

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

PERSONALIZED MEDIA COMMUNICATIONS LLC,
Patent Owner.

Case IPR2016-00754
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 4, 7, 13, 21, and 28–30 (“instituted claims”) of U.S. Patent No. 8,559,635 B1 (Ex. 1003, “the ’635 Patent”) are unpatentable. We also determine that Patent Owner has not met its burden on its Motion to Amend regarding entry of the proposed substitute claims, 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 1–4, 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 7 (“Prelim. Resp.”). Pursuant to 35 U.S.C. § 314(a), we instituted an *inter partes* review on four grounds: (1) Claims 1, 2, 7, 21, and 29 under 35 U.S.C. § 102 as anticipated by Guillou,¹ (2) Claims 4, 13, 28, and 30 under 35 U.S.C. § 103(a) as unpatentable in view of Guillou, (3) Claims 21 and 28–30 under 35 U.S.C. § 103(a) as unpatentable in view of Aminetzah,² and (4) Claims 1, 2, and 4 under 35 U.S.C. § 103(a) as unpatentable in view of Aminetzah and Bitzer.³ See Paper 8 (“Dec. to Inst.”), 42.

¹ US Patent No. 4,337,483, filed Jan. 31, 1980 (Ex. 1006) (“Guillou”).

² US Patent No. 4,388,643, filed Apr. 6, 1981 (Ex. 1008) (“Aminetzah”).

³ US Patent No. 3,743,767, issued July 3, 1973 (Ex. 1009) (“Bitzer”).

After institution of trial, Patent Owner then filed a Patent Owner Response (Paper 15, “PO Resp.”), to which Petitioner filed a Reply (Paper 23, “Reply”).

In addition, Patent Owner also filed a Contingent Motion to Amend (Paper 15), to which Petitioner filed an Opposition (Paper 24). Patent Owner then filed a Reply to Petitioner’s Opposition to the Contingent Motion. Paper 27.

An oral argument was held on June 6, 2017. A transcript of the oral argument is included in the record. Paper 40 (“Tr.”).

B. Additional Proceedings

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. 59. We note that Petitioner filed a second petition challenging the ’635 Patent, for which we granted partial institution on February 16, 2017. *Apple, Inc. v. Personalized Media Comm. LLC*, IPR2016-01520, slip op. at 58 (PTAB Feb. 16, 2017) (Paper 7). Petitioner also lists a number of related patents involved in district court cases and other related patents involved in *inter partes* reviews. Pet. 59.

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

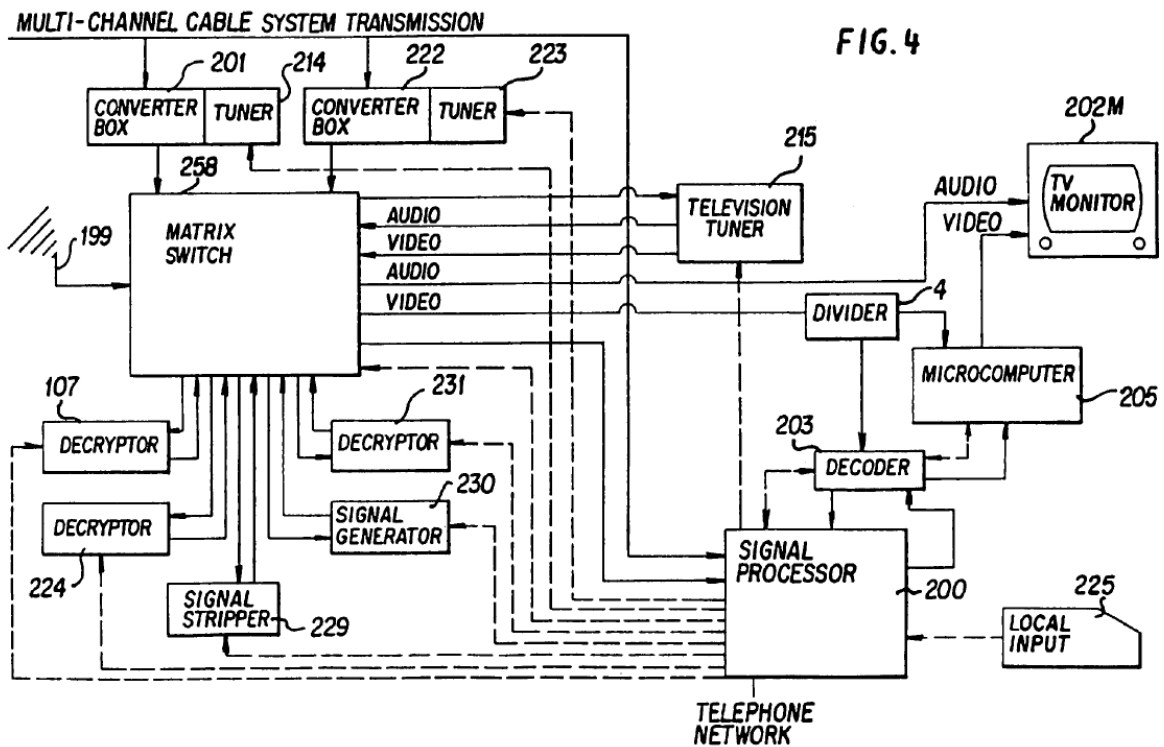
decryption of programming at a subscriber station or a receiver station.

Claim 21 is reproduced below:

- 21. A method for decryptor activation in a network comprising:
 - receiving a transmission comprising encrypted materials;
 - decrypting under first processor control a first portion of said encrypted materials in said transmission;
 - inputting said first portion of said encrypted materials to a decryptor;
 - decrypting under second processor control a second portion of said encrypted materials based on said step of decrypting said first portion of said encrypted materials.

Id. at 288:61–289:3.

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. ANALYSIS

A. Claim Construction

Consistent with the statute and the legislative history of the Leahy-Smith America Invents Act,⁴ 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.

⁴Pub. L. No. 112-29, 125 Stat. 284 (2011).

1. “*decrypt*”

Independent claims 2, 13, and 21 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; 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. 6–18 (citing Ex. 1003, 13:65–17, 16:40–45, 144:9–19, 148:11–16; 160:40–55; Ex. 1004, 3:56–60; 7:36–49, 8:35–44, 19:41–20:7, 19:57–20:2, 20:11–68; Ex. 1027, 4–5; Ex. 1035, 10–11; Ex. 1037, 10–11; Ex. 1039, 10; Ex. 2001 ¶¶ 46–71; Ex. 2003, 68–69; Ex. 2005, 53–54; Ex. 2006, 41; Ex. 2008, 70:12–23, 98:10–99:5, 135:2–8; Ex. 2009, 30; Ex. 2010, 2, n. 1; Ex. 2011 ¶¶ 16, 18–19; Ex. 2016, 1330, 1362; Ex. 2019, ¶¶ 48–53, 62–70; Ex. 2022 ¶¶ 92–94; Ex. 2023, 16–17; Ex. 2025, 16–17; Ex. 2031, 77).

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.*

Tr. 39:5–18 (emphases added).

Patent Owner also argued “we don’t even use the word ‘scrambling’ in the 1981 application.” *Id.* at 38:1–2; *accord* PO Resp. 62 (“the 1981 specification is completely devoid of any discussion of scrambling/descrambling.”). But, as the panel pointed out during the Oral Hearing, if the ’490 patent does not mention scrambling (or descrambling) anywhere, and it protects analog programming, then decrypting and encrypting must mean the same thing as descrambling and scrambling, i.e., they apply to analog programming in the context of the ’490 patent. *See id.* at 38:15–18 (“if you say you don’t have anything about descrambling in there, then you must be talking about protecting [programs] with decrypting, which is the same thing as descrambling because [the programs include] analog.”).

In other words, 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).

In response, Patent Owner contends the passage supports its view. Patent Owner explains that Petitioner, a prior Board decision, one District Court (*see* Ex. 1017, 29), and this panel, all interpret this particular disclosure out of context, because the passage refers to alternative embodiments, and “contrasts, rather than conflates, digital decryption with analog descrambling since it confirms a conventional analog television transmission *requires* conventional (analog) descramblers *instead* of digital decryptors.” PO Resp. 9–11 (citing Pet. 7; Ex. 1003, 160:40–55; Ex. 2019 ¶¶ 67–70); *but see* Ex. 1017, 29 (“*The court rejects PMC’s attempt to limit the encrypt/decrypt terms to digital data.*”) (emphasis added).

Contrary to Patent Owner’s view, the disputed passage in the ’635 Patent specifically lists descramblers as one example of a type of decryptor “without . . . departing from the spirit of the invention.” Ex. 1003, 160:44–45. The “controversial” sentence states “the decryptors, 107, 224, and 231, *may be* conventional descramblers.” Ex. 1003, 159:46–61 (emphasis added). It does not say “decryptors . . . may be replaced by . . . descramblers,” which is what Patent Owner urges. PO Resp. 10 (arguing the sentence actually means “‘conventional (analog) descramblers’ would be used in place of, or as an alternative to, the ‘decryptors, 107, 224, and 231’ if and when ‘the ‘Wall Street Week’ transmission [is] of conventional analog television’ instead of digital television programming”). As Patent

Owner recognizes, the passage lists the “Wall Street Week” conventional analog television example as using descramblers. *See* Ex. 1003, 160:40–55; PO Resp. 9–11.

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. For example, “[i]n 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).

Petitioner contends that “PMC’s argument that the ‘controversial’ sentence reflects an alternative embodiment is inconsistent with the text and presumes that ‘decrypting’ *must* include solely digital information.” Pet. Reply 2. In context, Petitioner persuasively points out “[t]he ‘controversial’ sentence is consistent with [mixed analog/digital signal embodiments], as it states that the decryptors may be conventional

descramblers ‘that descramble *analog* television transmissions and *are actuated by receiving digital key information.*’” *Id.* at 3 (quoting Ex. 1003, 160:51–55) (emphasis added). As Petitioner also persuasively points out, “[t]he specification lists changes that could be made to the example that would still fall within the spirit of the invention—such as descrambling where a device is labeled ‘decryptor.’” *Id.* at 2 (citing Ex. 1003, 160:40–161:21).

a. Past Statements by Mr. Wechselberger

Patent Owner’s contentions that Petitioner’s expert, Mr. Wechselberger, supports Patent Owner based on an article he wrote, and his prior testimony, fail to account for the fact that the ’635 Patent and ’490 patent conflate the meaning of terms as discussed above. *See* PO Resp. 15–16 (citing Ex. 2010 ¶¶ 18–20, Ex. 1027, 4–5). Furthermore, contrary to Patent Owner’s characterizations, Mr. Wechselberger’s article and prior testimony do not contradict his declaration testimony that he attempted to clarify confusion between use of the terms scrambling and encryption during the mid-1980s—the period between the filing of the ’490 patent in 1981 and the continuation-in-part application in 1987, which issued as U.S. Patent No. 4,965,825 (“’825 patent”). *See* Ex. 1001 ¶¶ 62–63 (describing confusion over the terms encryption and scrambling and addressing his 1983 article (Ex. 1027)); Ex. 2011 ¶ 18 & n.2 (noting that in 1987, “due to the evolution of the technology,” he would not be “surpris[ed]” to find scrambling used “incorrectly” in some references to refer to “hard encryption processes performed on digital signals”); Ex. 1027, 1 (“One major area of confusion lies in the technical differences between encryption and scrambling.”).

Patent Owner responds to these preliminary findings in the Institution

Decision by focusing on a statement by Mr. Wechselberger about a convention “[b]y the mid-1980s” (citing Ex. 2011 ¶ 18), and also about an understanding of scrambling in February 1987, but Patent Owner does not address the current Declaration of Mr. Wechselberger noted above (Ex. 2011 ¶ 18 & n.2), which puts the prior testimony and article statement in context. *See* PO Resp. 15–17; Dec. to Inst., 7–8 (citing Ex. 1001 ¶¶ 62–65). In the cited footnote, Mr. Wechselberger notes the incorrect use of the terms at issue and also cogently predicts the situation involved here: “However, the specific system described would typically indicate to one of skill in the art which meaning was intended.” Ex. 2011 ¶ 18 n.2.

The evidence shows the meaning of the terms to be in flux, with no established convention in 1981 existing at the time of filing of the ’490 patent, and with the “incorrect” use of “scrambling” and “encrypting” continuing up to 1987. The fact that the ’635 Patent claims CIP status back to the ’490 patent further obscures what interpretations of various claim terms carry over to the 1987 filing of the ’825 patent.

Nevertheless, if anything, the cited ’635 Patent passages and other cited passages in the ’490 patent support Mr. Wechselberger’s testimony, because they refer to the Wall Street Week television program and decrypting programming, each of which includes analog and digital information, and the Wall Street Week example specifically refers to decryptors as being descramblers activated via digital keys (as discussed above). In other words, the two patents indicate that with respect to mixed analog and digital systems, the terms encryption and scrambling, or decryption and descrambling, were being used interchangeably (including in the ’635 Patent and ’490 patent—just as Mr. Wechselberger testifies in

describing the industry during and/or prior to the mid-1980s. *See* Ex. 1001 ¶¶ 62–63; Ex. 1003, 160:40–55; Reply Br. 11–12. None of Mr. Wechselberger’s cited prior statements selected by Patent Owner relate to the context of the claims and disclosures at issue here.

Accordingly, and considering the discussion below in section b (“Prior Proceedings”) and section c (“Prosecution History”), we construe the term “decrypt” with respect to the ’635 Patent to include descrambling. *See* Ex. 1003, 160:40–55.

b. Prior Proceedings

Patent Owner also provides arguments that rely on past Board decisions and other court decisions. *See* PO Resp. 14–15 (citing Ex. 2003, 68–69; Ex. 2005, 53–54; Ex. 2010, 2, n.1; Ex. 2025, 16). Those arguments, however, fail to acknowledge that the prior decisions did not have the benefit of this record evidence, and specifically did not consider the cited passage in the ’635 Patent regarding decryptors that may be descramblers or 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 relied upon reexamination proceeding (Reexam. Control No. 90/006,563 (“’563 reexamination”)), Patentee contended (in a reply brief to the Board) that the inventor was acting as a “*lexicographer*,” so that “the inventor expressly advised the reader that by the terms ‘encryption’ and ‘decryption’ he meant 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 a BPAI appeal decision in combined reexamination proceedings (Ex. 2003, 68–69, '563 reexamination) and another District Court proceeding (Ex. 2025, 16). PO Resp. 14–15. In the '563 reexamination, Patent Owner cites to the Board's finding, *inter alia*, that encryption is "distinct from scrambling." See Ex. 2003, 68 ("interpreting a decryptor . . . more generically as a decoder is an improper broadening of the claim term"). 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.

In short, in the cited prior proceedings, neither the Board nor the

District Court discussed how the '490 patent and '635 Patent describe both decrypting of programming and decrypting signals embedded in programming, which implies decrypting programming relates to analog information. In the cited District Court case (Ex. 2025, 16), the District Court relies on the above-discussed '536 reexamination reply brief disclaimer and reasons, in part, “[i]n essence, the inventor expressly advised the reader that terms ‘encryption’ and ‘decryption’ in the patent meant something beyond conventional scrambling/descrambling.” But the phrase at issue, as discussed above, states going “beyond the conventional scrambling/descrambling relied upon by the Examiner, *such as the use of a decryption key.*” Ex. 2006, 41 (emphasis added). That decryption key goes beyond conventional scrambling, according to Patent Owner’s prior reply brief arguments.

Although some of the evidence here overlaps with the District Court proceeding (Ex. 2025), in addition to a different claim construction standard, that Court had before it different evidence and argument that did not take into account the broad nature of “programming,” and broad disclosures describing decrypting programming that include analog television with further disclosures separately describing decrypting digital information embedded in the (analog) programming (which itself is described as decrypted).

Another District Court, relying on similar evidence, reached the same conclusion as this Board panel that encryption and decryption are not limited to digital data. *See* Ex. 1017, 29 (“The court rejects PMC’s attempt to limit the encrypt/decrypt terms to digital data.”). The distinct claim terms at issue here cannot be attached to an alleged disclaimer that involves different

surrounding claim language for terms related to encryption. At a minimum, the various previous arguments show that any purported disclaimer does not satisfy the legal requirement that a disclaimer must be clear and unequivocal. *See GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (“The standards for finding lexicography and disavowal are exacting.”); *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325–26 (Fed. Cir. 2003) (“[F]or prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both clear and unmistakable.”).

c. Prosecution History

Although a brief discussion of the prosecution history occurs in the proceeding section based on Patent Owner’s arguments, in related arguments, Patent Owner maintains in a separate section of its Response that it “repeatedly and consistently confirmed during prosecution, reexamination, and litigation proceedings that the claimed ‘decrypting’ terms are limited to a digital context.” PO Resp. 12–14.

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. *See* PO Resp. 12–13 (citing Ex. 2009, 30; Ex. 2006, 41; Ex. 2031, 77). 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. 2006, 41 (Patent Owner’s reply brief in the 90/006,563 reexamination proceeding).

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). Because the prosecution history does not reveal a clear disavowal of claim scope, 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.

2. “processor”

Claim 18 recites a “processor” and claim 21 recites a “decrypting under a first processor control” and “decrypting under a second processor control.” In the Institution Decision, we preliminarily determined “a processor means ‘a device that operates on data.’” Dec. to Inst., 8–9.

Petitioner agrees with the construction. *See* Pet. Reply 7. Patent Owner disputes the construction of “processor.” PO Resp. 22–27. According to Patent Owner, “processor” should be construed according to its plain ordinary meaning as “a device that performs operations according to instructions.” *Id.* at 22 (citing 2019 ¶¶79–88). Patent Owner contends the specifications “consistently describe[] processors as devices that operate *pursuant to instructions.*” *Id.* at 23.

Petitioner contends that the '635 Patent describes a variety of processors, including hardwired devices that process data. Pet. 5 (citing Ex. 1003, 135:10–15 (decoders 30 and 40 process information), 75:49–55 (buffer/comparator 8 processes data)). The '490 patent describes “pass[ing] a signal word to signal processor, 200, which, in a predetermined fashion, signal processor, 200, decrypts and transfers to decrypt[o]r, 224, to serve as the code upon which decrypt[o]r, 224, will decrypt the incoming encrypted recipe.” Ex. 1004, 20:39–43. With respect to processor instructions, Petitioner also notes “the specification discloses that an ‘interrupt signal’ informs a control processor and causes the control processor to act in a ‘predetermined fashion.’” Pet. Reply 14 (citing Ex. 1003, 110:44–54).

Moreover, the '635 Patent states “[t]he processors and buffers can have inputs from each of the receiver/detector lines and evaluate information continuously. From the processors and buffers, the signals may be transferred” Ex. 1003, 8:54–58. This passage shows that processors often merely “evaluate information” and/or “transfer[.]” signals, tracking our preliminary claim construction. In contrast to the descriptions of various processors, the '635 Patent describes “[i]n the present invention, particular signal processing apparatus (hereinafter called the ‘*signal processor*’) detect signals, and, in accordance with instructions in the signals and pre-programming in the signal processor, decrypt and/or record and/or control station apparatus.” *Id.* at 8:34–38 (emphasis added). None of the challenged claims recite a “signal processor” that the '635 Patent appears to define in more narrow terms relative to a more general processor.

Petitioner points out that in related District Court litigation, Patent Owner previously proposed construing the term “processor” as “any device

capable of performing operations on data.” Pet. 5 (citing Ex. 1016, 12; Ex. 1018, 7–8); Pet. Reply 6 (citing same). Patent Owner responds it “did not propose a more precise construction [in prior litigation] merely because the opposing parties did not attempt to overstretch ‘processor’ beyond its common-sense meaning.” PO Resp. 27. Patent Owner’s response implies its prior proposed District Court construction of “any device capable of performing operations on data” constitutes a “common-sense meaning,” tracking the plain meaning Petitioner proposes. *See* Ex. 1016, 12; Ex. 1018, 7–8. As Petitioner notes, Patent Owner does not address, let alone dispute, our preliminary claim construction that relies upon the preliminary record to show processor instructions include control or informational signals. *See* Pet. Reply 6–7; PO Resp. 22–27.

The disclosures and extrinsic evidence of record of the ’635 Patent and the ’490 patent, including Patent Owner’s proposed District Court construction, support our preliminary construction. We also incorporate by reference a Board panel’s analysis of the construction of processor in related IPR2014-01532, which relies on the same 1987 specification in a related patent. *See* Ex. 1013, 6–8.

Accordingly, we determine that, under the broadest reasonable interpretation, “processor” means “a device that operates on data.”

B. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said

subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

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.

C. 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 ¶ 81. 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 ¶ 31.

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).

D. Asserted Anticipation and Obviousness Based on Guillou

1. Overview of Guillou

Guillou is titled “Text Video-Transmission System Provided With Means For Controlling Access To The Information” and describes a system having an information emitting center, including an encryption means using an operating key, and receiving stations, which provide a decryption means using the operating key. Ex. 1006, Abstr. Figure 7 of Guillou illustrates one embodiment of system, and is reproduced below:

station. *Id.* at 16:1–10. Guillou also discloses that “[a]s soon as a distribution centre generates a new operating key K , it calculates, for each current subscribers’ key in use C_i for this service, a message M_i by means of an algorithm $M_i = F_{C_i}(K)$, with the keys C_i acting as parameters.” *Id.* at 8:44–48.

*2. Analysis of Asserted Anticipation by Guillou and Obviousness
In View of Guillou*

In the Institution Decision, we instituted review based on Petitioner’s contentions that claims 1, 2, 7, 21, and 29 are anticipated by Guillou and that claims 4, 13, 28, and 30 would have been obvious in view of Guillou. Dec. to Inst. 42. After the filing of the Petition in this matter, Patent Owner disclaimed claims 1 and 2 of the ’635 Patent (*see* Ex. 3001, Jun 24, 2016 Disclaimer in Patent Under 37 C.F.R. § 1.321(a)); therefore, we do not provide an analysis of the patentability of claims 1 or 2, except as necessary to render a decision with respect to claims 4 and 7 that depend from claim 2.

Patent Owner disputes Petitioner’s contentions with respect to claims 7, 21, and 29, arguing that the cited reference fails to disclose all the elements required by the claims and disputes Petitioner’s contentions with respect to claims 4, 13, 28 and 30 that the cited reference fails to teach or suggest all the elements required by the claims. PO Resp. 49–63. We have reviewed the Petition, the Patent Owner’s Response, and Petitioner’s Reply, as well as the relevant evidence discussed in those papers and other record papers. We determine the record supports Petitioner’s contentions and adopt Petitioner’s contentions discussed below as our own. For reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 7, 21, and 29 are anticipated by Guillou and that claims 4, 13, 28, and 30 would have been obvious in view of Guillou.

Claims 4 and 7 are dependent from claim 2. Therefore, although Patent Owner has disclaimed claim 2, we must analyze independent claim 2 in analyzing the challenge of obviousness in view of Guillou of dependent claim 4 and anticipation by Guillou of dependent claim 7. Generally, Petitioner argues that claim 2 of the '635 Patent is virtually identical to claim 1 of '304 patent previously at issue in the *Amazon.com, Inc. v. Personalized Media Communication, LLC*, Case No. IPR2014-01532 (“the '1532 IPR”). *Id.* at 11. In the '1532 IPR, we determined Petitioner had shown claim 1 of '304 patent to be unpatentable as obvious in view of Guillou. *See Amazon.com, Inc. v. Personalized Media Communication, LLC*, Case No. IPR2014-01532, slip op. at 64 (PTAB March 29, 2016) (Paper 57) (“'1532 Final Decision”). Petitioner argues that the only element of claim 1 of '304 patent that Patent Owner previously disputed was whether Guillou disclosed two decryptors instead of the claimed single decryptor, and Petitioner argues that claim 2 in the '635 Patent here recites the use of a first and second decryptor. Pet. 11 (citing Ex. 1010, 52; Ex. 1001 ¶ 114).

Petitioner argues that Guillou discloses the method recited in claim 2 by disclosing a method for controlling the decryption of programming (i.e., teletext programming) at a subscriber station (i.e., receiving station 4), including a video transmission system that uses a “double-key” encryption scheme to control access to teletext programming at a receiver. Pet. 11 (citing Ex. 1001 ¶¶ 115, 100–102; Ex 1006, Abstract, 1:7–12, 8:15–9:12, 9:48–10:66, 15:42–16:17). Petitioner argues that the claimed “receiving programming, said programming having a first encrypted digital control signal portion and an encrypted digital information portion” is met by the disclosure of Guillou’s message M_i and encrypted teletext data D_j . Pet. 12

(citing Ex. 1001 ¶¶ 116, 103–106). Specifically, Petitioner argues that Guillou discloses that teletext data d_j is encrypted using operating key K at emitting center 2 to form encrypted teletext data D_j and operating key K is encrypted using each subscriber key C_i to form a set of encrypted messages M_i . Pet. 12 (citing Ex. 1006, 5:30–57, 8:39–48, 14:20–31, 15:42–64, Fig. 7; Ex. 1001 ¶¶ 104, 106).

Furthermore, Petitioner argues that the claimed “detecting said first encrypted digital control signal portion of said programming” is met by the disclosure of Guillou’s of video-data separator 142, selection circuit 143, and decoding circuit 145 detecting and extracting encrypted message M_i and encrypted teletext data D_j . Pet. 12 (citing Ex. 1006, 15:64–16:10, 19:4–15, 19:55–20:17, 20:42–52, Fig. 9; Ex. 1001 ¶¶ 107–108). Petitioner argues that the claimed “passing said first encrypted digital control signal portion of said programming to a first decryptor at said subscriber station” is met by Guillou’s disclosure of passing encrypted message M_i to a first decryptor, K restoring circuit 110 at the subscriber station. Pet. 13 (citing Ex. 1006, 15:64–16:10, 19:55–20:17, 20:40–52, Fig. 10; Ex. 1001 ¶ 109). Petitioner also argues that the claimed “decrypting said first encrypted digital control signal portion of said programming using said first decryptor at said subscriber station,” is met by Guillou’s disclosure that K restoring circuit 110 decrypts the appropriate message M_i using the subscriber’s key C_i to restore operating key K . Pet. 13–14 (citing Ex. 1006, 15:64–16:10, 20:53–21:14, Fig. 10; Ex. 1001 ¶ 110).

Petitioner relies upon Guillou’s disclosure of passing the encrypted teletext data D_j and the operating key K to the second decryptor, including decoding octet generator 26’, discriminator 42, and XOR gate 46 for the

limitation of “passing said encrypted digital information portion of said programming and the decrypted control signal portion to a second decryptor at said subscriber station” recited in claim 2. Pet. 14 (citing Ex. 1006 10:41–56, 20:29–39, Fig. 10; Ex. 1001 ¶¶ 120–121). Petitioner argues that the second decryptor in Guillou, including decoding octet generator 26’, discriminator 42, and XOR gate 46, performs the claimed step of “decrypting said encrypted digital information portion of said programming using said second decryptor.” Pet. 15 (citing Ex. 1006, 10:41–56, 20:29–39, Fig. 10; Ex. 1001 ¶¶ 122, 111–112). Finally, Petitioner argues that Guillou’s disclosure regarding presenting the teletext to the subscriber via display means 20 meets the claimed limitation of “presenting said programming.” Pet. 16 (citing Ex. 1006, 1:7–12, 18:61–19:3, Fig. 7; Ex. 1001 ¶¶ 123, 113).

a. Alleged Obviousness of Claim 4

Claim 4 depends from claim 2 and further requires “said programming further includes encrypted video,” which Petitioner argues is taught by the disclosure in Guillou of a “video-transmission” system with encrypted teletext programming that includes text and simple graphics that may be non-static. Pet. 16 (citing Ex. 1006, 1:7–62; Ex. 1001 ¶ 141). Patent Owner argues that a person of ordinary skill in the art would have understood “encrypted video” recited in claim 4 to exclude teletext and would recognize “video” to be distinct from static text and images. PO Resp. 19. Petitioner counters that “video” is any information that is visually perceivable including the display of static pictures. Pet. Reply 5 (citing Ex. 2028, 10–12; Ex. 1003, 278:21–24, 258:16–19, 13:38–52, 188:17–18, 249:53–56). During oral argument, Petitioner argued that a single image can qualify as video. Tr. 14:24–25 (“JUDGE WARD: So one image qualifies as video.

MR. SERNEL: I think arguably it would.”). We do not agree with Petitioner’s position that the display of a static image constitutes “video”; otherwise, there would be no difference in an image and video. We determine that video requires moving visuals. In its Preliminary Response, Patent Owner stated that video shows movement and changes within an image. Prelim. Resp. 60 (citing Ex. 2001 ¶ 122). Petitioner’s Declarant Mr. Wechselberger seems to agree as he describes that “[s]uccessive frames of text and/or graphics presented on the display means 20 constitutes video.” Ex. 1001 ¶ 141. We determine that the broadest reasonable construction of the term “video” recited in claim 4 of the ’635 Patent means “visually perceivable non-static imagery.”

Patent Owner argues that Guillou does not render claim 4 obvious because Guillou’s disclosure of teletext is not video but textual data. PO Resp. 56. Petitioner counters that “encrypted video” does not exclude teletext because even Guillou itself refers to the teletext system as a “video-transmission system.” Pet. Reply 9 (citing Ex. 1006, Title, Abstract, 1:7–12). Specifically, Guillou discloses a “Text Video-Transmission System Provided with Means for Controlling Access to the Information.” Ex. 1006, Title. Furthermore, Petitioner relies upon Mr. Wechselberger’s testimony that it “well known that teletext programming included text and/or graphics used to generate visuals, *which may be non-static*, for a variety of programming, including news programs, weather services, educational programs.” Ex. 1001 ¶¶ 43, 141 (emphasis added) (citing (Ex. 1021, 17-18 (discussing the PRESTEL teletext system); Ex. 1022, 3 (discussing the ANTIOPE teletext system); Ex. 1026, 3). Accordingly, we determine that

Guillou's disclosure of encrypted teletext programming teaches or suggests that the programming may include non-static imagery.

Patent Owner argues that claim 2 requires "receiving programming" and claim 4 requires that what is received in the programming is video, "not simply any data that when displayed, depicts movement." PO Resp. 56. Patent Owner further argues that the alleged programming received at Guillou's receiver station is static, teletext data, not video data because a person of ordinary skill in the art "would recognize that teletext, as the name implies, is textual data, not a video." *Id.* As stated above, we are not persuaded by Patent Owner arguments that non-static visuals generated with teletext do not constitute video as recited in claim 4. Furthermore, receiving encrypted programming including the teletext data is programming including encrypted video. Accordingly, we are not persuaded by Patent Owner's argument that what is received by the receiver station in Guillou does not constitute video.

As discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner's contention that Guillou teaches or suggests each limitation of claim 4. 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 4 would have been obvious in view of Guillou.

b. Alleged Anticipation of Claim 7

Claim 7 depends from claim 2 and further requires "said subscriber station detects, in a transmission channel including said programming, a second control signal portion used to decrypt the first control signal

portion.” For this claim, Petitioner relies upon the disclosure in Guillou that the access control page line number or subscription index is used to decrypt the first control signal portion (encrypted messages M_i). Pet 16–17 (Ex. 1001 ¶¶ 144–146). Specifically, Petitioner argues that within Guillou’s access control page, that groups messages M_i , each access block is preceded by a line or number or subscription index, which is detected in the transmission channel with the programming. *Id.* at 17 (Ex. 1006, 8:55–65, 17:48–68, 20:40–52; Ex. 1001 ¶ 146).

In the Institution Decision, we noted Mr. Wechselberger’s testimony that, in the access control page, each access block is preceded with a line number and the line number is used to extract the appropriate message M_i for a particular subscriber station. Dec. to Inst. 21 (citing Ex. 1001 ¶ 146; Ex. 1006, 17:48–68, 20:40–52). Patent Owner argues that claim 7 requires that the second control portion is “used to decrypt” not used to extract; thus, even if Guillou’s receiver station uses the line number to retrieve a message M_i from the access control page, Petitioner has failed to demonstrate that the line number is used to decrypt the first control signal portion [the message M_i]. Patent Owner further argues that the line number/subscription index is not an input to K-restoring circuit 110 but instead circuit 110 decrypts M_i using a subscriber key C_i . PO Resp. 50–51.

Petitioner counters by noting that Patent Owner’s argument suggests the line number/subscription index must be a *direct* input to K restoring circuit 110, while claim 7 merely requires that the second control portion be “*used to decrypt* the first control signal portion.” Pet. Reply 10 (emphasis added). Petitioner argues that the line number/subscription index is used to identify and extract message M_i for decryption by K-restoring circuit 110

and, thus, it is “*used to*” decrypt encrypted message M_i . *Id.* We are persuaded by Petitioner’s contentions and determine that Patent Owner’s arguments are not commensurate with the scope of claim 7, which recites “a second control signal portion *used to* decrypt the first control signal portion.” Patent Owner’s expert, Dr. Weaver, agreed during his deposition that the line number/subscription index was necessary for the decryption of message . Ex. 1054, 134:6–12 (“Q[:] Without knowing the subscription index, the system doesn't know which M sub I to use in the subsequent operations; correct? A[:] It does have to know the subscription index for this to operate correctly.”).

As discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner’s contention that Guillou discloses each limitation of claim 7. 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 7 is anticipated by Guillou.

c. Alleged Obviousness of Claim 13

Independent claim 13 is similar to claim 2 and Petitioner relies upon many of the same teachings from Guillou relied upon with respect to claim 2 as teaching the limitations of claim 13. Pet. 22–26. Claim 13 recites “decrypting a second of said plurality of signals on the basis of said changed decryption technique, wherein said decrypted second of said plurality of signals is embedded with *executable instructions*” (emphasis added). For this claim limitation, Petitioner argues that “[e]ach individual data octet d_j (byte) of the decrypted teletext data is an instruction that is executed by character generator 148 to present the decrypted data on display means 20.”

Pet. 24–25 (citing Ex. 1006, 10:51–56, 19:17–21, Fig. 9; Ex. 1001 ¶ 157). Claim 13 further recites “controlling said controllable device on the basis of said embedded executable instructions.” Petitioner argues that this limitation is taught or suggested by Guillou’s disclosure of character generator 148 that is controlled by individual data octets of the decrypted teletext data because individual data octets d_j instructs character generator 148 to stimulate inputs R_2 , V_2 , and V_2 to display means 20 to present the decrypted data. Pet. 26 (Ex. 1006, 10:51–56, 19:17–21, Fig. 9; Ex. 1001 ¶ 165).

Patent Owner argues that the “executable instructions” recited in claim 13 should be construed as “instructions of a *computer program* that cause a *computer* to carry out operations *on the computer* according to the instructions.” PO Resp. 27 (emphasis added). Petitioner disagrees and argues that nothing in the language of claim 13 limits the controllable device to a programmable computer that runs computer programs, as required by Patent Owner’s construction. Pet. Reply 8. We agree. Claim 13 simply recites “controlling said controllable device on the basis of said embedded executable instructions” and fails to identify a “a computer to carry out operations” or a “computer program” as set forth in Patent Owner’s proposed construction. Accordingly, we decline to read such limitations into the term “executable instructions.” Petitioner argues that the term “executable instructions” in claim 13 should be given its plain and ordinary meaning, and we agree. Accordingly, we determine the broadest reasonable interpretation of “executable instructions,” as recited in claim 13, means “instructions capable of being executed.”

In asserting that Guillou does not teach or suggest “executable instructions,” Patent Owner argues that the individual data octets d_j disclosed in Guillou are not executable instructions because they do not cause the character generator to carry out operations on a computer according to instructions. PO Resp. 57 (citing Ex. 2001 ¶ 138). More particularly, Patent Owner argues that Guillou discloses that the data octets represent information constituting the service being broadcast and the information element in the system of this kind is the displayable line. *Id.* at 57–58 (citing Ex. 1006, 3:58–61). Thus, Patent Owner argues that Guillou’s character generator converts the data, but the octets do not control the character generator to carry out operations according to the data octets. *Id.* at 58 (citing Ex. 2019 ¶ 209).

We disagree with Patent Owner’s argument. As Mr. Wechselberger testifies, “Guillou explains that the octets d_j are instructions to the character generator.” Ex. 1055 ¶ 3 (citing Ex. 1006, 19:18–21). Guillou discloses the character generator converts the data octets into color inputs and the “signal outputs of the generator 148 are connected to the colour inputs R_2 , V_2 , and B_2 of the video switch 141 and to a luminance input L_2 .” Ex. 1006, 19:18–21. Figure 9 of Guillou is reproduced below.

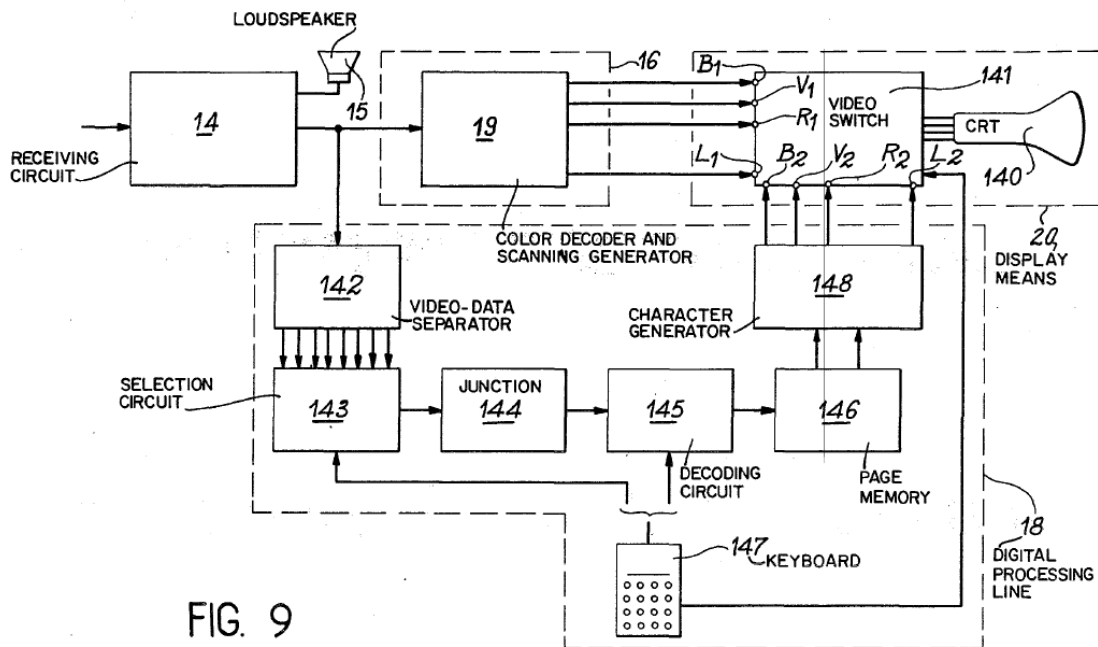


FIG. 9

Ex. 1009, Fig. 9. As shown above in Figure 9, the character generator 148 is connected to the video switch 141 to provide color inputs R_2 , V_2 , and B_2 of the video switch 141 and to luminance input L_2 to create the display provided on CRT 140. Ex. 1006, 19:18–21. Patent Owner’s Declarant Mr. Weaver states that this disclosure in Guillou merely describes how the character generator “converts the 0s and 1s stored in the page memory and converts the data into colour inputs.” Ex. 2019 ¶ 209. Neither Mr. Weaver nor Patent Owner explain sufficiently, however, how such operations by the character generator do not constitute “controlling said controllable device on the basis of said embedded executable instructions,” as recited in claim 13. As Mr. Wechselberger explains, “the character generator stimulates the inputs R_2 , V_2 , and B_2 of the display means according to each individual octed d_j .” Ex. 1055 ¶ 3 (citing Ex. 1006, 19:18–21).

As discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner’s

contentions that Guillou would have rendered claim 13 obvious. Accordingly, in light of the foregoing and our analysis of secondary considerations discussed below, and we determine Petitioner has shown by a preponderance of evidence that claim 13 would have been obvious in view of Guillou.

d. Alleged Anticipation of Claim 21

Claim 21 is similar to claim 2 and Petitioner's challenge of anticipation of claim 21 based on Guillou primarily relies upon the same disclosures cited with respect to claim 2. Pet. 18–20. Specifically, Petitioner alleges the claim limitation of “decrypting under first processor control a first portion of said encrypted materials in said transmission,” is met by Guillou's disclosure of a microprocessor controlling K-restoring circuit 110. *Id.* at 19 (citing Ex. 1001 ¶¶ 193–195). Petitioner relies upon Guillou's decoding circuit 145 for the claimed “decrypting under second processor control a second portion of said encrypted materials.” *Id.* at 20 (citing Ex. 1001 ¶¶ 197–198, 111–112). Patent Owner argues that Guillou fails to anticipate claim 21 for multiple reasons. PO Resp. 51–55.

First, Patent Owner argues that Petitioner's proposed claim mapping is incorrect because it improperly relies upon two different and distinct embodiments in Guillou. PO Resp. 51. Specifically, Patent Owner argues that with respect to the “second processor control,” Petitioner relies upon “decoder 145” found in Guillou's subscriber station embodiment of Figure 9 and for the “first processor control,” Petitioner relies upon K-restoring circuit 110 found in Guillou's subscriber station embodiment of Figure 10. PO Resp. 51–52 (citing Ex. 1001 ¶ 194–195, 198). Moreover, Patent Owner

argues that “[u]nlike Figure 10, there is no K-restoring circuit [110] (the alleged “first processor”) in the station in Figure 9.” *Id.* at 52–53.

Petitioner rebuts this argument by noting the express disclosure in Guillou that identifies that Figure 10 is intended to be inserted into the prior art shown in Figure 9. Pet. Reply 13 (citing Ex. 1006, 9:40–41) (“Fig. 9 shows a synoptic plan of a receiver according to the prior art, Fig. 10 shows a synoptic plan of the means to be inserted in the receiver of the type shown in the previous figure [Fig. 9], in order to decrypt the information.”). Thus, Guillou discloses that the decryption components in Figure 10 are to be added to the receiver system of Figure 9. *See* Ex. 1006, 18:56–21:14. In view of these disclosures, we disagree with Patent Owner’s arguments that Petitioner has improperly combined Guillou’s Figures 9 and 10.

Second, Patent Owner argues that Guillou’s decoder 145 does not disclose the “second processor control” because decoder 145 does not control decryption but only extracts selected teletext pages from the transmission and input the extracted pages for further processing by the other components of the system. PO Resp. 53 (citing Ex. 1006, 19:35–38, 10:42–43, 10:57–60; Ex. 2019 ¶ 181).

Petitioner rebuts by contending that Patent Owner’s argument dismisses the express disclosure in Guillou “that decoding circuit 145 also *initializes* octet generator 26’, *causes* the generation of decoding octets C_j , and *combines* decoding octets with encrypted octets D_j to generate decoded octets d_j .” Pet. Reply 13–14 (citing Ex. 1006, 20:29–39, Ex. 1055 ¶¶ 7–8). Specifically, Guillou discloses that the “decoder 145 causes the generation of a decoding octet C_j ($C_6=C_7=C_3=0$), and if the octet D_j received is not a control code (columns 0 and 1), which is verified by the comparator 42, the

decoder combines it, by ‘OR-exclusive,’ with the decoding octet in the gate 46.” Ex. 1006, 20:30–39. Mr. Wechselberger testifies that by initializing the octet generator 26’, causing the generation of decoding octets C_j , and combining decoding octets with encrypted octets D_j to generate decoded octets d_j , decoding circuit 145 controls the decryption of encrypted octets D_j as required by claim 21. Ex. 1055 ¶ 8. In view of the foregoing, we determine the record supports Petitioner’s contention that Guillou’s decoding circuit 145 corresponds to the claimed “decrypting under second processor control a second portion of said encrypted materials.”

Third, Patent Owner argues that if the decoding circuit 145 is the claimed “second processor control,” then it is also the claimed “first processor control” because it allegedly controls the decryption of message M_i at K-restoring circuit 110. PO Resp. 53–54 (citing Ex. 1006, 20:40–52, Ex. 2019 ¶ 185). More particularly, Dr. Weaver states that under Mr. Wechselberger’s interpretation, decoding circuit 145 controls the decryption of key K by using the access control page to restore operation key K . Ex. 2019 ¶ 185. Petitioner counters by arguing that the mere fact that decoding circuit 145 provides message M_i as an input value to K-restoring circuit 110 does not mean it “controls” the K-restoring circuit. Pet. Reply 14 (Ex. 1055 ¶¶ 9–10). Mr. Wechselberger states that decoding circuit 145 does not control K-restoring circuit 110 to decrypt M_i but merely passes M_i to K-restoring circuit 110, which is programmed to decrypt messages M_i . Ex. 1055 ¶ 9 (citing Ex. 1006, 20:40–21:14). Guillou discloses that once the decoding circuit 145 has extracted the message M_i from the access block, the message is transmitted to K-restoring circuit 110 and “[t]o restore this K from M_i and C_i , the circuit 110 . . . is programmed to

develop an algorithm $K=G_{C_i}(M_i)$.” Ex. 1006, 20:52–56. Therefore, contrary to Patent Owner’s argument, we determine the record supports Petitioner’s contention that K-restoring circuit 110 corresponds to the claimed “decrypting under first processor control a first portion of said encrypted materials in said transmission” by disclosing a process and algorithm by which K-restoring circuit 110 decrypts K from M_i and C_i .

Fourth, Patent Owner argues that decoding circuit 145 is not a processor because it is not a “digital electronic device that processes information by operating on data according to instructions.” PO Resp. 54. Patent Owner’s argument relies upon its proposed construction of “processor,” a construction that we do not adopt, as discussed above. Accordingly, we disagree with Patent Owner’s argument.

As discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner’s contention that Guillou discloses each limitation of claim 21. 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 21 is anticipated by Guillou.

e. Alleged Anticipation of Claims 29

Claim 29 depends from claim 21 and further recites “said transmission in said step of receiving a transmission and a signal necessary for decryption are received from different sources.” With respect to claim 29, Petitioner argues that Guillou discloses receiving a transmission (encrypted message M_i and encrypted teletext data D_j) and signal necessary for decryption (subscriber key C_i) from different sources. Pet. 21 (citing Ex. 1001 ¶¶ 203–205). Guillou discloses that encrypted messages M_i and encrypted teletext

data D_j are transmitted from emitting center 2 to the receiver station 4 and the subscriber key C_i is generated by subscription center 100 and distributed to the subscriber via charging station 112. Pet. 21 (Ex. 1006, 8:15–9:12, 15:42–16:17, 16:26–29, Fig. 7; Ex. 1001 ¶ 205). Patent Owner does not present separate arguments against claim 29. PO Resp. 9–17. The burden, however, remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. As discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner’s contention that Guillou discloses each limitation of claim 29. 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 29 in anticipated by Guillou.

f. Alleged Obviousness of Claims 28 and 30

Claim 28 depends from claim 21 and further adds that “said encrypted materials comprise a portion of a television program.” Petitioner argues that Guillou suggests the encrypted materials comprise a portion of a television program by disclosing that the received teletext programming, “displayed on ‘television receivers for purposes of entertainment, information or education,’ may be news programming, weather programming, [and] educational programming.” Pet. 20–21 (citing Ex. 1006, 1:11–13, 2:23–25; Ex. 1001 ¶¶ 200–201). Petitioner adds that it would have been obvious to a person of ordinary skill in the art to use teletext in accordance with its well-known capabilities as part of a television program, as an early application of teletext was closed captioning for television programs. Pet. 21 (citing Ex. 1001 ¶¶ 41–43, 201). Mr. Wechselberger states that it was well known

that teletext programming included text and/or graphics to generate non-static visuals for a variety of programming and, thus, it would have been obvious for a person of ordinary skill in the art to apply Guillou to a variety of applications where teletext comprises a portion of a television program. Ex. 1001 ¶ 201. As examples of such systems, Mr. Wechselberger cites to the videotext system of PRESTEL and the teletext system of ANTIOPE, which is expressly mentioned in Guillou. Ex. 1001 ¶¶41–43 (citing Ex. 1021, 10; Ex. 1022, 3; Ex. 1026, 3; Ex. 1006, 1:11–13).

Patent Owner argues that there is nothing in Guillou to suggest to a person of ordinary skill in the art to modify Guillou to transmit encrypted content that is part of a “television program,” as required by claim 28,” because Guillou only describes transmitting weather and stock market teletext information, *which is completely unrelated to any television program.*” See PO Resp. 60 (emphasis added). We do not agree that Petitioner fails to provide any basis, and we do not agree that weather and stock market information would be completely unrelated to any television program. Petitioner notes that the ANTIOPE system disclosed in Guillou could not only provide subtitles for television programs, it could “broadcast special pages to *display news flashes superimposed on the television program.*” Pet. Reply 15 (citing Ex. 1022, 3–4; Ex. 1006, 1:11–13, 2:23–25). Furthermore, Guillou discloses that its text video-transmission system “can be used in the transmission and display of information on television receivers for purposes of entertainment, information or education.” Ex. 1006, 1:11–13. Guillou also discloses that this programming can be programming regarding “a meteorological service, the Stock Exchange, an information agency, etc.” Ex. 1006, 2:23–25. Mr. Wechselberger also

testifies that it was well known that the teletext system described by Guillou was used with television programming. Ex. 1055 ¶ 12 (citing Ex. 1022, 3–4). Mr. Wechselberger further testifies that to the extent it is not expressly disclosed in Guillou, it would have been obvious to use teletext in accordance with its well-known capabilities as part of a television program. Ex. 1001 ¶ 201. As the Supreme Court instructed in *KSR*, it is proper to “consider the inferences and creative steps a person of ordinary skill in the art would employ.” 550 U.S. at 401. Based on the foregoing, we determine Petitioner has provided a sufficient rationale for the modification of Guillou. *KSR*, 550 U.S. at 418. Accordingly, we determine the record supports Petitioner’s proposed modification of Guillou such that the encrypted materials comprise a portion of a television program, and we adopt Petitioner’s contentions as our own.

As discussed above, we have reviewed the Petition and the supporting evidence and briefs, we determine the record supports Petitioner’s contentions that Guillou would have rendered claim 28 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 28 would have been obvious in view of Guillou.

Claim 30 depends from claim 29 and further requires “the step of contacting a remote transmitter station to receive one of said transmission and said signal necessary for decryption.” Petitioner contends that Guillou suggests contacting a remote transmitter station (i.e., emitting center 2) to receive one of the transmission and signal necessary for decryption. Pet. 22 (citing Ex. 1001 ¶¶ 207–211). Furthermore, Petitioner argues that it would

have been obvious to one of ordinary skill in the art for Guillou's system to contact emitting center 2 using a telephone line to request transmission of programming in order to allow a subscriber to request specific information from a database, such as stock quotes, weather information, or educational programming. *Id.* (citing Ex. 1001 ¶¶ 42, 207–208).

Patent Owner argues that Petitioner's proposed modification of Guillou fails because the Viewdata and Prestel systems communicate with a single source, the Viewdata or Prestel central server, to retrieve content. PO Resp. 61–62 (citing Ex. 2019 ¶ 225; Ex. 1021, 15). Petitioner notes that Patent Owner does not dispute that Guillou discloses that the transmission in the step of receiving a transmission (i.e., encrypted message M_i and encrypted teletext data D_j) and a signal necessary for decryption (i.e., subscriber key C_i) are received from different sources (emitting center 2 and subscription center 100/charging station 112). Pet. Reply 16. Furthermore, Petitioner argues that Guillou expressly discloses its access control scheme is applicable to two-way interactive systems such as viewdata. *Id.* (citing Ex. 1006, 1:10–20, 21:23–28). Guillou discloses that its broadcasting system “can be put into television lines and to [an] interactive system (i.e. two-directional)” and that the system “could be applied to other systems without any difficulty for the man skilled in the art, and notably to the . . . VIEWDATA or PRESTEL systems.” Ex. 1006, 1:16–17, 21:23–28.

Petitioner contends that Patent Owner's argument improperly assumes a phone-only viewdata system as a starting point and adds Guillou's encryption scheme to such a system. Pet. Reply 17. Petitioner argues that including two-way, interactive functionality into Guillou's system does not alter the basic architecture of Guillou's encrypting scheme. *Id.* (citing

Ex. 1001 ¶¶ 207–211). Mr. Wechselberger testifies that depending on the implementation, viewdata systems returned information “to the subscriber through either the telephone line or a TV channel carrying the information as embedded digital data.” Ex. 1001 ¶ 42 (citing Ex. 1021, 32–33; Ex. 1026, 3).

Accordingly, Petitioner argues that modifying Guillou to contact emitting center 2 using a telephone line to request transmission of programming would not alter the basic architecture of Guillou’s encryption scheme. Pet. Reply 17 (citing Ex. 1001 ¶¶ 207–211). Accordingly, Mr. Wechselberger testifies that one of ordinary skill in the art would have understood how to implement Guillou’s “double key” access scheme in both a teletext system (as disclosed by Guillou) and a two-way system such as viewdata. Ex. 1001 ¶ 210. Additionally, the preservation of the basic architecture of Guillou’s encryption scheme would not result in a compromise in security due to dialing a request over the telephone line, as suggested by Patent Owner. PO Resp. 62. Based on the foregoing, we determine Petitioner has provided a sufficient rationale for the modification of Guillou to contact a remote station to receive one of said transmission and said signal necessary for decryption. *See KSR*, 550 U.S. at 418.

Accordingly, we determine the record supports Petitioner’s proposed modification of Guillou and we adopt Petitioner’s contentions as our own.

As discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner’s contentions that the Guillou would have rendered claim 30 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 30 would have been obvious in view of Guillou.

E. Asserted Obviousness Based on Aminetzah and Asserted Obviousness in View of Aminetzah and Bitzer

1. Overview of Aminetzah

Aminetzah is titled “Method of Controlling Scrambling and Unscrambling in a Pay TV System” and discloses a system in which the scrambling of a video signal in a pay TV system is effected in dependence upon a first variable, which is changed recurrently. Ex. 1008, Abstract.

Figure 2 of Aminetzah, illustrating the pay TV system, is reproduced below:

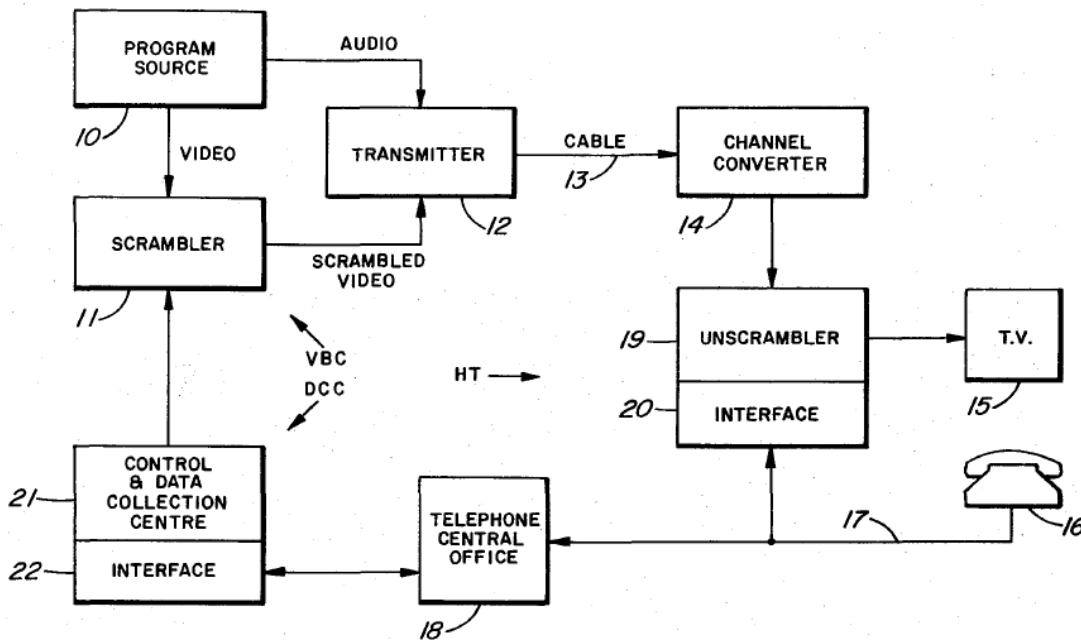


FIG. 1

Ex. 1008, Fig. 1. As shown above in Figure 1, the pay TV system in Aminetzah provides video signals from a program source 10, which are scrambled in a scrambler 11, and the resultant video signals and audio

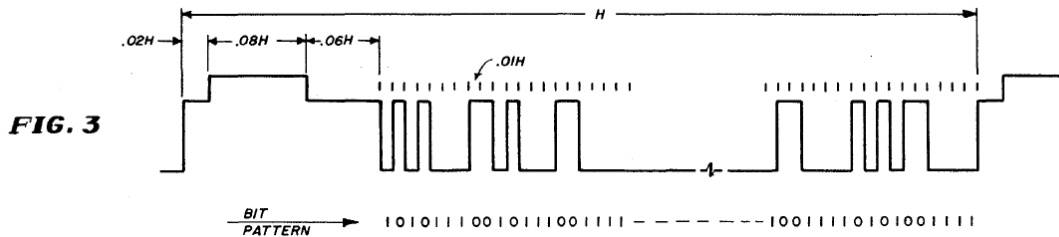
signals from the program source are supplied to transmitter 12 for broadcasting to the subscribers of the pay TV system. *Id.* at 3:56–62. Aminetzah discloses that program source 10, scrambler 11, and transmitter 12 constitute a Video Broadcast Centre (“VBC”). *Id.* at 3:67–68. The subscriber’s home includes a conventional channel converter 14, television receiver 15, and an unscrambler 19. *Id.* at 4:1–6. The pay TV system also includes a control and Data Collection Centre (“DDC”) which can be coupled via interface 22 to telephone central office 18 for communicating recurrently with each unscrambler 19. *Id.* at 4:15–23.

Aminetzah discloses that scrambling and unscrambling are effected under the control of a first variable DK, a second variable PD, and a third variable ICK. *Id.* at 4:48–50. The first variable DK and the third variable ICK are produced using a random number generator and transmitted recurrently (e.g., monthly) to a subscriber station, so that only the intended subscriber station can decode these variables. *Id.* at 2:59–65. The first variable DK is used together with a second variable, PD, which is transmitted simultaneously with the video signal and which can change from field to field, to scramble the video signal prior to transmission and, in the subscriber station, to unscramble the video signal for viewing. *Id.* at 2:65–3:3.

2. *Overview of Bitzer*

Bitzer is titled “Transmitter and Receiver for the Transmission of Digital Data Over Standard Television Channels” and describes an apparatus for the distribution of digital data to a number of data terminals using standard commercial television channels. Ex. 1009, Abstract. Bitzer’s system includes a digital transmitter for transmitting digital data over a video

cable and a receiver for receiving the transmitted digital data and selectively distributing the recovered data to the desired data terminals. *Id.* Figure 3 of Bitzer is reproduced below.



Ex. 1009, Fig. 3. As shown above in Figure 3, Bitzer discloses modifying the FCC standard synchronization signal such that the “first 16 bins of each line ($0.02H + 0.08H + 0.06H$) are used for horizontal synchronization and blanking purposes while each of the remaining 84 bins contains a bit of digital information.” *Id.* at 3:67–4:4. Bitzer discloses that the digital transmitter 12 generates the standard television synchronization and blanking signals of Fig. 2 and combines these signals with the digital data into a composite signal compatible with FCC standards, one such line signal being shown in Fig. 3. *Id.* at 4:7–15. The composite signal then is delivered to the common carrier supplying the television channel for RF modulation and transmission over the standard cable television (“CATV”) equipment. *Id.* at 4:11–15.

3. Analysis of Alleged Obviousness In View of Aminetzah Alone and Obviousness in View of Aminetzah and Bitzer

In the Institution Decision, we instituted review based on Petitioner’s contentions that claims 21 and 28–30 would have been obvious in view of Aminetzah alone and that claims 1, 2, and 4 would have been obvious in view of Aminetzah and Bitzer. Dec. to Inst. 42. Patent Owner disclaimed claims 1 and 2 of the ’635 Patent (*see* Ex. 3001, Jun 24, 2016 Disclaimer in

Patent Under 37 C.F.R. § 1.321(a)); therefore, we do not provide an analysis of the patentability of claims 1 or 2 except as necessary to render a decision with respect to claim 4 that depends from claim 2. Patent Owner disputes Petitioner's position with respect to claims 4, 21, and 28–30 arguing that the cited reference and/or references fail to teach or suggest all the elements required by the claims. PO Resp. 29–49. We have reviewed the Petition, the Patent Owner's Response, and Petitioner's Reply, as well as the relevant evidence discussed in those papers and other record papers. We determine the record supports Petitioner's contentions and adopt Petitioner's contentions discussed below as our own. For reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 21 and 28–30 would have been obvious in view of Aminetzah alone and that claim 4 would have been obvious in view of Aminetzah and Bitzer. *Id.*

a. Alleged Obviousness of Claims 4 in view of Aminetzah and Bitzer

Claim 4 is dependent from claim 2. Therefore, although Patent Owner has disclaimed claim 2, we must analyze independent claim 2 in analyzing the challenge of obviousness of dependent claim 4 in view of Aminetzah and Bitzer. Claim 2 recites “receiving programming, said programming having a first encrypted digital control signal portion and an encrypted digital information portion.” Petitioner argues that “Aminetzah in combination with Bitzer teaches receiving programming, the programming having a first encrypted digital control signal portion (i.e., encrypted variable DK of Aminetzah) and an encrypted digital information portion (i.e., digital data of Bitzer, encrypted by Aminetzah).” Pet. 41 (citing Ex. 1001 ¶¶ 255, 231–242). Particularly, Aminetzah discloses transmitting scrambled video

signals and encrypted variable DK, used to decrypt programming, to a subscriber station. *Id.* (citing Ex. 1008, 2:15–33, 2:58–3:3). Petitioner adds that “[w]hile Aminetzah does not expressly disclose that its video programming includes ‘digital’ information, Bitzer describes transmitting digital data over standard television channels.” *Id.* (citing Ex. 1009, Abstract, 1:47–52, 3:49–4:15, 5:13–45). Petitioner argues that a person of ordinary skill in the art would have understood that Aminetzah’s pay TV system would have been operable with the digital data transmission disclosed by Bitzer to provide content protection for digital programming channels. *Id.* (citing Ex. 1001 ¶ 235).

Petitioner also argues that although Aminetzah does not expressly disclose sending encrypted DK with the programming, it would have been obvious to a person of ordinary skill in the art to transmit DK more frequently and in-band with the programming to increase system security. *Id.* at 42. (citing Ex. 1001 ¶¶ 239–242). Dr. Wechselberger states that a person of ordinary skill in the art would have known the encrypted variable DK could be transmitted with encrypted digital programming using the “in-band” channel because Aminetzah discloses this type of in-band transmission for variable PD. Ex. 1001 ¶ 239.

Petitioner argues the claimed step of “decrypting said first encrypted digital control signal portion of said programming using said first decryptor at said subscriber station” is taught by Aminetzah’s disclosure of decrypting encrypted DK using decoder 403 at the subscriber station using the subscriber station’s Subscriber Number (“SN”). Pet. 43 (citing Ex. 1008, 5:57–6:6; Ex. 1001 ¶¶ 258, 244). As to the claimed step of “decrypting said encrypted digital information portion of said programming using said second

decryptor at said subscriber station based on the decrypted control signal portion,” Petitioner alleges it is taught by Aminetzah’s disclosure of a second decryptor, control logic 409. Pet. 44 (citing Ex. 1001 ¶¶ 259–262). Figure 4 of Aminetzah is reproduced below.

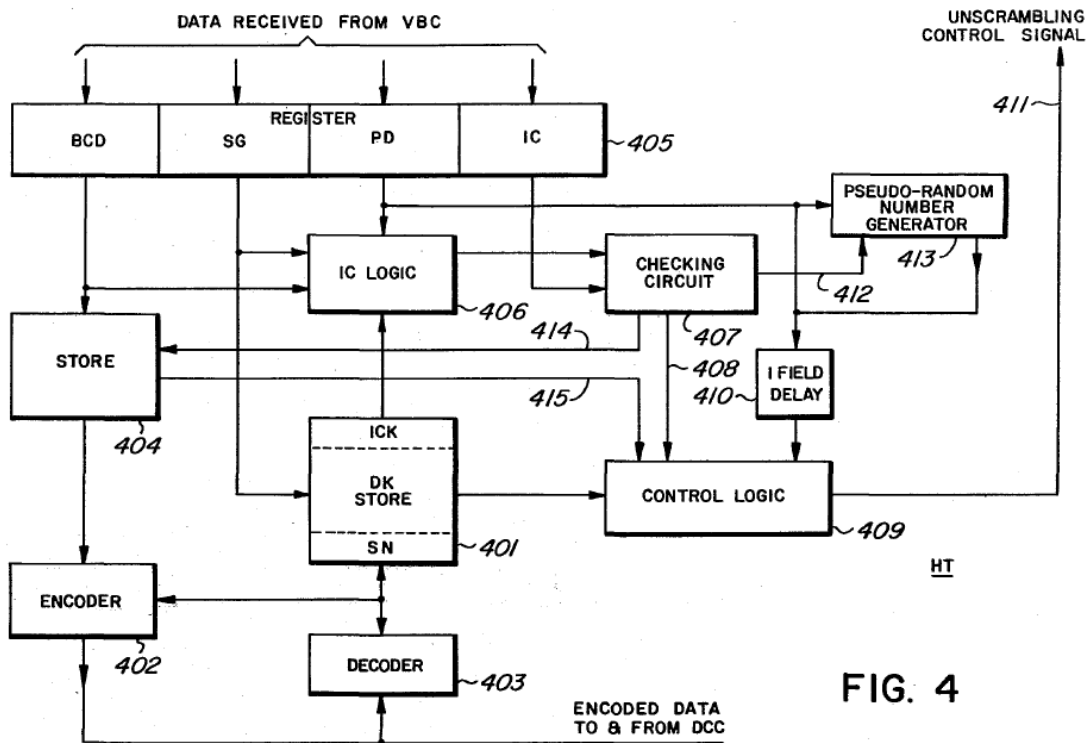


FIG. 4

Ex. 1008, Fig. 4. Mr. Wechselberger states that Aminetzah discloses that control logic 409, shown above in Figure 4, is provided with decryption variables PD and DK to decrypt received video programming.

Ex. 1001 ¶ 260 (citing Ex. 1008, 6:32–41). Finally, Petitioner argues that the claimed “presenting said programming” is taught by Aminetzah’s disclosure of programming displayed on television receiver 15 and Bitzer’s disclosure of presenting digital data received on a terminal display. Pet. 44 (citing Ex. 1008, 4:1–4, Fig. 1; Ex. 1009, 1:10–14, 2:52–56, 5:61–6:2).

Petitioner argues that a person of skill in the art would have been motivated to combine the teachings of Aminetzah and Bitzer to expand the

programming options available in Aminetzah’s pay TV system to include educational programming described by Bitzer or other digital programming services such as teletext. Pet. 42 (citing Ex. 1001 ¶¶ 234–236).

Claim 4 depends from claim 2 and further requires “said programming further includes encrypted video,” which Petitioner argues would have been obvious in view of Aminetzah and Bitzer because it was well known that digital data transmitted via television channels (such as teletext) used a combination of text and simple graphics to create moving visuals for a variety of programming. Pet. 45 (citing Ex. 1001 ¶¶ 281–282). Patent Owner argues that Petitioner’s proposed combination fails for four reasons. PO Resp. 44–49.

First, Patent Owner argues that Petitioner fails explain sufficiently how a person of ordinary skill in the art would have found it obvious to modify Aminetzah’s system to support decryption of an all-digital in-band teletext transmission. PO Resp. 44. Patent Owner also argues that Petitioner’s proposal would “require a complete overhaul of Aminetzah’s system by requiring the removal of a vast majority of the components of its VBC, DCC, and HTs.” *Id.* (citing Ex. 2019 ¶¶ 140–1, 148). Petitioner responds that substituting Bitzer’s digital content for the analog programming in Aminetzah would not require an “overhaul” of Aminetzah’s system. Pet. Reply 24 (citing Ex. 1055 ¶ 21). Mr. Wechselberger testifies that transmitting digital content using standard television signals (e.g., teletext and videotext services) was well known at the time of the invention of the ’635 Patent. Ex. 1055 ¶ 21 (citing Ex. 1001 ¶¶ 39–47). Additionally, Mr. Wechselberger testifies that Aminetzah discloses transmitting digital data using standard TV signals and receiving digital data in the TV signal;

thus, applying Bitzer's technique to add digital content into the standard TV signals transmitted by Aminetzah would have been well within the ability of a person of ordinary skill in the art. *Id.* ¶ 22. For example, Mr. Wechselberger cites the transmission of teletext digital programming information in ANTIOPE teletext systems and videotext systems. Ex. 1001 ¶ 41 (citing Ex. 1021, 16; Ex. 1022, 3; Ex. 1026, 3). Mr. Wechselberger testifies that a person of ordinary skill in the art could have applied Aminetzah's encryption scheme to encrypt Bitzer's digital programming just as Aminetzah discloses for standard television programming video signals. Ex. 1001 ¶ 235. We are persuaded that the record supports Petitioner's contentions with respect to the incorporation of Bitzer's digital programming into Aminetzah's encryption scheme.

Second, Patent Owner argues that there is no motivation to combine because the resulting system would be inoperable. PO Resp. 46. Specifically, Patent Owner argues that Petitioner's modification would require that the Video Broadcast Center ("VBC") transmit millions of unique, encrypted DKs in-band. *Id.* Petitioner counters that Patent Owner's argument presumes Bitzer's system would be wholly incorporated into that of Aminetzah, which is contrary to Petitioner's proposed combination. Pet. Reply 24–25. Petitioner proposes "to transmit DK more frequently and in-band with the programming to increase system security." Pet. 42 (citing Ex. 1001 ¶¶ 239–242). Aminetzah's discloses that system security can be increased by changing the encryption variables (such as DK) more frequently. Ex. 1008 7:4–12 ("The security of the system may, however, be further enhanced by . . . changing the variables DK and ICK more frequently."). Mr. Wechselberger testifies that a person of ordinary skill in

the art would have understood that more frequently transmitting encrypted variable DK using an out-of-band channel would not be optimal due to tying up the subscriber's phone line and that it would more efficient to transmit the encrypted variable in-band along with the encrypted digital programming. Ex. 1001 ¶ 241.

Mr. Wechselberger testifies that the use of in-band command and control signals, to control access to programming in systems such as the one disclosed by Aminetzah, was well known to the person of ordinary skill in the art at the time of the alleged invention, and that Aminetzah actually discloses transmitting digital data, such as billing and control data, along with the encrypted video signal. Ex. 1001 ¶ 239 (citing Ex. 1008, 5:18–29). In fact, Aminetzah discloses that the second variable PD, data BCD and SG, and variable ICK are stored in register 303 and “data stored in the register 303 is transmitted each field of the video signal to each home terminal.” Ex. 1008, 5:18–29. Patent Owner concedes that Aminetzah's “VBC inserts variables BCD, SG, PD, and IC into the vertical blanking interval of each video field and transmits the scrambled television signal to the plurality of HTs.” PO Resp. 31–32. As the Supreme Court instructed in *KSR*, it is proper to “consider the inferences and creative steps a person of ordinary skill in the art would employ.” 550 U.S. at 401. Additionally, as Mr. Wechselberger states, a person of ordinary skill in the art would have understood that the subscriber's encrypted DK would be transmitted embedded in the TV signal with addressing data so that each subscriber terminal could correctly identify its own encrypted DK. Ex. 1055 ¶ 19 (citing Ex. 1001 ¶¶ 54–61). Based on the foregoing, we determine Petitioner

has provided a sufficient “reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418.

Third, Patent Owner argues that Petitioner’s alleged modifications to Aminetzah would substantially change the operating principal of Aminetzah because the resulting system would not be able to provide unscrambling or support analog television programming. PO Reps. 47. Petitioner rebuts that Patent Owner’s argument incorrectly assumes that Aminetzah can only transmit digital programming or analog programming. Pet. Reply 25. Petitioner argues that Bitzer’s teachings could be incorporated into Aminetzah’s system to provide digital services as part of analog television programming or it could be limited to specific digital programming channels. *Id.* (citing Ex. 1055 ¶ 22). Mr. Wechselberger testifies that a person of ordinary skill in the art would have been familiar with systems that included channels with all analog content (e.g., standard TV), all digital content (e.g., full-field teletext), and channels that carried both analog and digital content (e.g., standard TV augmented with digital services such as subtitles/teletext). Ex. 1055 ¶ 22 (citing Ex. 1001 ¶¶ 39–46). Accordingly, we disagree with Patent Owner’s argument that that Petitioner’s alleged modifications to Aminetzah would substantially change the operating principal of Aminetzah.

Fourth, Patent Owner argues that claim 4 requires that the “received programming” include “encrypted video,” and a person of ordinary skill in the art would understand “encrypted video” to exclude teletext. PO Resp. 48. As discussed above regarding the challenge to claim 4 as anticipated by Guillou, we are not persuaded that the broadest reasonable interpretation of

“encrypted video” in claim 4 excludes teletext, provided the encrypted video includes moving visuals, as noted above.

As discussed above, we have reviewed the Petition and the supporting evidence and briefs, and we determine the record supports Petitioner’s contentions that the combination of Aminetzah and Bitzer would have rendered claim 4 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 4 would have been obvious in view Aminetzah and Bitzer.

b. Alleged Obviousness of Claims 21 and 28–30 in view of Aminetzah alone

Claim 21 is similar to claim 2 and Petitioner challenge of obviousness based on Aminetzah alone primarily relies upon the same disclosures cited with respect to claim 2. Pet. 47–49. For example, with respect to the claimed step of “receiving a transmission comprising encrypted materials,” Petitioner argues that although Aminetzah does not expressly disclose sending encrypted DK with the scrambled video, it would have been obvious to a person of ordinary skill in the art to include encrypted DK along with the scrambled video. Pet. 47 (citing Ex. 1001 ¶¶ 304–305). PO Argues that Aminetzah does not render claim 21 obvious for multiple reasons.

First, Patent Owner’s primary argument against the challenge to claim 21 is that the challenge should be rejected “[b]ecause Aminetzah’s system only performs descrambling, rather than decryption.” PO Resp. 33–34. As discussed above we do not construe the claim term “decrypting” in the ’635 Patent to exclude descrambling. Therefore, we disagree with Patent Owner’s argument.

Second, similar to the arguments discussed above regarding claim 4, Patent Owner argues that Petitioner fails to articulate sufficiently a motivation to modify Aminetzah to remove DK from the telephone connection and combine it with the analog variable television transmission. PO Resp. 34–35. Also, Patent Owner argues that there is no motivation to modify Aminetzah transmission system to transmit the variable DK more frequently and combine it with the programming transmission to “increase system security.” PO Resp. 36 (citing Ex. 1001 ¶ 238). Contrary to Patent Owner’s arguments, Petitioner establishes a motivation by identifying, among other reasons, that Aminetzah’s discloses that system security can be increased by changing the encryption variables (such as DK) more frequently. Pet. 41–42, 47 (citing Ex. 1001 ¶¶ 304–304). In fact, Aminetzah expressly discloses that “[t]he security of the system may, however, be further enhanced by . . . changing the variables DK and ICK more frequently.” Ex. 1008 7:4–12; *see* Ex. 1001 ¶ 241. Based on this disclosure in Aminetzah, Mr. Wechselberger testifies that “[i]t would have been obvious for one of ordinary skill in the art to transmit encrypted variable DK along with encrypted digital programming to increase system security.” Ex. 1001 ¶ 238. As the Supreme Court noted in *KSR*, “[u]nder the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” 550 U.S. at 420. In view of the supporting evidence, we determine Petitioner sufficiently identifies a problem known in the field of endeavor and the motivation for the modification to Aminetzah.

Third, Patent Owner argues that Aminetzah teaches away from transmitting DK with the television transmission because the Bond reference, incorporated by reference in Aminetzah, discloses that to provide a more secure pay TV system, the systems could supply a code periodically and separately from the broadcast video signal. PO Resp. 36 (citing Ex. 2021, 1:44–51). As Petitioner argues, Bond simply provides one way of increasing system security and a person of ordinary skill in the art would have understood the tradeoffs associated with increasing system security by the frequency of changing DK and the means for distributing DK. Pet. Reply 19 (citing Ex. 1055 ¶ 16). For example, Patent Owner’s Declarant, Dr. Weaver, testified “[t]he Aminetzah system could have chosen alternative ways of distributing DK” and “could have embedded it in the cable cast data,” but that “the security always depends on how the system is implemented.” Ex. 1054, 147:13–148:15. We determine the record supports Petitioner’s proposed modification for Aminetzah’s system to transmit DK with the television transmission and that Aminetzah does not teach away.

Fourth, Patent Owner argues that if the encrypted DKs were transmitted in-band in Aminetzah’s system, there would be no way for the Home Terminals (“HT”s) to identify which DK is associated with a given HT as “[t]here is no apparent way to distinguish one encrypted DK entry to the next in a television transmission.” PO Resp. 37–38. Contrary to Patent Owner’s arguments, Petitioner argues that although “Aminetzah does not expressly disclose sending encrypted DK with the programming, it would have been obvious to a [person of ordinary skill in the art] to transmit DK more frequently and *in-band* with the programming to increase system

security.” Pet. 47, 42 (citing Ex. 1001 ¶¶ 239–242) (emphases added). Mr. Wechselberger testifies a person of ordinary skill in the art would have known that the encrypted variable DK could be transmitted using the in-band channel as Aminetzah discloses for variable PD and that “digital command and control signals embedded in the VBI were used to *individually address receivers* and change their modes of decryption to enhance security.” Ex. 1001 ¶¶ 59, 239 (citing Ex. 1028, 1:42–57, 2:36–52, 10:43–54) (emphases added). Accordingly, we determine Petitioner offers more than mere conclusory statements and establishes sufficiently the rationale for the modification of Aminetzah’s system to transmit DK in-band with the programming. *See KSR*, 550 U.S. at 418.

Fifth, Patent Owner argues that Aminetzah fails to teach or suggest “decrypting under first processor control” and “decrypting under second processor control,” as recited in claim 21, because there is no teaching or suggestion that control logic 409 unscrambles based on the operations of decoder 403. PO Resp. 39 (citing 2019 ¶ 122). Dr. Weaver testifies that while the decoder 403 processes signals that are communicated from DCC monthly, the control logic 409 causes the descrambling of every field of a television signal irrespective of the operations of the decoder 403. Ex. 2019 ¶ 122. Petitioner counters that Patent Owner’s argument is contradicted by the plain text of Aminetzah, which Petitioner argues discloses that the first processor, decoder 403, decrypts encrypted DK and supplies decrypted DK to the second processor, control logic 409, via memory. Pet. Reply 21 (citing Ex. 1008, 5:67–6:6, 6:32–38). Aminetzah discloses that decoder 403 decodes “the variable DK for each group SG of television programs” and stores it in store 401. Ex. 1008, 5:67–6:6. Aminetzah further discloses that

“relevant variable DK [] is read out from the store 401” for control logic 409, which performs the “correct unscrambling of the relevant video signal field.” *Id.* at 6:32–41. Thus, Petitioner argues that Aminetzah discloses that the control logic 409 controls the descrambling of each field of television programming based on decoder 403 decrypting DK and providing it as an input to control logic 409. Pet. Reply 21 (citing Ex. 1055 ¶ 20). Petitioner argues that Patent Owner’s Dr. Weaver agreed with the sequence in Aminetzah described above. *Id.* (citing Ex. 1054, 160:22–161:16).

Dr. Weaver testified as follows:

A The DK being transmitted from the DCC to the HT is decoded by 403, stored in 401, selected by a data field 9 in register 405, and made available to control logic 409.

Q And then control logic 409 uses DK as one of the inputs to then generate the unscrambling control signal 411; is that correct?

A That’s right, DK is one of the inputs involved.

Ex. 1054, 160:22–161:16. We agree with Petitioner, that without decoder 403 providing decrypted DK to control logic 409, control logic 409 would not be able to decrypt the received programming. Pet. Reply 21 (citing Ex. 1055 ¶ 20). We determine the record supports Petitioner’s contention that Aminetzah teaches “decrypting under first processor control” and “decrypting under second processor control,” as recited in claim 21.

Sixth, Patent Owner argues that assuming a person of ordinary skill in the art were to replace the decoder 403 in Aminetzah with a processor, there is no teaching, suggestion, or motivation to replace a cheap and efficient hard-wired logic unit of decoder 403 with a more complex and expensive processor. PO Resp. 40. It is unclear from Patent Owner’s arguments why it would be necessary to replace decoder 403 with another “processor.” *See*

id. We determine that the decoder 403 disclosed in Aminetzah sufficiently teaches the “decrypting under first processor control” required by claim 21 in accordance with our construction of processor as a “a device that operates on data.”

With respect to claim 29, Patent Owner argues that Aminetzah does not teach the step of receiving a transmission and signal necessary for decryption from different sources. PO Resp. 41. Patent Owner contends that Mr. Wechselberger argues without any evidence that a person of ordinary skill in the art would have understood that subscriber number SN is received by store 401 from the network administrator during initial setup or from a manufacturer during the manufacturing process. *Id.* (citing Ex. 1001 ¶ 314). Patent Owner further argues that Aminetzah describes that the subscriber number is “permanently stored” within store 401 at each HT. *Id.* (citing Ex. 1008, 5:52–55). Petitioner does not appear to disagree with Patent Owner that the SN is permanently stored in store 401. *See* Ex. 1001 ¶ 314 (“Aminetzah explains that the subscriber number SN uniquely identifies each subscriber home terminal, and that it is permanently stored in store 401.”) (citing Ex. 1008, 5:43–55). It seems the parties only disagreement is as to the origin of the SN. Patent Owner argues that there is no teaching or suggestion in Aminetzah that the receiver station receives subscriber number from a manufacturer or a network administrator. PO Resp. 41 (citing Ex. 2019 ¶ 128). Petitioner argues, however, that Patent Owner does not dispute that subscriber number SN is not received in the transmission but is permanently stored at store 401 in the HT. Pet. Reply 22. Petitioner adds that Patent Owner does not offer any explanation as to how the SN comes to be stored at the HT. *Id.* (citing Ex 2019 ¶ 128). Petitioner

further contends that Mr. Wechselberger's testimony remains unrebutted that a person of ordinary skill in the art would have understood that the SN would come to be stored at the HT in one of two ways: (1) from the network administrator during initial setup, or (2) from a manufacturer during the manufacturing process. Pet. Reply 22 (Ex. 1001 ¶ 314). We agree with the parties that Aminetzah discloses that the SN is permanently stored on the HT. *See* Ex. 1008, 5:52–55 (“the number SN in the relevant HT (FIG. 4) is supplied from a store 401, in which it is permanently stored.”).

Furthermore, the Aminetzah does not disclose that that SN is received as part of the transmission of the programming. *See id.*; Pet. Reply 22.

Accordingly, we determine the record supports Petitioner's contention that the SN is received from a different source; thus, the transmission and thus the records supports Petitioner's contention that Aminetzah teaches or suggests “wherein said transmission in said step of receiving a transmission and a signal necessary for decryption are received from different sources,” as required by claim 29.

Claim 30 is dependent from claim 29 and further requires “the step of contacting a remote transmitter station to receive one of said transmission and said signal necessary for decryption.” Petitioner contends that Aminetzah suggests contacting a remote transmitter station (DCC) to receive the transmission because communication between HT and DCC is bidirectional and a person of ordinary skill in the art would have understood this to allow HT to request data from the DCC. Pet. 40–41 (Ex. 1001 ¶ 316; Ex. 1008, 5:64–6:6). Mr. Wechselberger states that “one of ordinary skill in the art would have understood that to order pay per view or special events programming the subscriber station could contact the DCC.” Ex. 1001

¶ 316. Patent Owner argues that there is no motivation to make such a modification because Aminetzah already allows users to watch “pay TV” without having to contact DCC. PO Resp. 42 (citing Ex. 2019 ¶ 133). Petitioner responds that, contrary to Patent Owner’s assertion, Aminetzah’s HT would need to contact the DCC to receive programming and the variable DK for that programming as a different DK is sent for each group of programming. Pet. Reply 23 (citing Ex. 1008, 4:67–5:3). Aminetzah discloses that a “different first variable DK is produced and stored for each of a plurality of groups SG of television programs, so that subscribers can subscribe selectively to different groups or types of television programs.” Ex. 1008, 4:67–5:3. Mr. Wechselberger also testifies that HT would need to contact the DCC when it is newly setup or reprogrammed. Ex. 1001 ¶ 316. We determine that records supports Petitioner’s contention that Aminetzah teaches or suggests “the step of contacting a remote transmitter station to receive one of said transmission and said signal necessary for decryption,” as required by claim 30.

As discussed above, we have reviewed the Petition and the supporting evidence and briefs; we determine the record supports Petitioner’s contentions that Aminetzah would have rendered claims 21 and 28–30 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 claims 21 and 28–30 would have been obvious in view of Aminetzah.

F. 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 Challenged Claims.” Pet. Reply 26. 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. 63. 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 . . .”).

The proffered evidence of secondary considerations only would be relevant to the claims instituted on obviousness grounds and not an anticipation challenge, namely, claims 4, 13, 28, and 30. 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. 1036, 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 4, 13, 28, and 30 would have been obvious.

G. Patentability of Proposed Substitute Claims

In an *inter partes* review, any amended claims must be proposed as a part of a motion to amend the claims. 35 U.S.C. § 316(d). As the moving party, Patent Owner bears the burden of proof in establishing that it is entitled to add proposed substitute claims 53–85. 37 C.F.R. § 42.20(c); *see also Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1306–08 (Fed. Cir. 2015) (patentee bears the burden of showing that its proposed substitute claims are patentable over the prior art of record); *Prolitec, Inc. v. Scentair Techs., Inc.*, 807 F.3d 1353, 1363–64 (Fed. Cir. 2015) (same); *Idle Free Systems, Inc. v. Bergstrom, Inc.*, Case IPR2012-00027, slip op. at 7 (PTAB June 11, 2013) (Paper 26) (informative) (“For a patent owner’s motion to amend, 37 C.F.R. § 42.20(c) places the burden on the patent owner to show a patentable distinction of each proposed substitute claim over the prior art.”); *MasterImage 3D, Inc. v. RealD, Inc.*, Case IPR2015-00040 (PTAB July 15, 2015) (Paper 42) (same).

As part of this showing, Patent Owner must demonstrate the following: (1) the amendment responds to a ground of unpatentability involved in the trial; (2) the amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter; (3) the amendment proposes a reasonable number of substitute claims; and (4) the proposed claims are supported in the original disclosure. 37 C.F.R. § 42.121.

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 34 and 36–40. Although we determine that substitute claim 35 meets the requirements of 37 C.F.R. § 42.121, we are not persuaded that Patent Owner has demonstrated the patentability of substitute claim 35 over the prior art of record.

a. Responsive to a Ground of Unpatentability and Reasonable Number of Substitute Claims

Contingent upon the determination of unpatentability of the challenged claims, Patent Owner’s Motion to Amend seeks to replace all of the challenged claims, claims 4, 7, 13, 21, and 28–30, with proposed substitute claims substitute claims 34–40. Paper 16 (“Motion to Amend”), A-1–A-4. That contingency has manifested. Patent Owner’s Motion to Amend satisfies the burden with respect to a reasonable number of substitute claims and responsiveness. *See* 37 C.F.R. § 42.121.

b. 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 in “the earliest filed disclosure at issue for each proposed substitute claim.” Motion to Amend 9–13 (citing Ex. 2130 ¶ 14). We note that all of the proposed, substitute claims, save one (claim 35, proposed as a substitute for claim 7), recite, in part, a digital information transmission “*unaccompanied by any non-digital information transmission.*” Patent Owner’s Motion to Amend does not expressly refer to such limitations, referring instead to Dr. Dorney’s Declaration in support of the Motion to Amend (Ex. 2130).

In response, Petitioner argues that Patent Owner has not demonstrated support for the substitute claims because it does not “quote even a single limitation of the Substitute Claims” in its Motion to Amend, providing only generalizations. Opposition to Motion to Amend 5. Petitioner also asserts that Patent Owner’s direction to Dr. Dorney’s Declaration is unavailing because the declaration merely provides a chart with quotes to different specifications and fails to explain how the application support the substitute claims. *Id.* at 6 (citing *Facebook, Inc. v. EveryMD LLC*, IPR2014-00242, 2105 WL 2268210 (PTAB May 12, 2015)). Patent Owner responds that the Board did review the table in *Facebook*, that any unsubstantiated attacks on Dr. Dorney’s declaration are not material, and that reference can be made to Dr. Dorney’s “Supplemental” Declaration (Ex. 2140 ¶ 9) for support from additional embodiments. Patent Owner’s Reply in Support of Motion to Amend 2–5. We need not decide, however, the propriety of Patent Owner’s presentation of its support arguments because we are persuaded that there is

not proper written description support for all of the elements of the substitute claims.

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 34 and 36–40, 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 must identify those alternatives for the substitute claims. We are not persuaded that Patent Owner has done so.

In Dr. Dorney’s first Declaration, he references portions of the 06/317,510 Application (Ex. 2050), and portions of the 08/449,413 Application (Ex. 2135). Ex. 2130 ¶ 14. The portions cited discuss separation of information signals from their associated programming, where the information signals may be recorded and transferred to an external communication network. *See* Ex. 2050, 21:23–30, 31:9–11, 9:32–10:3, 38:29–39:1, 16:31–17:3, 19:22–28; Ex. 2135, 28:25–35. The cited sections of the specifications do not disclose alternatives, such as including digital

information, non-digital information, or other alternative that would have apprised one of ordinary skill in the art that the “digital information transmission” must not include any non-digital information therein. We can find nothing in the cited sections that address 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.

In Dr. Dorney’s second “supplemental” Declaration, he references portions of the same applications (Exs. 2050, 2135). Ex. 2140 ¶ 9. The portions cited discuss separation of information signals from their associated programming, where the information signals may be recorded and transferred to an external communication network. *See* Ex. 2050, 21:23–30, 31:9–11, 9:32–10:3, 38:26–39:1, 16:31–17:3, 19:22–28; Ex. 2135, 28:25–35, 31:30–32:20, 448:25. Similar to that discussed above, the cited sections of the specifications do not disclose alternatives that would have apprised one of ordinary skill in the art that the “digital information transmission” must not include any non-digital information therein.

As to claim 35, proposed as a substitute for claim 7, we conclude that Patent Owner has demonstrated that the claim has proper written description support. Although Patent Owner eschews explicit support of specific claim elements of claim 35 in the Motion to Amend and Reply in Support thereof, Patent Owner does provide such support in separate declarations. *See* Papers 16, 27. Relying on Dr. Dorney’s Declarations (Ex. 2130 ¶ 14; Ex. 2140 ¶ 9), Patent Owner asserts that portions of the prior applications (Exs. 2050, 2135) support all of the limitations of substitute claim 35. Based on

our review, we are persuaded that claim 35 has proper written description support.

c. Patentability of Claim 35 in view of Guillou and Campbell

Based on the analysis in Section II.D.2.b above, we determine that Petitioner has shown by a preponderance of evidence that claim 7 in anticipated by Guillou. Claim 35 is based on claim 7, with the following additions: “wherein said subscriber station stores data including information particular to a customer and stores data identifying a source of said programming.” Motion to Amend A-1. We incorporate our prior analysis herein with respect to proposed substitute claim 35.

Patent Owner argues that the prior art does not disclose these limitations. Motion to Amend 20–21. Petitioner counters that claim 35 is obvious over Guillou, which Patent Owner counters. Opposition to Motion to Amend 16–17; Reply in Support of the Motion to Amend 7. 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 35 is obvious over Guillou and Campbell.⁵

Patent Owner directs our attention to a “decision by Magistrate Judge Roy S. Payne of the Eastern District of Texas in *Personalized Media Communications LLC v. Samsung Elecs. Am., Inc. et al.*, Case No. 2:15-cv-1754-JRG-RSP (E.D. Tex.) (Ex. 2133), respecting whether certain claims in six other patents also assigned by the Patent Owner were invalid under 35 U.S.C. §101.” Motion to Amend 17. However, because we need not determine the validity of claim 35 under 35 U.S.C. §101, we need not

⁵ Int’l Patent Appl. No. PCT/US81/00414, filed Mar. 31, 1981 (Ex. 1023) (“Campbell”).

consult that decision.

Petitioner alleges that substitute claim 35 is obvious over Guillou and Campbell, with Campbell disclosing the use of a program's content rating and a subscriber's personally chosen content rating threshold to enable/disable viewing of a program. Opposition to Motion to Amend 16–17 (citing Ex. 1023, 18:24–35, 21:5–15, 23:23–24:9; Ex. 1055 ¶ 51). With respect to the recitation in claim 35 that data identifying a source of said programming are stored, Petitioner argues that Campbell discloses “receiving and storing a channel number code which uniquely identifies the source of programming.” *Id.* at 15, 17 (citing Ex. 1023, 20:28–21:4, Fig. 11; Ex. 1055 ¶ 41).

Patent Owner responds that Campbell's video is a scrambled, analog signal using an unscramble code transmitted in the clear, that Campbell does not teach that teletext is scrambled, and that Campbell teaches away from Guillou. Reply in Support of the Motion to Amend 7. We do not agree.

Further to the discussion in Section II.A.1, we conclude that the term “decrypt” with respect to the '635 Patent includes descrambling. As such, the scrambling of analog video in Campbell does not create a contrast with the subject matter of claim 35. Furthermore, we are not persuaded Campbell must be bodily incorporated into Guillou 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 Campbell, namely identifying the source of the programming and applying a subscriber's content rating, could have been implemented in the system Guillou due to

the benefits described in Campbell. Lastly, although we agree with Patent Owner that Campbell espouses a simple design, without the addition of equipment advocated by Guillou (Reply in Support of the Motion to Amend 7), this is not sufficient to demonstrate that Campbell teaches away from Guillou. A reference must criticize, discredit, or otherwise discourage the solution claimed to constitute a teaching away. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). The preferences and objectives of Campbell are not teachings that disparage or discourage the use of concepts disclosed in Campbell.

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 35 would have been obvious in view of Guillou and Campbell. As such, we deny Patent Owner's Motion to Amend with respect to claim 35.

III. SUMMARY

Petitioner has demonstrated, by a preponderance of the evidence, that claims 4, 7, 13, 21, and 28–30 of the '635 Patent are unpatentable. Patent Owner 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 34 and 36–40. Regardless of who carries the burden on the Motion to Amend, the record shows by a preponderance of the evidence that the proposed substitute claims are not patentable.

IV. ORDER

Accordingly, it is

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ORDERED that claims 4, 7, 13, 21, and 28–30 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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PETITIONER:

Marcus E. Sernel
Joel R. Merkin
Eugene Goryunov
Gregory Arovas
KIRKLAND & ELLIS LLP
msernel@kirkland.com
joel.merkin@kirkland.com
egoryunov@kirkland.com
greg.arovas@kirkland.com

PATENT OWNER:

Douglas J. Kline
Jennifer Albert
Stephen Schreiner
Krupa Parikh
April Weisbruch
Sarah Fink
GOODWIN PROCTER LLP
dkline@goodwinprocter.com
jalbert@goodwinprocter.com
sschreiner@goodwinprocter.com
kparikh@goodwinprocter.com
aweisbruch@goodwinprocter.com
sfink@goodwinlaw.com

Thomas J. Scott, Jr.
tscott@pmcip.com