to transmit digital video in place of analog because it would have allowed for more secure algorithms, such as DES, and would prevent signal degradation for long distance transmission. *Id.* at 19 (citing Ex. 1053 ¶¶ 40, 52–56).

With respect to the added wherein clause in claim 41, reproduced above, Petitioner argues that Pailen discloses the use of one of a plurality of cipher algorithms to encrypt/decrypt, and provides motivation to include such a capability when it discloses that extra security can be provided through further encryption “by using a selected one of a plurality of encryption algorithms, each algorithm identified by an algorithm selection number.” *Id.* at 19–20 (citing Ex. 1062, 9:41–58; Ex. 1053 ¶¶ 41–43).

Patent Owner responds that Petitioner’s analysis is “a classic case of hindsight bias. PO Reply 9 (citing *In re ActiveVideo Networks, Inc.*, 694 F.3d 1312, 1327 (Fed.Cir.2012)). Patent Owner also asserts that a computer system with a mainframe, such as in Pailen, is not synonymous with a TV system with a subscriber station, such as Campbell, with no motivation to combine the references, and that switch 52, in Pailen, prevents terminals 18

⁷ U.S. Patent No. 4,652,990, filed Oct. 27, 1983 (Ex. 1062) (“Pailen”).

from being involved in an authorization. *Id.* at 10 (citing Ex. 1062, 7:33–46, Fig. 1B). Petitioner responds that the testimony of Mr. Wechselberger detailed substantive reasons why it would have been obvious to apply the algorithms of Pailen in Campbell, which are unrebutted, and Patent Owner’s arguments “assume a hyper-literal combination of the systems of Campbell and Pailen.” Sur-Reply 8–9 (citing Ex. 1053 ¶¶ 41–43).

Upon review of substitute claim 41, the disclosures of Campbell and Pailen, the testimony of Mr. Wechselberger, and the arguments of Petitioner and Patent Owner, we are persuaded that substitute claim 41 is obvious over Campbell and Pailen. Although we do not rely specifically on the testimony of Dr. Weaver, we recall that Patent Owner has asserted that digital television and digital video were “already developed and tested” in the late 1970s and early 1980s. *See* Ex. 1061 ¶ 128. The extension of Campbell to digital television circa 1987, i.e., the filing date of the ’413 application, would have been more likely than in the late 1970s and early 1980s. We find the testimony of Mr. Wechselberger to be persuasive (Ex. 1053 ¶¶ 41–43) and that one of ordinary skill in the art would have been motivated to transmit digital video in place of analog in the system of Campbell.

In addition, we are not persuaded Campbell and Pailen must be bodily incorporated into each other to create obviousness of a claim. An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418. The concepts of Pailen, namely selecting one of a plurality of cipher algorithms, could have been implemented in the system Campbell due to the benefits described in Pailen,

discussed above.

Accordingly, in light of the foregoing and our analysis of secondary considerations discussed above, we determine Petitioner has shown by a preponderance of evidence that claim 41 would have been obvious in view of Campbell and Pailen. As such, we deny Patent Owner's Motion to Amend with respect to claim 41.

IV. SUMMARY

Petitioner has demonstrated, by a preponderance of the evidence, that claims 3, 18, 20, 32, and 33 of the '635 Patent are unpatentable. The entirety of the record has not demonstrated, by a preponderance of the evidence, that the Motion to Amend meets the requirements set forth in 37 C.F.R. § 42.121 with respect to substitute claims 45–48, and the entirety of the record, by a preponderance of the evidence, demonstrates that substitute claim 41 is unpatentable.

V. ORDER

Accordingly, it is

ORDERED that consideration of claims 4, 7, and 13 of the '635 Patent in the instant proceeding is *dismissed*;

ORDERED that claims 3, 18, 20, 32, and 33 of the '635 Patent are unpatentable;

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