

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM, INC. and AMAZON WEB SERVICES, LLC,
Petitioner,

v.

PERSONALIZED MEDIA COMMUNICATIONS, LLC,
Patent Owner.

Case IPR2014-01534
Patent 7,827,587 B1

Before KARL D. EASTHOM, TRENTON A. WARD, and
GEORGIANNA W. BRADEN, *Administrative Patent Judges*.

BRADEN, *Administrative Patent Judge*.

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

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6(c), 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 claim 9 of U.S. Patent No. 7,827,587 B1 (Ex. 1002, “the ’587 patent”) is unpatentable. We also determine that Patent Owner has not met its burden on its Motion to Amend regarding entry of proposed substitute claim 22, and thus, we deny the Motion to Amend.

A. Procedural History

Amazon.Com, Inc. and Amazon Web Services, LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) to institute an *inter partes* review of claim 9 of the ’587 patent. Personalized Media Communications, LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Pursuant to 35 U.S.C. § 314(a), we instituted an *inter partes* review of claim 9 as (1) unpatentable under 35 U.S.C. § 103 in view of Monet,¹ and (2) unpatentable under 35 U.S.C. § 103 in view of Calo². See Paper 7 (“Dec. to Inst.”), 41.

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 20, “PO Resp.”), to which Petitioner filed a Reply (Paper 32, “Reply”). In addition, Patent Owner also filed a Contingent Motion to Amend the Claim (Paper 21), to which Petitioner filed an Opposition

¹ US Patent No. 4,556,904; Dec. 3, 1985 (filed Mar. 3, 1983) (“Monet,” Ex. 1006).

² US Patent No. 4,805,134; Feb. 14, 1989 (filed Jan. 9, 1986) (“Calo,” Ex. 1007).

(Paper 33). Patent Owner then filed a Reply to Petitioner's Opposition to the Motion to Amend the Claims. Paper 40 ("PO Reply").

Patent Owner filed observations on the cross-examination of Petitioner's declarant (Paper 46), to which Petitioner filed a response (Paper 49). Petitioner filed observations and amended observations on the cross-examination of Patent Owner's declarant (Papers 48, 53), to which Patent Owner filed a response and an amended response (Papers 50, 53).

An oral argument was held on December 8, 2015. A transcript of the oral argument is included in the record. Paper 54 ("Tr.").

B. Related Proceedings

Petitioner informs us that the '587 patent is the subject of a lawsuit: *Personalized Media Commc 'ns, LLC v. Amazon.com, Inc.*, No. 1:13-cv-1608-RGA (D. Del. filed Sept. 23, 2013). Pet. 1. According to Petitioner, the district court's judgment in the lawsuit has been appealed to the Court of Appeals for the Federal Circuit as Appeal No. 15-2008. Paper 35, 1. Petitioner also informs us that six patents related to the '587 patent are the subject of concurrently-filed petitions for *inter partes* review. Pet. 1; Paper 35, 1; *see* IPR2014-01527, IPR2014-01528, IPR2014-01530, IPR2014-01531, IPR2014-01532, and IPR2014-01533.

C. The '587 Patent

The '587 patent discloses a system for using embedded signals to deliver personalized program content to a subscriber station. Ex. 1002, 7:47–48, 15:14–46. One embodiment of the '587 patent describes a remote program originating studio that transmits a commercial ("program unit Q") in a network transmission to a number of intermediate transmission stations,

where each intermediate transmission station generates additional information that is included in a transmission sent to ultimate receiver stations. *Id.* at 193:25–57. This embodiment is illustrated in Figures 6A and 6B, reproduced below.

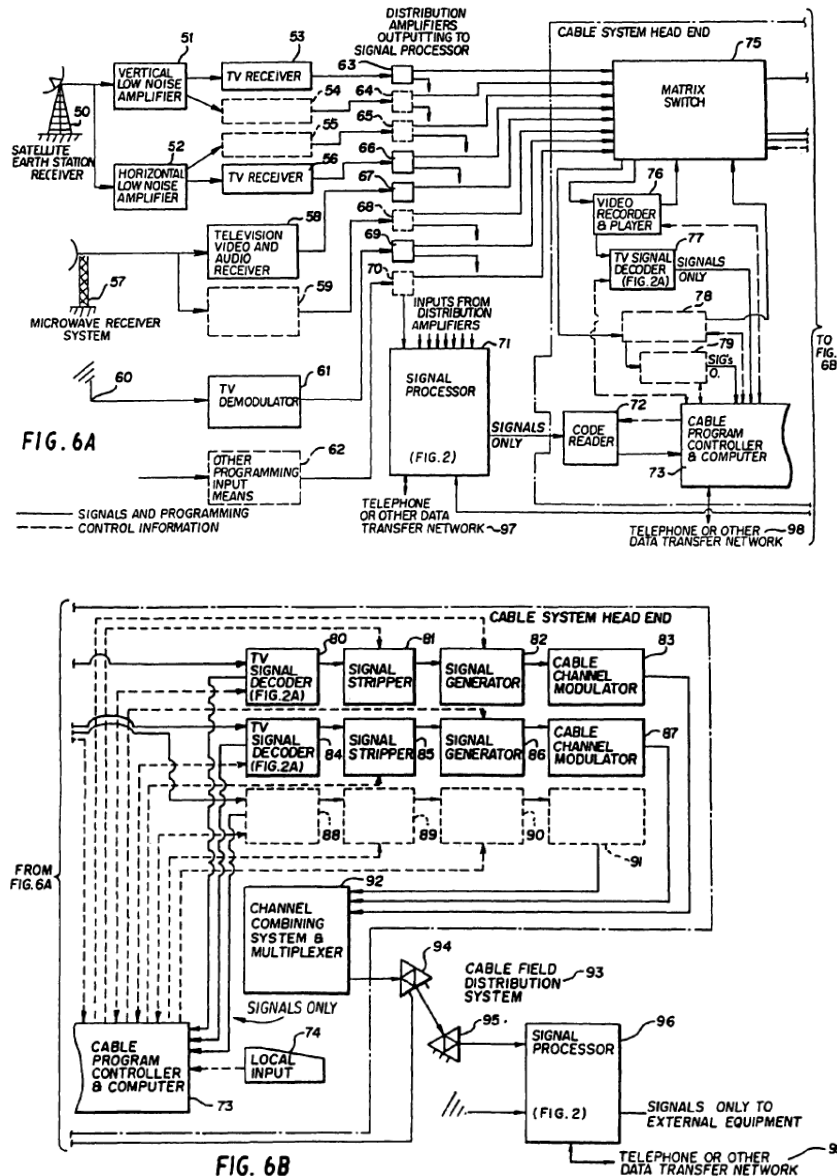


Figure 6A shows one intermediate transmission station 50 controlled by a program originating studio. *Id.* at 193:47–48. The station receives

network transmissions at receiver 53 and retransmits the transmission immediately via modulator 83, shown in Figure 6B. *Id.* at 193:48–51.

According to the '587 patent, computer 73 of a given intermediate transmission station contains “information relevant to the particular discounts and specials in effect at the particular markets in the vicinity of said station.” *Id.* at 193:58–66, Fig. 6A. Specifically, the information may be “local-formula-and-item information” in the form of specific values for various variables (“a, p, q, d, Z, r, s, and dd”) corresponding to information such as the cost of gasoline (“p”) and the distance between a given warehouse and market (“Z”). *See id.* at 187:9–54, 193:65–194:30. With each transmission of the commercial information from the transmitter station to a subscriber station, the computer program instructions compute the cost of delivery of a product to a particular subscriber. *Id.* at 186:38–46, 187:1–9.

The '587 patent discloses that after a program originating studio transmits a “generate-set-information message (#10)” to intermediate transmission station computers 73 that includes, among other information, an execution segment, information segment information of an “intermediate generation set of Q,” and an end of file signal, then computer 73 executes a program to compile and link “local-formula-and-item information” so that computer 73 generates a specific program instruction set version—the program instruction set of Q1—that applies to the particular discounts and specials in effect at the particular markets in the vicinity of the subscriber station and at the particular time of the network transmission of Q. *Id.* at 195:16–196:7.

The '587 patent further discloses transmitting the complete information of the program instruction set (*e.g.*, the first portion of the completed program unit Q1) to a receiver station based on the information of a "01" header and the address of the subscriber station microcomputers 205 (*e.g.*, the second portion of the completed program unit Q1). *Id.* at 28:1–29, 46:5–24, 49:6–56. Upon receiving the completed processor instructions, the receiver station "load[s] and execute[s] at microcomputer 205, the information segment of the message." *Id.* Thus, the second portion of the completed processor instructions informs the receiver station to load and execute the information segment of the message, the program instruction set, at a specific processor (microcomputer 205) of the receiver station. *Id.* The instructions (and some data) are downloaded and each receiver station executes the instructions. *Id.* at 249:48–251:63. Each receiver station is a different distance from the warehouse and will compute different estimated costs for delivery of a product. *Id.*

Another embodiment of the '587 patent discloses that stations that send out programming transmissions use "SPAM" signals to control the handling, generating, and displaying of programming at subscriber stations. Ex. 1002, 21:34–39. SPAM signals control and coordinate a wide variety of subscriber stations. Said stations include so-called "local affiliate" broadcast stations that receive and retransmit single network transmissions. *Id.* at 21:40–43. The information of SPAM signals includes data, computer program instructions, and commands. *Id.* Data and program instructions are often recorded in computer memories at subscriber stations for deferred execution. *Id.* at 22:4–7. In combined medium communications (television,

radio, and other media) (*id.* at 22:12–13), particular SPAM commands control the execution of intermediate generation sets and program instruction sets and the transmission and display of information generated by said sets (*id.* at 22:31–34).

According to the '587 patent, SPAM signals contain binary information of the sort well known in the art, for example: (i) including bit information required for error correction using forward error correction techniques in point to multi-point communications; (ii) using request retransmission techniques in point to point communications; and/or (iii) other error correction techniques, as appropriate. *Id.* at 23:17–24. The composition of a SPAM signal is shown in Figure 2E, reproduced below.

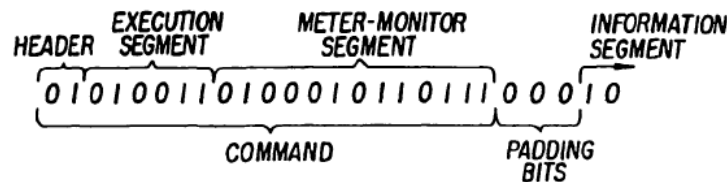


Figure 2E illustrates that a SPAM signal commences with a header, followed by an execution segment, a meter-monitor segment, and an information segment. *Id.* at 23:25–33. The header, execution, and meter-monitor segments constitute a command. *Id.* at 23:33–35. Figure 2E also illustrates the use of “padding bits” in a SPAM signal. *Id.* at 28:50–56.

The '587 patent explains that to determine the composition of signal information, the fact that most computer systems communicate information in signal words that are of a constant binary length that exceeds one bit must be taken into account. *Id.* at 28:30–34. According to the '587 patent, most computer information is communicated in so-called “bytes,” each of which consists of eight digital bits. *Id.* at 28:34–36. The '587 patent cautions that

failure to recognize this fact could result in incomplete signals and/or in erroneous processing in signal information. *Id.* at 28:36–38.

Figure 2G, reproduced below, shows an incomplete signal. *Id.*

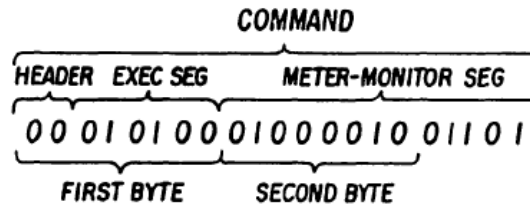


Figure 2G illustrates a command with a header, an execution segment, and a meter-monitor segment, each of which is of particular bit length. *Id.* at 28:38–40. The command of Figure 2G, however, is only twenty-one bits long. *Id.* at 28:41–42. As Figure 2G shows, the command constitutes two bytes of eight bits each with five bits left over. *Id.* at 28:42–43. The '587 patent explains that in a system that communicates information only in words that are multiples of eight, a signal whose information is represented in twenty-one information bits is incomplete. *Id.* at 28:43–46. According to the '587 patent, to constitute a complete communication, said signal must be transmitted in twenty-four bits. *Id.* at 28:46–48. The '587 patent discloses that to change an incomplete communication to a complete communication, extra bits are added at the end of a command. *Id.* at 28:50–55. These extra bits are called “padding bits” and are illustrated in Figure 2F, shown above. *Id.* at 28:55–56, Fig. 2F.

D. Illustrative Claim

As noted above, an *inter partes* review was instituted as to independent claim 9, which is reproduced below:

9. A method of processing signals in a network including:
receiving at a transmitter station in said network an information transmission from a remote station, said transmission including incomplete processor instructions;
receiving at said transmitter station a control signal;
detecting at said transmitter station said incomplete processor instructions and said control signal and passing said incomplete processor instructions and said control signal to a computer in said transmitter station;
storing said incomplete processor instructions in said computer;
generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer based on said control signal, wherein said stored information is not part of said transmission;
completing, at said computer, said incomplete processor instructions by placing said generated information into said passed and stored incomplete processor instructions; and
communicating to a processor in a receiver station in said network at least a first portion of said completed processor instructions based on a second portion of said completed processor instructions.

Ex. 1001, 290:24–48.

II. DISCUSSION

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1275–79 (Fed. Cir. 2015 (“Congress implicitly approved the broadest reasonable interpretation standard in enacting the AIA,” and “the standard was properly adopted by

PTO regulation.”), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 890 (mem.) (2016). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Our analysis in this Decision is not impacted by whether we apply the broadest reasonable interpretation or the *Phillips* standard. *See Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005).

1. “*Incomplete Processor Instructions*”

The parties disagree on the construction of the phrase “incomplete processor instructions,” as recited by independent claim 9. In order to construe the disputed phrase, we must first determine the scope of “processor instructions.”

a. *Processor Instructions*

Patent Owner contends the term “processor instructions” means ““program instructions that are executed at a processor.”” PO Resp. 14 (citing Ex. 2004 ¶ 52). Patent Owner first argues that treatises describe microprocessors as executing “programs, which are ***collections of instructions*** that specify the sequence of orders given to the system,” therefore, “processor instructions” are “the sequenced components of a computer program--program instructions executed by the processor.” *Id.* (citing Ex. 2006, 36). Patent Owner then argues that applying ordinary rules of construction of English provides concordance: “processor instructions” are “instructions” that are executed by a “processor.” *Id.* at 14–15. Patent Owner lastly argues that the ’587 patent specification supports Patent

Owner's construction. *Id.* at 16–17. Patent Owner specifically cites to Examples Nos. 9 and 10 from the Specification as supporting its position. *Id.* at 17 (citing Ex. 1002, 183:32–46; Ex. 2004 ¶ 54).

Patent Owner acknowledges that the '587 patent does not define the term “processor instructions.” *Id.* at 18. In fact, the term “processor instructions” is not used in the specification until claim 9. Instead, the specification uses the terms “program instructions,” “program instruction sets,” “operating instructions,” and “microprocessor control instructions” when describing particular embodiments and examples. *See* Ex. 1002, 2:53–57, 19:63–67, 25:4–9, 28:1–5. The '587 patent specifically teaches that “program instructions” include steps inputted to a computer that are executed by the computer upon command. Ex. 1002, 22:4–13, 28:2–11, 46:11–13, 184:8–15. Despite the disclosure found in the '587 patent, Patent Owner argues that a “person of ordinary skill in the art would understand, based on the disclosure of the '587 Patent that the ‘processor instructions’ of claim 9 are the program instructions (examples of which are discussed above) that are executed at a computer.” PO Resp. 18 (citing Ex. 2004 ¶ 63). Patent Owner also argues that including data or information or “everything a computer touches” is unreasonably broad as an instruction. *See id.* at 18–19.

We agree with Patent Owner as to the last argument. We do not agree with Patent Owner regarding its other arguments, however, because Patent Owner appears to conflate the recitations in claim 9 of “processor instructions” with the specification's multiple descriptions of “program instructions.” Furthermore, Patent Owner's proposed construction is

inconsistent with the claims of the '587 patent because claims that depend from claim 9 indicate that the processor instructions of claim 9 are more than a “program instruction set.” Two different claims that indirectly depend from claim 9 recite “a program instruction set.” See Ex. 1002 (claims 18 and 20). If claim 18 is read to include the limitations of claim 9, from which it indirectly depends, it would separately recite receiving “**processor** instructions” and receiving a “**program** instruction set.” Therefore, we do not agree that the claim term “processor instructions” is limited to “program instructions” as argued by Patent Owner. Rather, we determine that “processor instructions” is broader than “program instructions” and include a command or an instruction used or executed by a processor but is not limited to commands or instructions used in or executed by a program. See Ex. 1002, 14:25–28

b. Incomplete Processor Instructions

Petitioner contends the term “incomplete processor instructions” should be construed as “processor instructions to which information will be added prior to the processor instructions being transmitted to a particular receiver station.” Pet. 16. According to Petitioner, the specification of the '587 patent uses the term “incomplete” to refer to commands, signals or other instructions that are not yet in the form in which they will be transmitted to a subscriber station. *Id.* at 14–15 (citing Ex. 1002, 28:34–49). Petitioner contends the term is also used in a manner whereby instructions may be “incomplete” with respect to one type of subscriber station even if the same instructions would be considered “complete” with respect to another type of subscriber station, such as a subscriber station in which a

different signal word bit length applies. Pet. 15–16 (citing Ex. 1002, 29:5–9)(“the information of each information segment is composed and transmitted in a bit length that is, itself, exactly a multiple of the particular signal word bit length that applies in computer communications at said subscriber stations”).

Petitioner notes that in the co-pending district court litigation referenced above, Patent Owner has alleged that the term “incomplete processor instructions” is broad enough to cover not only processor instructions that will be supplemented, but allegedly it encompasses any “processor instructions that *can be* supplemented with other instructions.” *Id.* at 16.

Petitioner, thus, argues that a person of ordinary skill in the art at the time of the alleged invention would have understood the broadest reasonable construction of the claim limitation “incomplete processor instructions” to be at least as broad as “processor instructions to which information will be added prior to the processor instructions being transmitted to a particular receiver station.” *Id.* (citing Ex. 1001 ¶ 26).

Patent Owner contests Petitioner’s proposed claim construction, explaining that “incomplete processor instructions,” as used in claim 9 should be construed as “a set of processor instructions that need to be completed before they can provide the intended function when executed.” PO Resp. 19. According to Patent Owner, the ordinary meaning of “incomplete” is “not complete, lacking some part.” *Id.* at 20 (citing Ex. 2002, 967; Ex. 2004 ¶ 64). Patent Owner relies on Example No. 10 to guide its construction of the terms of claim 9. *Id.* Patent Owner explains

that Example No. 10 teaches that (i) an information transmission, which includes a set of processor instructions, is received at a transmitter station and needs to be completed before transmission to subscriber stations; (ii) the processor instructions need to be completed by the addition of formulas for discounts and so called “cents-off coupon specials” at local supermarkets (Ex. 1002, 183:32–46); and (iii) without the formulas, the processor instructions are incomplete because individual subscriber stations will not be able to compute and display the discounts available to them (*id.* at 195:16–47). PO Resp. 20.

Patent Owner further argues that until the processor instructions are completed they cannot deliver the intended function of telling the consumer what the discount will be. Patent Owner concludes that a person of ordinary skill in the art, upon reviewing the specification of the ’587 patent, would understand that the broadest reasonable construction of “incomplete processor instructions” in claim 9 is “a set of processor instructions that need to be completed before they can provide the intended function when executed.” *Id.* (citing Ex. 2004 ¶¶ 65–66).

We are charged with interpreting claim terms according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b). When construing claim terms, we should “consult the patent’s prosecution history in proceedings in which the patent has been brought back to the [US Patent and Trademark Office] for a second review.” *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015). In this case, the prosecution history of the

'587 patent reveals that in response to an office action rejecting the pending claims, the patent applicant stated:

In their 1987 continuation-in-part specification, applicants disclose “an integrated system of programming communication” which encompasses many inventions and deliberately includes many embodiments. Their teaching technique is to introduce the principles of their integrated system in a series of *related* examples. Each example builds upon structure and principles introduced earlier. Examining basic principles in detail in early examples, enables the specification with concreteness to expand and extend the scope of the teaching in later examples.

Ex. 1003, 285 (emphasis in original).

Because of the integrated nature of the disclosure, no part of the specification is intended to be considered *in isolation*.

Id. at 288 (emphasis in original). Even when specifically discussing Example Nos. 9, 10, and 11 of the '587 patent, the patent applicant stated:

Applicants provide these specific embodiments in support of the pending claims as by way of example only. The claims must be read as broadly as is reasonable in light of the specification, and Applicants in no way intend that their submission of excerpts/examples be construed to unnecessarily bound the scope of the claimed subject matter.

Id. at 289.

During our claim construction, we consult the patent's specification to help clarify the meaning of claim terms, because the claims “must be read in view of the specification, of which they are a part.” *Trading Technologies Intern, Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1352 (Fed. Cir. 2010) (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed.Cir.1995) (en banc), *aff'd*, 517 U.S. 370, 116 S. Ct. 1384, 134 L.Ed.2d 577 (1996)).

We must be careful, however, not to improperly import limitations into the claims or to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). Given our mandate under 37 C.F.R. § 42.100(b) and the patent applicant's statements during the prosecution of the '587 patent, we understand that the examples laid out in the specification are exemplary and are not to be read as limitations in the claims.

On the other side of the claim construction coin, as a general rule, “there is a strong presumption against a claim construction that excludes a disclosed embodiment.” See *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1324 (Fed. Cir. 2011). Several exceptions to this presumption apply. For example, a claim may be interpreted to exclude embodiments “where those embodiments are clearly disclaimed in the specification . . . or prosecution history.” *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1277 (Fed. Cir. 2008). Otherwise, “where claims can reasonably [be] interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence [to] the contrary.” *Id.* at 1277. “This does not mean, however, that each and every claim ought to be interpreted to cover each and every embodiment.” *PPC Broadband, Inc. v. Corning Optical Commc'ns. RF, LLC*, No. 2015-01364, 2016 WL 692369, slip. op. at *4 (Fed. Cir. Feb. 22, 2016) (quoting *Baran v. Med. Device Techs., Inc.*, 616 F.3d 1309, 1316 (Fed. Cir. 2010) (“It is not necessary that each claim read on every embodiment.”)).

In this case, the specification of the '587 patent does not define explicitly the term “incomplete processor instructions,” and the embodiments in Examples Nos. 9³ and 10, as discussed by Patent Owner, do not use or recite the term “incomplete processor instructions.” *See* Ex. 1002, 183:1–220:21. In fact, the term is not used in the specification except in claims 9 and 10. Although, the embodiments in Examples Nos. 9 and 10 as cited by Patent Owner are instructive, we are unpersuaded by Patent Owner’s argument that claim construction should only be guided by those examples and not by the specification in its entirety, especially in light of the patent applicant’s statements during the prosecution the '587 patent discussed above.

Rather, the disclosure in the '587 patent teaches embodiments that use the word “incomplete” to refer to commands, signals or other instructions that are not yet in the form in which they will be transmitted to a subscriber station. *See id.* at 28:34–49. Specifically, the specification discloses that “[i]n a system that communicates information only in words that are multiples of eight, a signal whose information is represented in twenty-one

³ Example No. 9 explains that a prerecorded program unit (e.g., a commercial) generally is applicable to any and all subscriber station (Ex. 1002, 184:52–65), but the program unit lacks information regarding particular discount formulas and coupons that apply at a specific scheduled time for particular business that are local to the subscriber station (*id.* at 184:66–185:6). According to the '587 patent, particular formula-and-item-of-this-transmission information is generated and incorporated into a particular program instruction set and transmitted with the program unit from the transmission station to the subscriber station. *Id.* at 185:7–19. The program unit is transmitted, received, decoded, and played. *Id.* at 189:56–192:39.

information bits is *incomplete*. To constitute a *complete* communication, said signal must be transmitted in twenty-four bits. To the command of FIG. 2G, three bits must be added.” *Id.* at 28:43–49 (emphases added). According to the ’587 patent, particular bits are added at the end of any command that is not already a multiple of the particular signal word bit length that is used in the signal processor system at the particular subscriber stations to which the transmission will be transmitted. *Id.* at 28:50–55. The ’587 patent refers to the additional bits as “padding bits.” *Id.* at 28:55–56.

Patent Owner’s proffered claim construction imports selected limitations from specific embodiments in the specification into the claim and provides an overly narrow interpretation of the claim term. We must be careful not to read a particular embodiment into the claim when, as here, the claim language is broader than the embodiment. Patent Owner has not pointed to any definitions or disavowals in the specification or otherwise clearly explained why the specification’s disclosure of incomplete commands and padding bits should not guide our claim construction analysis. Thus, we are unpersuaded by Patent Owner’s contentions, which appear to be based on a narrow reading of the claim that is inconsistent with the broadest reasonable interpretation of the claims.

Accordingly, we decline to adopt Patent Owner’s claim construction as it would limit unnecessarily the scope of the claims. Instead, we find the broadest reasonable construction of “incomplete processor instructions” to mean “processor instructions to which data, information, or bits must be added prior to the processor instructions being transmitted to, used, or executed by a particular processor.”

2. “*generating*”

Claim 9 recites “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer based on said control signal, wherein said stored information is not part of said transmission.”

Petitioner does not address this claim term for purposes of claim construction. Patent Owner contends the term “generating information” requires “more than mere selection or retrieval; it requires the creation of a product through processing.” PO Resp. 21. According to Patent Owner, the ordinary meaning of “generating” is to “create” or “bring into existence” and that ordinary meaning is consistent with the construction proffered by Patent Owner. *Id.* (citing Ex. 2012).

Patent Owner cites to certain examples in the specification where new information is generated by processing existing data, and not merely retrieving or selecting data from storage. *Id.* at 21–22 (citing Ex. 1002, 195:48–62, 185:52–186:37). Patent Owner also cites to a Board decision regarding a related patent, where the Board construed the term “generate” as “to bring into existence” and to require more than just selecting or retrieving. *Id.* at 23–24 (citing *Ex parte Harvey*, No. 2007-1837 (BPAI Mar. 20, 2009) (Ex. 2001, 18, 39)).

In *Harvey*, the Board did not construe the term “generate,” but construed the claim element “generating an image by processing at least one user specific subscriber datum,” and, thus, interpreted a different claim phrase than what is at issue here. Additionally, the Board in *Harvey* reasoned that teletext data itself is not generated by processing user selection

data, but is only retrieved from a database, so it cannot be said that an image is generated by processing indirectly user selection data. *See* Ex. 2001, 38–40. Therefore, the Board’s claim construction in a prior decision is limited to the specific claim terms at issue in that case, and it provides little guidance in the present case.

Although, we construe claim terms according to their broadest reasonable construction in light of the specification of the patent in which they appear (37 C.F.R. § 42.100(b)), when construing claim terms, we “should also consult the patent’s prosecution history in proceedings in which the patent has been brought back to the [US Patent and Trademark Office] for a second review.” *Microsoft Corp.*, 789 F.3d at 1298. In this case, the prosecution history of the ’587 patent does not discuss or construe the term “generating.”

During our claim construction, we also consult the patent’s specification to help clarify the meaning of claim terms, because the claims “must be read in view of the specification, of which they are a part.” *Trading Technologies Intern*, 595 F.3d at 1352 0) (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d at 979 (en banc), *aff’d*, 517 U.S. 370, 116 S. Ct. 1384, 134 L.Ed.2d 577 (1996)). The specification of the ’587 patent does not define explicitly the term “generate,” or the phrase “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer.” The specification, however, does provide examples of “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer.” Specifically, the ’587

patent discloses *completing* transmission communications by adding a certain number of padding bits to an *incomplete* twenty-one bit communication in order to create or produce a twenty-four bit communication that can be transmitted to a particular processor. Ex. 1002, 28:34–56. The addition of the padding bits to the incomplete communication appears to require only (i) identifying an incomplete communication, (ii) determining how many padding bits are needed, and (iii) dictating where in the communication the padding bits should be placed. *Id.* Any construction of “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer” must be broad enough to encompass this embodiment of the ’587 patent. *See Katz*, 639 F.3d at 1324.

Given the ’587 patent’s disclosure and the language of the claim phrase itself, which dictates that the generated information must complete incomplete processor instruction, we are persuaded that the gerund verb “generating” is defined by the function assigned to it in the claims. Furthermore, claim 9 recites “generating information . . . by processing,” thus, Patent Owner’s proposed construction of “generating” as “creating an end product through processing” (PO Resp. 24) would render the term “processing” as used in claim 9 superfluous. *See Merck & Co., Inc. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.); *Elekta Instruments S.A. v. O.U.R. Sci. Int’l, Inc.*, 214 F.3d 1302, 1307 (Fed. Cir. 2000) (construing claim to avoid rendering the 30 degree claim limitation superfluous); *Gen. Am. Transp. Corp. v.*

Cryo-Trans, Inc., 93 F.3d 766, 770 (Fed. Cir. 1996) (rejecting the district court’s claim construction because it rendered superfluous the claim requirement for openings adjacent to the end walls).

Accordingly, we find the broadest reasonable construction of “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer” encompasses any action that produces data, information, or bits that completes an incomplete processor instruction.

B. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *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 skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

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, Charles J. Neuhauser, Ph.D. (“Dr. Neuhauser”) a person of ordinary skill in the art relevant to the ’587 patent

“would [have been] an engineer with a Bachelor of Science in Electrical Engineering or a closely related field” and would have had between three and five years of experience in “implementation of communications systems and controlling these systems (or similar types of systems) through the use of computer technology.” Ex. 1001 ¶ 31. According to Dr. Neuhauser, “[s]omeone would [have been] equally qualified if they had a Master’s of Science degree and somewhat less practical experience.” *Id.*

Patent Owner’s declarant Samuel H. Russ, Ph.D. (“Dr. Russ”) contends that the level of ordinary skill in the art relevant to the ’587 patent would have been a person with at least a bachelor’s degree (or equivalent) in digital electronics, electrical engineering, computer engineering, computer science, and two to five years of post-degree experience in a similar field. Ex. 2004 ¶ 27.

Based on our review of the ’587 patent, the types of problems and solutions described in the ’587 patent and cited prior art, the testimony of Petitioner’s declarant, and the testimony of Patent Owner’s declarant, we find that a person of skill in the art relevant to the ’587 patent would have had a Bachelor of Science in Electrical Engineering or a closely related field and at least two to five years of post-degree experience in a similar field. We note that the applied prior art 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 Obviousness of Claim 9 in view of Monat

Petitioner contends claim 9 of the ’587 patent is unpatentable under 35 U.S.C. § 103 in view of Monat. Pet. 17–39. Patent Owner disputes

Petitioner's position, arguing that the cited references fail to disclose all the elements required by the challenged claims (PO Resp. 29–41), and evidence of secondary considerations outweighs a prima facie finding of obviousness (*id.* at 49–54). We have reviewed the Petition, Patent Owner's Response, and Petitioner's Reply, as well as the relevant evidence discussed in those papers. For reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that challenged claim 9 of the '587 patent would have been obvious in view of Monat.

1. Overview of Monat

Monat discloses a teletext based information transmission and reception system for issuing user prompt commands. Ex. 1006, Abstract. According to Monat, receiver systems and keyboards for a teletext system may be provided by different manufacturers, and therefore, there may be no common symbol to use as a prompt character. *Id.* at 1:30–40. To solve this problem Monat teaches a system where (1) the prompt character is detected, (2) it is determined that the user's keyboard lacks the specific prompt character, and (3) the prompt character is replaced at the viewer's teletext receiver to match a character that is on the user's keyboard. *Id.* at 3:12–20.

The encoding system disclosed in Monat includes two parts: a teletext transmitter and a teletext receiver. *Id.* at Figs. 2, 3. A teletext transmitter is shown in Figure 2, reproduced below.

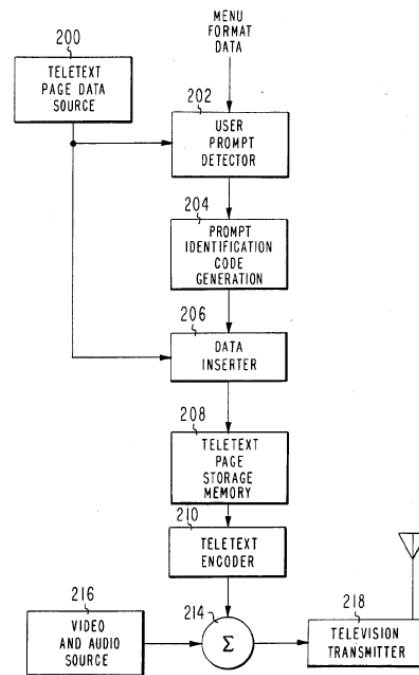
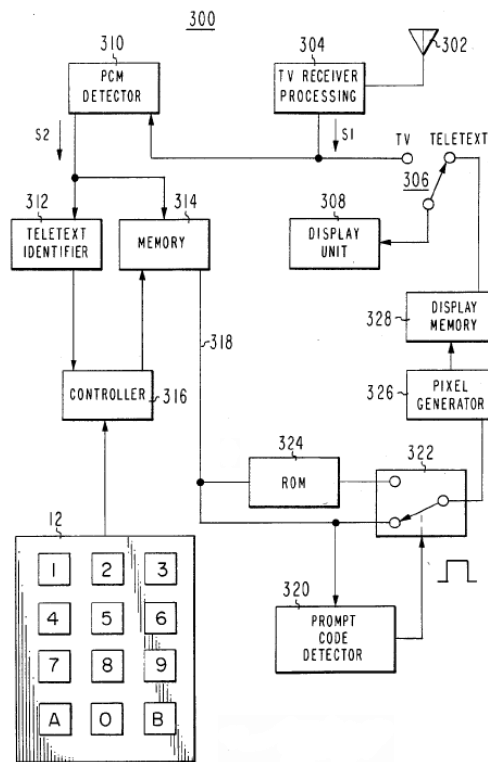


Figure 2 illustrates a teletext transmitter modified to function according to Monat. As shown in Figure 2, user prompt detector 202 locates menu prompt characters within received teletext page data. *Id.* at 3:30–32. When user prompt detector 202 locates a prompt code in the teletext page data, it causes prompt identification code generator 204 to generate a special nondisplayable character (i.e., “prompt identification code character”). *Id.* at 3:32–42. This code is passed to data inserter 206, which places the prompt identification code character into the teletext page data adjacent to the user prompt character. *Id.* at 3:38–42. The resulting modified teletext page data is then placed into teletext page storage memory 208. *Id.* Teletext encoder 210 and summer circuit 214 read the modified teletext page data from teletext page storage memory 210, encode the data, and place it in the television signal. *Id.* at 3:43–54. The signal can be combined with a

television video signal or full frame teletext (i.e., with no video), which can be transmitted to a receiver system. *Id.* at 5:38–52.

Figure 3, reproduced below, illustrates a receiver system compatible with Monat's teletext transmitter.



The receiver system, as shown in Figure 3, is modified to detect the non-displayable control code (“prompt identification code character”) and to replace the transmitted prompt character (i.e., the “#”) with the appropriate displayable prompt character available on the viewer's keyboard 12. *Id.* at 3:8–12. In this manner the transmitted display prompt “1#” would appear as “1a” (or “1A”) in a display screen of the example receiver, so that a user can enter the desired prompt selection using keyboard 12 (although the display prompt might appear as “1#” in another receiver with another keyboard 12). *See id.* at 3:12–20, Fig. 1.

2. Analysis Regarding Monat

Petitioner contends the combined teachings of Monat, as summarized above, teaches or suggests each limitation of claim 9 of the '587 patent.

a. Incomplete Processor Instructions

Claim 9 recites “receiving at a transmitter station in said network an information transmission from a remote station, said transmission including incomplete processor instructions.”

Petitioner contends that a person of ordinary skill in the art would consider a teletext transmission to be or include “processor instructions,” because a processor of a receiver apparatus must interpret instructions within a teletext transmission in order to determine what information to display and/or in order to process user input of a menu option selection. Pet. 21–22 (citing Ex. 1006, 2:3–11, 4:5–66); *see* Ex. 1001 ¶ 52. Petitioner supports its position with the Declaration of Dr. Neuhauser, who testifies that a person of skill in the art would understand that the receiver system is a teletext processor and the stream of teletext page data received from teletext page data source 200 includes “processor instructions” (such as the combination of control information and displayable information in each teletext page), because the information directs the teletext receive system to compose the appropriate display. Ex. 1001 ¶ 52 (citing Ex. 1006, Figs. 2, 3).

Petitioner further contends that the teletext data stream received from the teletext page data source is, or includes, “incomplete” processor instructions because it does not yet include sufficient control characters to enable user prompts to be processed properly by a processor of a receiver station. Pet. 22 (citing Ex. 1006, 1:49–55, 3:38–42); Ex. 1001 ¶ 52.

Petitioner's position is supported again by Dr. Neuhauser's testimony, which states that one of ordinary skill in the art would consider the teletext page data received from teletext page data source 200 to contain "incomplete" processor instructions because it lacks control character codes that would allow it to be processed by the receiver station to produce a correct display for that receiver station. Pet. 22 (citing Ex. 1006, Abstract; 1:50–62, 3:38–42, 5:27–31). According to Dr. Neuhauser, the receiver station is configured to personalize menu prompts within teletext page information by identifying control characters in the teletext information via prompt code detector 320, yet none of these control characters prompts are included in the teletext information received from teletext page data source 200, making the instructions of the received teletext information "incomplete" for purposes of communication to the receiver station and for processing by the receiver station's prompt code detector. Ex. 1001 ¶ 52 (citing Ex. 1006, 4:24–29, Fig. 3).

Patent Owner contests Petitioner's position, contending that alphanumeric information, such as letters, numbers and characters, that comprise a teletext transmission are not "processor instructions." PO Resp. 29–31. According to Patent Owner, person of ordinary skill in the art would not consider the transmission of alphanumeric information to be the "processor instructions" of claim 9 of the '587 Patent. *Id.* at 30 (citing Ex. 2004 ¶¶ 86–87). Patent Owner relies on its proposed construction of the term "processor instructions" as "program instructions that are executed by a processor" to support its position. *See supra* Section II.A.1. Patent Owner argues that a skilled artisan would regard the alphanumeric codes of Monat

as data to be subsequently processed, not as a set of instructions to be executed. PO Resp. 30. Patent Owner further argues that the numbers, letters, and control codes on a teletext page are not “executed” by a processor, but are processed by the display terminal processes in accordance with its own program. *Id.*

Patent Owner further contends that merely interpreting character codes and control codes does not transform teletext codes into “processor instructions,” because the codes are not executed by the teletext decoder. PO Resp. 31. Rather, according to Patent Owner, the teletext decoder simply converts code to text so that data is formatted correctly, but that does not qualify as processor instructions. *Id.* at 31–32.

Patent Owner cites to a prior Board decision to support its interpretation that teletext signals are not processor instructions. *Id.* at 30 (citing Ex. 2001, 14). The Board’s decision, however, addressed different claims and the decision was directed to whether the asserted Oono reference taught “outputting said video presentation to said user based on said organized signal.” *See* Ex. 2001, 37. That decision by the Board did not construe the term “processor instructions,” and it did not shed any light on whether interpreting instructions within a teletext transmission in order to determine what information to display and/or in what order constitutes processor instructions. *Id.* at 28–37.

Patent Owner lastly argues that the teletext pages in Monat are not incomplete, and they are not “completed” at the transmitter station. PO Resp. 33. According to Patent Owner, the teletext pages received from Teletext Page Data Source 200 in Monat are complete and can be interpreted

and displayed by a teletext receiver. *Id.* (citing Ex. 1006, Fig. 2). Patent Owner then argues the intermediate station receives complete pages and makes them “incomplete” by inserting special non-visible control codes, and then these “incomplete” pages are sent to each receiver terminal where the pages are “completed” and displayed. *Id.* at 34. Patent Owner supports its position with the Declaration of Dr. Russ, who testifies that:

[e]ven if one regards the process of inserting control codes as performing some partial step towards “completing” the page, it is quite clear that the final step of completion (that is, of replacing and displaying a complete set of information) is performed at the receiver, not the transmitter as required by the claim language.

Ex. 2004 ¶ 96.

We disagree with Patent Owner’s position. To the contrary, we agree with Petitioner’s position and adopt its contentions as our own that Monat teaches or suggests “receiving at a transmitter station in said network an information transmission from a remote station, said transmission including incomplete processor instructions,” as recited by claim 9 for several reasons. First, we find that standard teletext (such as the “update indicator” and “suppress header” control functions) includes control information that is similar to some of the embodiments of “instructions” that are “executed” in the ’587 patent specification. For example, the ’587 patent discloses: “[h]ereinafter, an instruction such as the above signal of “GRAPHICS ON” that causes subscriber station apparatus to execute a combining operation in synchronization is called a “combining synch” command.” Ex. 1002, 14:25–28. Additionally, we credit the testimony of Dr. Neuhauser, who states:

[I]t is well-known that the Teletext information stream sent from the television station contains many types of non-displayable control codes that change the mode and manner of text presentation. Even the earliest systems relied upon such control codes to change the state of the Teletext display processor. For example, certain codes change the size, color and width of the displayed characters. Other codes, which I referred to explicitly, determine when information is displayed and when it is updated.

Ex. 1001 ¶ 35.

Later enhancements to the Teletext protocol included more elaborate control characters and sequence to support more sophisticated displays, captioning, alerts, reveal and other functions. One of ordinary skill in the art would consider these control codes as processor instruction under the broadest reasonable interpretation because these codes control the processing and presentation of Teletext information.

Ex. 1020 ¶ 35.

Second, we find that teletext pages that could be considered “complete” for certain receivers that have appropriate keys that correspond to user prompt characters, are not “complete” for receivers lacking the appropriate keys. Monat specifically addresses this issue so as to “complete” pages that are lacking the appropriate keys corresponding to user prompt characters and then allow those pages to be displayed on all receivers. See Ex. 1006, Abst. We credit the testimony of Dr. Neuhauser, who explains:

[T]he pages will not display properly for other users, which is the problem that Monat proposes to solve. Quite simply, when the transmitter of Monat places a non-displayable prompt identification code in the Original Teletext page it is making that page complete for all users. This is the basic point of Monat, that the modified page will be displayed properly at every user

station. [Monat 1:56-62]. This is the sense in which is it “complete”.

Ex. 1020 ¶ 42.

Lastly, we note that Patent Owner’s contentions are based on a narrow scope of the claim, which is inconsistent with the broadest reasonable interpretation of the claims as discussed previously in Section II.A.1. *See e.g., In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007).

b. “*generating information to complete said incomplete processor instructions*”

Claim 9 recites “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer based on said control signal, wherein said stored information is not part of said transmission.”

Petitioner contends this limitation is taught by Monat, which discloses the following:

Detector 202 compares the teletext data stream with the menu format data and identifies all teletext characters corresponding to user prompts. The output of detector 202 is applied to a prompt character code generator 204 which may include a read only memory (ROM) for *generating* a user prompt identification code word.

Ex. 1006, 3:27–36 (emphasis added).

Petitioner supports its position with the Declaration of Dr. Neuhauser, who testifies that one of skill in the art would understand that Monat discloses generating a user prompt identification code word to add to the teletext information (i.e., “information to complete said incomplete

processor instructions”) by processing, at detector 202 and prompt character code generator 204, a program or other information stored in a read only memory based on the menu format data (i.e., “said control signal”). Ex. 1001 ¶¶ 72–73. Dr. Neuhauser further testifies that the information stored in the read only memory is not part of the teletext information received by the teletext encoding system (meaning that “said stored information is not part of said transmission”). *Id.*

Patent Owner contests Petitioner’s position, arguing its purposed construction of “generating” as discussed previously in Section II.A.2. PO Resp. 34–35. Based on its claim construction, Patent Owner contends that Monat does not teach generating information, because a prompt code generator retrieves a user prompt identification code word from the ROM. *Id.* at 36 (citing Ex. 1006, 3:27–36). According to Patent Owner, prompt code generator 204 reads the user prompt identification code from the ROM based on the output of detector 202, and then the teletext encoding system simply supplements the teletext characters with non-visible prompt control character codes retrieved from memory. *Id.* Patent Owner concludes that there is no “generating” of information as required by the claim. *Id.* (citing Ex. 2004 ¶ 101).

Contrary to Patent Owner’s assertion that Monat’s teletext system merely retrieves stored information, we agree with Petitioner’s contention because we find that Monat teaches that prompt character code generator 204 generates a user prompt identification code word. *See* Ex. 1006, 3:32–36 (“The output of detector 202 is applied to a prompt character code generator 204 which may include a read only memory (ROM” for generating

a user prompt identification word”). Specifically, we find that Monat teaches that the user prompt identification code word is created by processing information stored in read only memory as recited by claim 9. *Id.* Based on the testimony of Dr. Neuhauser, we are satisfied that one of skill in the art would understand that Monat teaches generating a user prompt identification code word to add to the teletext information by processing, at detector 202 and prompt character code generator 204, information stored in a read only memory based on the menu format data. *See* Ex. 1001 ¶¶ 72–74.

Furthermore, we are unpersuaded by Patent Owner’s assertion that “[t]he teaching of Monat is similar to that of the prior art previously rejected by the B.P.A.I., in which the Teletext data was merely selected from a database and not processed.” PO Resp. 37 (citing Ex. 2001, 39). We note that the Board decision does not support Patent Owner’s position, because the decision was directed to determining whether a cited reference disclosed “generating an image by processing at least one user specific subscriber datum” and the Board found that the reference did “generate” an image but not by processing user selection data. *See* Ex. 2001, 39.

Accordingly, we agree with, and adopt as our own, Petitioner’s position, as supported by Dr. Neuhauser’s testimony, that Monat teaches or suggests “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer based on said control signal, wherein said stored information is not part of said transmission,” as recited by claim 9.

c. *“communicating to a processor . . . a first portion of said completed processor instructions”*

Claim 9 recites “communicating to a processor in a receiver station in said network at least a first portion of said completed processor instructions based on a second portion of said completed processor instructions.”

Petitioner contends that every other step recited in claim 9 is performed by or in association with the transmitter station, however, the claim does not require that this limitation be performed by the transmitter station. Pet. 33. Thus, Petitioner contends that this limitation may be performed by the receiver station. *Id.* According to Petitioner, there are two possible ways Monat teaches this limitation: (1) Monat discloses that “[w]hen the data from memory 314 contains no prompt characters the output of detector 320 is low, thereby maintaining switch 322 in a position to couple the data on conductor 318 directly to the input of a pixel generator 326.” Pet. 35 (citing Ex. 1006, 4:32–39), or (2) Monat teaches this limitation based on Monat’s disclosure that “[w]hen the data on conductor 318 contains a prompt code identifying character, detector 320 produces an output pulse which changes switch 322 to its uppermost position for coupling the output of ROM 324 to the input of pixel generator 326.” Pet. 35 (citing Ex. 1006, 4:47–54). Petitioner further notes that Monat discloses that “[p]ixel generator 326 therefore receives a stream of signals representative of non-prompting signals to be displayed interspersed with signals representing the prompting symbols to which conversion has been made.” Pet. 35 (citing Ex. 1006, 5:11–18).

Petitioner relies on the declaration of Dr. Neuhauser to support its position. Specifically, Dr. Neuhauser testifies that one of skill in the art would understand that Monat's disclosure teaches communicating to a processor (*e.g.*, pixel generator 326) in a receiver station in the network at least a first portion (*e.g.*, signals representative of non-prompting signals in the teletext information) of said completed processor instructions based on a second portion (where the lack of a control character in the position before or after the prompt, depending on the embodiment, would be the "second portion") of said completed processor instructions. Ex. 1001 ¶ 79. Dr. Neuhauser further testifies that one of ordinary skill in the art would consider pixel generator 326 to be a "processor," or to be capable of being embodied in a processor, because it "takes the coded teletext information (characters or graphic symbols) and converts them and generates pixel intensity information therefrom." Ex. 1001 ¶ 79 (citing Ex. 1006, 4:36–39).

Patent Owner contests Petitioner's position, contending that Petitioner fails to explain: (i) which of the series of Teletext pages is the claimed "first portion"; (ii) which is the claimed "second portion"; and (iii) how the first portion is communicated to a receiver station processor "based on the second portion" per claim 9. PO Resp. 38. Patent Owner notes that Petitioner proffers two alternative theories as to how Monat discloses the disputed claim limitation. *Id.* According to Patent Owner, in neither of Petitioner's theories does a second portion of received teletext packets determine where a first portion of received teletext packets goes. *Id.* at 38–39.

Specifically, Patent Owner contends that in Petitioner's first alternative theory, a "Teletext character code (alleged first portion) is fed to

pixel generator 326 based on the **absence** of a prompt character code (alleged second portion),” and Petitioner fails to explain how the absence of something can be the second portion of something. *Id.* at 38. Patent Owner contends that Petitioner’s second alternative theory fails because the alleged first portion—data retrieved from ROM 324—is not part of the series of teletext pages that are received, and the data in ROM 324 and prompt control code are never together as first and second portions of “completed processor instructions” or anything else. *Id.* at 39 (citing Ex. 2004 ¶ 110).

We do not agree with Patent Owner’s position. Rather, we find that Monat teaches including a second portion (that encompasses both the presence and absence of a prompt character) that communicates with a processor (pixel generator 326) a first portion (*e.g.*, signals representative of non-prompting signals in the teletext information). *See* Ex. 1006 at 3:38–42, 5:11–18. We credit Dr. Neuhauser’s testimony, which explains that Monat teaches communicating to a processor (*e.g.*, pixel generator 326) at least a first portion (*e.g.*, a first character to be displayed) of the processor instructions based on a second portion (*e.g.*, the character following the first character being anything other than a prompt identification control character). *See* Ex. 1001 ¶ 79 (citing Ex. 1006, 4:30–54, 5:11–6:5, 6:38–50). Accordingly, we are satisfied that Monat teaches or suggests “communicating to a processor in a receiver station in said network at least a first portion of said completed processor instructions based on a second portion of said completed processor instructions,” as recited by claim 9.

d. “receiving at said transmitter station a control signal”

Claim 9 recites “receiving at said transmitter station a control signal.”

Petitioner presented three alternative teachings of a “control signal” being received by the transmitter station of Monat. Pet. 23–25; Reply 17. According to Petitioner, the primary disclosure of the “control signal” is Monat’s “menu format data;” the first alternative is each user prompt character within the received teletext information; and the second alternative is Monat’s disclosure that “control signals” may be generated and passed to processors in order to process incoming teletext information. Pet. 23–25 (citing Ex. 1006, 1:18–25, 2:47–61, 3:27–30, 4:9–13, Fig. 2).

Patent Owner contests Petitioner’s position, arguing that Petitioner fail to demonstrate how Monat teaches the recited limitation, because Petitioner conflates the “control signal” and “incomplete processor instructions.” PO Resp. 40.

We do not agree with Patent Owner’s position. Rather, we agree with Petitioner’s contention regarding this limitation, because we find that Monat teaches the required “control signal.” As Petitioner notes, Figure 2 of Monat shows that “menu format data” is received by user prompt detector 202 separately from the teletext information that is received from teletext page data source 200. Reply 19 (citing Ex. 1006, Fig. 2). Moreover, we are satisfied that Monat teaches that after separately receiving the teletext information and the menu format data, user prompt detector 202 “compares the teletext data stream with the menu format data.” *See id.* (citing Ex. 1006, 3:25–32).

e. Secondary Considerations of Non-Obviousness

Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective evidence of

nonobviousness. *See Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of nonobviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Secondary considerations may include any of the following: long-felt but unsolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17; *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

To be relevant, evidence of nonobviousness must be commensurate in scope with the claimed invention. *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (citing *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971)); *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998). In that regard, in order to be accorded substantial weight, there must be a nexus between the merits of the claimed invention and the evidence of secondary considerations. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). “Nexus” is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). The burden of showing that there is a nexus lies with the patent owner. *Id.*; *see Paulsen*, 30 F.3d at 1482. Here, Patent Owner argues that commercial success, licensing, long-felt but unresolved need, and industry praise indicates that the claims would

not have been obvious to a person of ordinary skill in the art. PO Resp. 49–54.

1. Commercial Success: Licensing

Patent Owner also argues that its licensing program demonstrates commercial success establishes that the claims are not obvious. PO Resp. 50–51. Patent Owner asserts that it has “[t]he ’587 Patent along with other patents issued to the inventors have had tremendous licensing success.” *Id.* at 51 (citing Ex. 2008) (incorporating by reference license agreement information). Patent Owner further asserts that “[t]hese patents have been licensed in agreements providing payments exceeding \$350M and involving more than a dozen licensees.” *Id.* Patent Owner states that “[Patent Owner] has licensed the ’587 Patent to numerous industry leaders, including Cisco, Sony, DirectTV, Motorola, Gemstar-TV Guide, [Scientific-Atlanta LLC], Pegasus, [DISH Network Corporation], and The Weather Channel.” *Id.*

We are not persuaded. In cases in which the proffered evidence of commercial success is licenses, rather than sales of products embodying the invention, there is a danger that the licenses may have been taken only because they were a less costly alternative to defending an infringement suit. *See EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 908 (Fed. Cir. 1985). In such situations, nexus between the commercial success and the patent cannot be inferred; rather, “affirmative evidence of nexus” is required. *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1324 (Fed. Cir. 2004). In other words, a patent owner must demonstrate “a nexus between the *merits of the invention* and the licenses of record”; otherwise the licenses are to be accorded little weight. *In re GPAC Inc.*, 57

F.3d 1573, 1580 (Fed. Cir. 1995) (citation omitted). Moreover, our reviewing court has held that “without a showing of a nexus, ‘the mere existence of . . . licenses is insufficient to overcome the conclusion of obviousness.’” *In re Antor Media Corp.*, 689 F.3d 1282, 1293 (Fed. Cir. 2012) (quoting *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1324 (Fed. Cir. 2004)).

Like the applicants with licenses in *EWP Corp*, *GPAC*, and *Antor Media*, Patent Owner has done little more than cite to the declaration of Mr. Gerald Holtzman, which lists licenses and their respective sales revenue. *See* PO Resp. 50–51 (citing Ex. 2008). The cited testimony of Mr. Holtzman only details the revenues for each license and does not establish whether the licensing program was successful because of the merits of the claimed invention, the merits of other patented inventions, or for other economic reasons, such as to avoid litigation or because of prior business relationships. *See* Ex. 2008 ¶¶ 8–27; *see also Antor Media*, 689 F.3d at 1294 (affirming Board’s finding that evidence of existence of licenses was insufficient to overcome prima facie case of obviousness). Additionally, Mr. Holtzman’s testimony lists patent family licenses and revenue, but does not discuss the merits of any of the challenged claims as they relate to any particular license for the ’587 patent in the portfolio of licenses. *See* PO Resp. 50 (citing Ex. 2008). We, therefore, find that the evidence provided by Patent Owner does not establish a sufficient link between the merits of the invention claimed in the ’587 patent and the taking of the noted licenses. Although, Mr. Holtzman notes that some of the provided licenses were taken in situations where there was pending litigation against the licensee (Ex.

2008 ¶ 14), he does not address whether litigation had been *threatened* against other licensing parties.

Furthermore, evidence of \$350M in licensing revenue alone is not enough to show commercial success, because Patent Owner must relate that figure to the overall market. *In re Baxter Travenol Labs*, 952 F.2d 388, 392 (Fed. Cir. 1991) (“Information solely on numbers of units sold is insufficient to establish commercial success.”); *see also In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (“Declining to find evidence of commercial success because ‘[a]lthough [the inventor’s] affidavit certainly indicates that many units have been sold, it provides no indication of whether this represents a substantial quantity in this market.’”). We, therefore, cannot determine whether the licenses reflect the commercial value of the invention claimed in the ’587 patent, or whether they were taken merely to avoid the cost of litigation, either pending or threatened. Absent a persuasive showing of nexus, Patent Owner’s evidence of licensing fails to establish commercial success. Accordingly, we give little weight to Patent Owner’s argument that its licensing program is evidence that the claims are not obvious.

2. Industry Praise

Patent Owner argues that the ’587 patent has generated industry praise, because a third party (Ocean Tomo, LLC) conducted a study and evaluated the “value” of certain patents. PO Resp. 51. According to Patent Owner:

As part of this study, the firm assessed the value of each patent using a number of different value factors to determine a PatentRatings IPQ score that objectively rated each patent. Approximately 220,000 issued patents were analyzed to determine a PatentRatings IPQ score, with the median of the

scores being 100. According to the study, the top rated inventor with 16 patents in the wireless field was John Harvey, inventor of the '587 Patent. The firm found that the patents, all members of the '587 Patent family, had an average PatentRating IPQ score of 235.7, placing them in the top 0.1% of the approximate 220,000 active U.S. utility patents granted in 2010.

Id. at 52 (citing Ex. 2010).

Patent Owner further argues that citation of a patent by other patent holders in their patent filings (i.e., “forward citations”) is a measure of recognition and value. *Id.* at 52–53 (citing Ex. 2013; Ex. 2014; Ex. 2015). According to Patent Owner, “[m]embers of the '587 Patent family have been cited by more than 850 U.S. and foreign patents. This recognition by others is strong objective indicia of the significance of the patent that weighs against obviousness.” *Id.* at 53.

Industry praise for an invention may provide evidence of nonobviousness where the industry praise is linked to the claimed invention. *See Geo. M. Martin Co. v. Alliance Mach. Sys. Intern. LLC*, 618 F.3d 1294, 1305 (Fed. Cir. 2010); *Asyst Tech’n., Inc. v. Emtrak, Inc.*, 544 F.3d 1310, 1316 (Fed. Cir. 2008). Patent Owner does not provide sufficient, if any, analysis explaining how the cited study (Ex. 2010) or the “forward citations” praise the invention recited in the challenged claims. Patent Owner does not specify any acclaim or recognition in its Patent Owner Response to the '587 patent family, let alone a challenged claim in the '587 patent. *See* PO Resp. 52–53. Considering just the '587 patent, it includes 21 claims, 292 columns, and 199 pages of information, and includes much background information. *See* Ex. 1002. Patent Owner’s argument fails to show how its alleged evidence of value or praise which includes the '587 patent family,

distinguishes over many citations to, and great reviews of, popular text books or journal articles. *See* Ex. 2007 ¶¶ 28–31.

Patent Owner does not show relevant praise by the industry, let alone for a product or anything else commensurate in scope with, and covered, by a challenged claim. *See Bayer Healthcare Pharms., Inc. v. Watson Pharms., Inc.*, 713 F.3d 1369, 1377 (Fed. Cir. 2013) (finding that brief discussions of Patent Owner’s product in journal articles “fall well short of demonstrating true industry praise” and reasoning that “industry praise of what was clearly rendered obvious by published references is not a persuasive secondary consideration”). A challenged ’587 patent claim does not cover all information disclosed in the patents of the ’587 patent family—information that allegedly, at least in part, constitutes the object of praise. Accordingly, in this case, Patent Owner has not established a sufficient nexus between the merits of the claimed invention of the challenged claims and the alleged industry praise.

3. *Long-Felt but Unsolved Need*

Patent Owner argues that “[t]he inventors of the ’587 Patent recognized that there was a long-felt need to provide a communications system with expanded capabilities, while overcoming inherent limitations of existing teletext systems and related systems.” PO Resp. 53 (citing Ex. 2004 ¶¶ 169–179). Patent Owner also describes the differences between the prior system and the “Harvey inventions.” *Id.* at 54.

We are not persuaded. Patent Owner must show that any evidence of long-felt need “demonstrates both that a demand existed for the patented invention, and that others tried but failed to satisfy that demand.” *In re*

Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig., 676 F.3d 1063, 1082 (Fed. Cir. 2012). Patent Owner's argument is lacking as to both elements. That is, Patent Owner offers no evidence that others tried and failed.

Accordingly, we give little weight to Patent Owner's argument that there was a long-felt but unmet need that overcomes Petitioner's showing of obviousness in this case.

4. Summary of Analysis of Secondary Considerations of Non-Obviousness

Patent Owner failed to demonstrate a sufficient nexus between the claimed invention and any commercial success or industry praise. Patent Owner also failed to demonstrate a long-felt but unmet need for the claimed invention. We, thus, find that the evidence of objective indicia of nonobviousness is insufficient to overcome the evidence of obviousness over Monat.

f. Conclusion of Analysis Regarding Monat

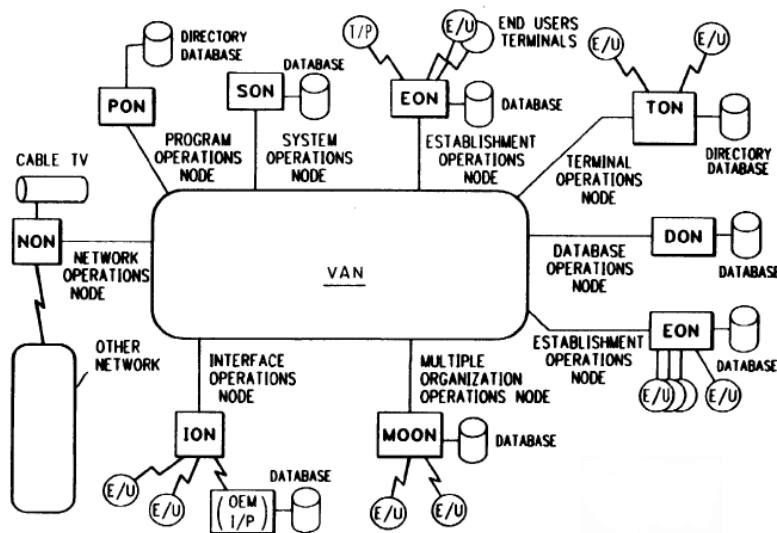
For the foregoing reasons, and weighing the evidence as a whole, Petitioner has proven by a preponderance of the evidence that Monat teaches all elements of challenged claim 9 of the '587 patent. We determine the record supports Petitioner's contentions as summarized above and adopt the supported contentions as our own. Furthermore, we conclude that understanding Monat's teachings as it applies to claim 9 would have been within the level of ordinary skill in the art, as evidenced by the prior art of record. We, therefore, determine that claim 9 would have been obvious at the time of the invention, and thus, is unpatentable under 35 U.S.C. § 103.

E. Asserted Obviousness of Claim 9 in view of Calo

Petitioner contends claim 9 of the '587 patent is unpatentable under 35 U.S.C. § 103 in view of Calo. Pet. 17–39. Patent Owner disputes Petitioner's position, arguing that the cited references fail to disclose all the elements required by the challenged claims (PO Resp. 41–49), and evidence of secondary considerations outweighs a prima facie finding of obviousness (*id.* at 49–54). 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 papers of record. For reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that challenged claim 9 of the '587 patent would have been obvious in view of Calo.

1. Overview of Calo

Calo discloses a system with a combination of operational nodes incorporating databases and application programs for providing graphical and textual information (Videotex) and transactional capabilities to end-user terminals. Ex. 1007, 1:6–12. The system disclosed in Calo includes a collection of operations nodes (ON) connected by a Videotex Application Network (VAN) and is illustrated in Figure 1, reproduced below.



As shown in Figure 1, different operations nodes may be connected to the system and each node may have a subset of capabilities. *Id.* at 1:6–12. For example, a DON (Database ON) may only support database access without supporting end user terminals or application program execution. *Id.* at 2:18–23. An ON is a computer based system to which are attached various types of peripheral equipment depending upon the requirements of the ON. The attached peripherals may include database storage, end user terminals and network interfaces. *Id.* at 3:18–22. End user terminals (E/U) access Videotext pages stored in network attached databases and use application programs stored within the network. *Id.* at 1:6–12. Databases comprise pages of control information and displayable data. *Id.* at Abstract; Fig. 1.

One embodiment in Calo is directed to a transactional service referred to as “Value-Added Page Creation.” Ex. 1007, 9:28–41. With Value-Added Page Creation, “when a page is retrieved from a VAN database, it is possible to enhance the value of that page to a user by ‘adding’ current and/or specific information to that page prior to displaying it at the user's terminal. *Id.* at 9:41–45. “Such a feature is enabled by the invocation of a program

that merges the retrieved page with data that the program has derived from other sources.” *Id.* at 9:45–48.

2. Analysis

a. Incomplete Processor Instructions

Claim 9 recites “receiving at a transmitter station in said network an information transmission from a remote station, said transmission including incomplete processor instructions.”

Petitioner contends that a person of ordinary skill in the art would consider a Videotex pages to be or include “processor instructions,” because a Videotex page includes control information and encoded displayable data that instructs a device how to display graphics and/or text. Pet. 45–46 (citing Ex. 1007, 3:62–4:2 (“[a] page is a variable length data structure consisting of control information and displayable data,” where the “[d]isplayable data in a page is normally encoded . . . and preferably read out in color, graphics, and text form on a display device”), 4:28–40 (regarding “exit paths” that are “embedded in the control area of a page and are invoked by certain functions”); see Ex. 1001 ¶ 114. Petitioner further contends that Calo teaches the transmission and use of incomplete processor instructions. Pet. 44. According to Petitioner, Calo discloses that there may be “post page retrieval processing required for a particular page” because some pages “may require additional dynamic processing to complete the page retrieved. A given page may require the initiation of a program or transaction to perform some unique updating dating [sic] or dynamic creation of pages.” Pet. 44 (citing Ex. 1007, 19:12–18). Petitioner concludes that in instances where a program must be invoked to complete a received Videotex page, the

received “processor instructions” would be “incomplete.” Pet. 45.

Petitioner supports its position with the Declaration of Dr. Neuhauser, who testifies that a person of skill in the art would understand Calo as disclosing that a transmission (*e.g.*, a page) received from a remote station may include incomplete processor instructions (*e.g.*, the received page, including control information, may be incomplete). Ex. 1001 ¶¶ 114–115.

Patent Owner contests Petitioner’s position, contending that the Videotex page data structures that include control information and displayable data are not “processor instructions.” PO Resp. 42. According to Patent Owner, incomplete processor instructions are completed by placing generated information into the incomplete processor instructions, so that when a completed program instruction set is received at a subscriber station, it is loaded and executed by computer. *Id.* at 43–44. Patent Owner explains that Calo’s system (decoder) is executing its own program, not executing a program embedded in the Videotex page. *Id.* at 44 (citing Ex. 1007, 5:35–64). Thus, Patent Owner concludes that neither the displayable data, nor the control information of the Videotex page relied upon by Petitioners, are program instructions executed at a station. *Id.*

Patent Owner further contends that merely enhancing the value of a Videotex page with additional processing does not mean the page was incomplete and does not transform the Videotex page into processor instructions. PO Resp. 44. According to Patent Owner, the “Videotex page does not become ***retroactively incomplete*** because it was later enhanced,” and to read it in such a way would read the term “incomplete” out of the claim. *Id.* at 44–45.

We do not agree with Patent Owner. Rather, we agree with and adopt Petitioner's contentions regarding this limitation as our own, because we find that a Videotex page includes control information and encoded displayable data that instructs a device how to display graphics and/or text. See Ex. 1007, 3:62–4:2 (“[a] page is a variable length data structure consisting of control information and displayable data,” where the “[d]isplayable data in a page is normally encoded ... and preferably read out in color, graphics, and text form on a display device”), 4:28–40 (regarding “exit paths” that are “embedded in the control area of a page and are invoked by certain functions”). The systems of Calo are also described as being configured to process NAPLPS-encoded videotex pages. See Ex. 1007, 3:65–68.

Additionally, as to Patent Owner's retroactively incomplete argument, we credit the testimony of Dr. Neuhauser's that a person of skill in the art would understand Calo as disclosing that a transmission (*e.g.*, a page) received from a remote station may include incomplete processor instructions (*e.g.*, the received page, including control information, may be incomplete). See Ex. 1001 ¶¶ 114–115; see also Ex. 1007, 19:12–18 (“Page operations software is also responsible for the initiation of any post page retrieval processing required for a particular page. Some Vidoetex pages may require additional dynamic processing to complete the page retrieved. A given page may require the initiation of a program or transaction to perform some unique updating dating or dynamic creation of pages.”). Accordingly, we conclude that Calo teaches or suggests “receiving at a transmitter station in said network an information transmission from a remote station, said

transmission including incomplete processor instructions,” as recited by claim 9.

b. “generating information to complete said incomplete processor instructions”

Claim 9 recites “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer based on said control signal, wherein said stored information is not part of said transmission.”

Petitioner contends this limitation is taught by Calo, which discloses generating information to complete an incomplete Videotex page by processing information stored in the host computer (such as data derived from sources other than the page) based on the control signal. Pet. 51–52 (citing Ex. 1007, 9:41–48, 19:14–58, Fig. 7). According to Petitioner, Calo’s embodiment regarding the Value-Added Page Creation indicates that when a page is retrieved from a VAN database, it is possible to enhance the value of that page to a user by “adding” current and/or specific information to that page prior to displaying it at the user’s terminal. Petitioner contends that “[s]uch a feature is enabled by the invocation of a program that merges the retrieved page with data that the program has derived from other sources.” Pet. 52 (citing Ex. 1007, 9:41–48, Fig. 7).

Dr. Neuhauser testifies that one of skill in the art would consider the “information” generated to “complete said incomplete processor instructions” in claim 9 to be disclosed by the “data that the program has derived” in Calo. Ex. 1001 ¶ 128. Dr. Neuhauser further testifies that one of ordinary skill in the art would also consider the “information stored in

said computer,” as recited in claim 9, to be disclosed by either (1) the data from other stored, local sources (from which the generated information is derived), or (2) the program itself, which was stored by the host system prior to its “invocation” or execution. *Id.* at ¶¶ 129–130. Petitioner concludes that in either case, the stored information was not part of the transmission that included the incomplete page. Pet. 52.

Patent Owner contests Petitioner’s position, contending that Calo does not teach generating information, because generating requires more than merely selecting and retrieving information—it requires that a product be created through processing. PO Resp. 46 (citing Ex. 2004 ¶¶ 67, 127). According to Patent Owner, the retrieved page and the data in Calo are derived from other sources and preexist before their merger, thus negating the **generation** of information required by this limitation in claim 9. *Id.* at 47 (emphasis in original). Patent Owner argues that “none of the dynamic page creation services discussed in Calo involve the generation of new information” and that “[t]he various formatting operations in Calo in merging data are similar to the disclosure in Monat, where the Teletext encoding system supplements the Teletext characters with non-visible prompt control character codes stored in the memory.” *Id.* Patent Owner insists that in contrast to the Calo disclosure, claim 9 requires that the information to complete the incomplete processor instructions is generated by processing information (*e.g.*, by performing one or more computations). *Id.* (citing 2004 ¶¶ 129–130). Patent Owner concludes that there is no “generating” of information in Calo as required by the claim. *Id.*

We disagree with Patent Owner's position, for at least two reasons. First, we find that Calo meets the challenged limitation, because Calo describes pages that require processing so as to "complete" the pages, thereby demonstrating that such pages were "incomplete" prior to processing. *See* Ex. 1007, 19:12–18 ("Some Videotex pages may require additional dynamic processing to complete the page retrieved. A given page may require the initiation of a program or transaction to perform some unique updating dating or dynamic creation of pages."). Second, we find that contrary to Patent Owner's assertion that Calo's Value-Added Page Creation merely retrieves stored information wholesale with no processing, Calo teaches invoking a program that derives data from other sources that is then merged with a specific retrieved page. *See* Ex. 1007, 9:41–48 ("a program that merges the retrieved page with data that the program has derived from other sources").

Additionally, we agree with Petitioner's position that information derived from other sources is at least stored in the host computer in Calo and then processed based on a control signal so that it can be merged with the retrieved page. *Id.* at 19:14–58, Fig. 7. We credit the testimony of Dr. Neuhauser that one of skill in the art would consider the "information" generated to "complete said incomplete processor instructions" in claim 9 to be disclosed by the "data that the program has derived" in Calo. *See* Ex. 1001 ¶ 128. Therefore, we are satisfied that one of skill in the art would understand that Calo teaches generating data to add to a retrieved page by processing information stored in memory.

Accordingly, we find that Calo teaches or suggests “generating information to complete said incomplete processor instructions by processing, at said computer, information stored in said computer based on said control signal, wherein said stored information is not part of said transmission,” as recited by claim 9.

c. *“communicating to a processor . . . a first portion of said completed processor instructions”*

Claim 9 recites “communicating to a processor in a receiver station in said network at least a first portion of said completed processor instructions based on a second portion of said completed processor instructions.”

Petitioner contends that a Videotex page of Calo, completed by the program of the host system, would be “a variable length data structure consisting of control information and displayable data[,]” where the displayable data is “encoded in accordance with the North American Presentation Level Protocol Syntax (NAPLPS), an industry standard, and preferably read out in color, graphics, and text form on a display device at the terminal of an end user.” Pet. 54 (citing Ex. 1007, 3:63–4:2). According to Petitioner, in response to a page request from an end-user terminal to a host in Calo, “the Host response returns via session layer 130 and is processed by the application manager 132,” where the session layer and application manager are components of the end-user terminal PC. *Id.* (citing Ex. 1007, 26:59–27:2, Fig. 13). As explained by Petitioner, the application manager 132 of the end-user terminal is in communication with the terminal’s NAPLPS decoder 133, which “converts a NAPLPS data stream into the graphic commands.” *Id.* at 54–55 (citing Ex. 1007, 27:10–12, Fig.

13). Petitioner concludes that communicating to a processor (*e.g.*, the NAPLPS decoder or a PC processor executing NAPLPS decoder software) in a receiver station (*e.g.*, an end-user terminal) at least a first portion of the completed processor instructions (*e.g.*, at least a portion of the NAPLPS encoded displayable data of the completed page) based on a second portion of the completed processor instructions (*e.g.*, at least a portion of the control information of the completed page). *Id.* at (citing Ex. 1007, 13:33–41, 26:5–12, 3:63–4:2, 5:28–60, 27:1–14, Figs. 10–13, Claim 1); Ex. 1001 ¶¶ 137–142.

Petitioner supports its position with the Declaration of Dr. Neuhauser, who testifies that Videotex pages in Calo are encoded in NAPLPS format, which was a well-known standard for encoding information for presentation on a text/graphics device. Ex. 1001 ¶ 138. Dr. Neuhauser further testifies that one of ordinary skill in the art reading Calo would know that presenting NAPLPS formatted Videotex pages by the end user terminal inherently requires communicating portions of the page to a processor for display based on other portions. *Id.*; see Ex. 1001 ¶¶ 137, 139–142.

Patent Owner contests Petitioner’s position, contending that Petitioner fails to explain how Calo teaches (1) the communication of a first portion of the completed processor instructions based on a second portion of the completed processor instructions or (2) that only a portion of the Videotex page is communicated based on another portion of the Videotex page. PO Resp. 48–49. According to Patent Owner, Calo lacks a first portion and second portion because in the Calo the entire Videotex page is communicated to the processor. *Id.* at 48 (citing Ex. 1007, 19:12–21, 25:43–

26:4). Patent Owner also argues that, in Calo, by the time the page arrives at the user's terminal, the entire page is already being displayed, and therefore, a person of ordinary skill in the art would not consider the display of Videotex page in Calo to mean that the transmitter station communicates a first portion of the Videotex page instructions to a receiver station based on a second portion of the Videotex page. *Id.* (citing Ex. 2004 ¶ 137).

We do not agree with Patent Owner. Rather, we agree with (and adopt as our own) Petitioner's position that claim 9 does not require the "communicating" step to be performed by the transmitter station, and the step may be performed by a component of the receiver station other than the processor, or by any other system. *See* Pet. 33–34; Reply 23–24. We further agree with (and adopt as our own) Petitioner's position that this challenged claim limitation is disclosed by actions performed at the end-user terminal of Calo, such as by communicating displayable data of a page to a decoder in the terminal based on control information in the page. *See* Pet. 55–56 (citing Ex. 1007, 13:33–41, 26:5–12, 3:63–4:2, 5:28–60, 27:1–14, Figs. 10–13, Claim 1; Ex. 1001 ¶¶ 137–142); Reply 24.

Accordingly, we find that Calo teaches or suggests "communicating to a processor in a receiver station in said network at least a first portion of said completed processor instructions based on a second portion of said completed processor instructions," as recited by claim 9.

d. Analysis of Secondary Considerations of Non-Obviousness

As discussed above in Section II.D.2.d., Patent Owner failed to demonstrate a sufficient nexus between the claimed invention and any commercial success or industry praise. Patent Owner also failed to

demonstrate a long-felt but unmet need for the claimed invention. We, thus, find that the evidence of objective indicia of nonobviousness is insufficient to overcome the evidence of obviousness over Calo.

e. Conclusion of Analysis Regarding Calo

For the foregoing reasons, and weighing the evidence as a whole, Petitioner has proven by a preponderance of the evidence that Calo teaches all elements of challenged claim 9 of the '587 patent. We determine the record supports Petitioner's contentions as summarized above and adopt the supported contentions as our own. Furthermore, we conclude that understanding Calo's teachings as it applies to claim 9 would have been within the level of ordinary skill in the art, as evidenced by the prior art of record. We, therefore, determine that claim 9 would have been obvious at the time of the invention, and thus, is unpatentable under 35 U.S.C. § 103.

III. MOTION TO AMEND

Patent Owner filed a contingent Motion to Amend in order to replace the unpatentable claims with proposed substitute claim 22. Paper 21 ("Mot."). Petitioner opposes Patent Owner's Motion. Paper 33 ("Opp."). Because we find claim 9 unpatentable, we address Patent Owner's Motion to Amend. As discussed below, we determine that Patent Owner has not carried its burden of demonstrating the patentability of any of the proposed claims.

A. Analysis of the 37 C.F.R. § 42.121 Requirements

In an *inter partes* review, amended claims are not added to a patent as of right, but rather must be proposed as a part of a Motion to Amend. 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 56–67. 37 C.F.R. § 42.20(c); see *Idle Free Sys., Inc. v. Bergstrom, Inc.*, Case IPR2012-00027, slip op. at 7 (PTAB June 11, 2013) (Paper 26) (representative). As part of this showing, Patent Owner must demonstrate (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.

Proposed substitute independent claim 22 is reproduced below, with underlined text indicating material inserted relative to claim 9, and brackets indicating material removed relative to that claim:

22. A method of processing signals in a network including:
- receiving at a transmitter station in said network an information transmission from a remote station, said transmission including an incomplete program instruction set ~~processor instructions~~ that is not executable to perform its intended function until it is completed;
 - receiving at said transmitter station a control signal;
 - detecting at said transmitter station said incomplete program instruction set ~~processor instructions~~ and said control signal and passing said incomplete program instruction set ~~processor instructions~~ and said control signal to a computer in said transmitter station;
 - storing said incomplete program instruction set ~~processor instructions~~ in said computer;
 - generating information to complete said incomplete program instruction set ~~processor instructions~~ by processing, at said computer, information stored in said computer based on said control signal, wherein said stored information is not part of said transmission;

completing, at said computer, said incomplete program instruction set ~~processor instructions~~ by placing said generated information into said passed and stored incomplete program instruction set ~~processor instructions~~; and

communicating from said transmitter station to a processor in a receiver station in said network at least a first portion of said completed program instruction set ~~processor instructions~~ based on a second portion of said completed program instruction set ~~processor instructions~~. and thereby enabling the execution of the completed program instruction set at said receiver station.

Mot. 1–2.

We determine Patent Owner has satisfied the burden with respect to the above-discussed requirements of 37 C.F.R. § 42.121. For example, Patent Owner seeks to add one (1) substitute claim to replace the one (1) claim found unpatentable, and the substitute claim adds limitations that purport to narrow the scope of the original claim it replaces. Mot. 1–2. Patent Owner identifies support in the original specification for substitute claim 22’s “program instruction set” and the step of “enabling the execution of the completed program instruction set at said receiver station.” *Id.* at 3–9 (citing Ex. 2009, 354:35–355:14, 360:30–35, 361:14–362:1, 364:25–31, 374:20–27, 375:12–25, 377:25–379:19, 482:32–483:35, 484:7–489:32, 490:35–491:29).

We, thus, are persuaded that there is written description support for Patent Owner’s proposed substitute claim. Accordingly, we now focus on whether Patent Owner has met its burden of proof to show that proposed substitute claim 22 encompasses patentable subject matter under 35U.S.C. § 101.

B. Analysis of the Patentable Subject Matter

An *inter partes* review cannot be instituted using 35 U.S.C. § 101 as the basis for a challenge brought by a petitioner. See 35 U.S.C. § 311(b) (“A petitioner in an *inter partes* review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.”). In a motion to amend, however, the patent owner has the burden of demonstrating the patentability of the claims. See 37 C.F.R. § 42.20(c) (“The moving party has the burden of proof to establish that it is entitled to the relief requested.”). In a case such as this, where the claims have been determined to be invalid under 35 U.S.C. § 101 by a district court (see Memorandum Opinion, Ex. 1024, 11–12), we will consider whether Patent Owner has explained how the proposed amendments addressed the district court’s concerns regarding the validity of the claims and whether Patent Owner has shown that its proposed amended claim encompasses patent eligible subject matter. See *Ariosa Diagnostics v. Isis Innovation Ltd.*, IPR2012-00022, Paper 166, 51–52, 2014 WL 4381564, *29–*30 (P.T.A.B. Sept. 2, 2014).

We begin our analysis with the principles of law that generally apply to a ground based on § 101, and then we turn to the arguments presented by the parties.

1. Principles of Law

A patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has held that this statutory

provision contains an important implicit exception: laws of nature, natural phenomena, and abstract ideas are not patentable. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S.Ct. 2347, 2354 (2014); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (“Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”). Notwithstanding that a law of nature or an abstract idea, by itself, is not patentable, the practical application of these concepts may be deserving of patent protection. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293–94 (2012).

In *Alice*, the Supreme Court reaffirmed the framework set forth previously in *Mayo* “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Id.* If the claims are directed to a patent-ineligible concept, the second step in the analysis is to consider the elements of the claims “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 132 S. Ct. at 1297–98). In other words, the second step is to “search for an ‘inventive concept’—*i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Id.* (quoting *Mayo*, 132 S. Ct. at 1294) (brackets in original). The prohibition against patenting an

abstract idea “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment or adding insignificant postsolution activity.” *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (citation and internal quotation marks omitted).

Accordingly, using this framework, we analyze Patent Owner’s proposed substitute claim 22.

2. Whether Proposed Substitute Claim 22 is Directed to an Abstract Idea

In the first step of our analysis, we determine whether the challenged claims are directed to a patent-ineligible concept, such as an abstract idea. *See Alice*, 134 S. Ct. at 2355. Petitioner contends that proposed substitute claim 22 is directed to the abstract idea of completing partial instructions. Opp. 8 (citing Ex. 1024, 12). According to Petitioner, generally addressing both *Alice* steps, original claim 9 was found to be directed to unpatentable subject matter by a district court (*id.* at 2), and the limitations added to proposed substitute claim 22 “merely ‘add a degree of particularity’ to the abstract idea”, which is insufficient to transform the abstract idea into patent-eligible subject matter (*id.* at 9 (citing *Ulramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014))). Petitioner, therefore, concludes that the district court’s analysis applies to proposed substitute claim 22. *Id.* at 9.

In response, Patent Owner relies upon the United States Court of Appeals for the Federal Circuit’s decision in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014), to support its position that the challenged claims are not directed to an abstract idea. PO Reply 4–5. According to Patent Owner, proposed substitute claim 22 is directed to a

problem rooted in computerized networks where incomplete computer programs must be processed to complete them before transmitting them from one level (*e.g.*, transmitter stations) to be executed at other levels (*e.g.*, receiver stations). *Id.* at 5 (citing Ex. 2028 ¶ 109).

In *DDR Holdings*, the Federal Circuit determined that, although, the patent claims at issue there involved conventional computers and the Internet, the claims addressed the problem of retaining website visitors who, if adhering to the routine, conventional functioning of Internet hyperlink protocol, would be transported instantly away from a hosts website after “clicking” on an advertisement and activating a hyperlink. *DDR Holdings*, 773 F.3d at 1257. The Federal Circuit held that “the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.” *Id.*

Patent Owner contends that Petitioner and the district court overly simplify the claims to create the proposed abstract idea. PO Reply 6 (citing Ex. 1024, 11). Patent Owner argues, however, that there is nothing abstract about completing partial computer program instructions. *Id.* According to Patent Owner, the claim recites both a temporal sequence of steps and technical operations that are required at specific locations in a network, which indicates that the claim is per se technological as it fits no other context than a computer network. *Id.* (citing 2028 ¶¶ 90–94).

Based on our independent assessment of these challenged claims, we do not agree with Patent Owner that the steps recited in proposed substitute claim 22 is “necessarily rooted in computer technology” and “specifically arises in the realm of computer networks.” *See DDR Holdings*, 773 F.3d at

1257. Rather, we find that the subject matter of the challenged claims as framed by Petitioner—namely, “completing incomplete or partial instructions”—is not different fundamentally from the kinds of conventional commercial methods and processes that were the subjects of recent decisions from the United States Supreme Court, as discussed below.

The Supreme Court held that the claims in *Alice* were drawn to the abstract idea of intermediated settlement and that “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Alice*, 134 S. Ct. at 2352, 2358. *Alice* involved “a method of exchanging financial obligations between two parties using a third-party intermediary to mitigate settlement risk.” *Id.* at 2356. Like the method of hedging risk in *Bilski*, 561 U.S. at 628, which the Supreme Court deemed “a method of organizing human activity,” *Alice*’s “concept of intermediated settlement” was held to be “a fundamental economic practice long prevalent in our system of commerce.” *Alice*, 134 S. Ct. at 2356. Similarly, the Supreme Court found that “[t]he use of a third-party intermediary . . . is also a building block of the modern economy.” *Id.* Thus, the Supreme Court held that “intermediated settlement . . . is an ‘abstract idea’ beyond the scope of § 101.” *Id.* With respect to the first step of the patent-eligible analysis under the *Mayo* framework, the Supreme Court concluded that in *Alice* “there is no meaningful distinction between the concept of risk hedging in *Bilski* and the concept of intermediated settlement” in *Alice*, and that “[b]oth are squarely within the realm of ‘abstract ideas’ as we have used that term.” *Alice*, 134 S. Ct. at 2357. On this record, we determine that, similar to the concept of intermediated

settlement in *Alice* and the concept of risk hedging in *Bilski*, the concept at issue here—namely, “completing incomplete or partial instructions”—is a “practice long prevalent in our system of commerce,” and “squarely within the realm of ‘abstract ideas.’” *Alice*, 134 S. Ct. at 2356–57; *Bilski*, 561 U.S. at 611.

In the present case, “completing incomplete or partial instructions” so as to have customized instructions (or advertising as discussed in Examples 9, 10, and 11 of the ’587 patent) is similar to commercial practices long found in radio and television advertising, where advertisements were produced at a central station and sent in an incomplete format to local or regional stations with instructions to insert additional information relating to local prices or specials into the advertising. *See, e.g.*, Ex. 1003, 1316 (stating “[t]he Examiner finds that it was notoriously well known in the television art to embed one or more ‘instruction signals’ into broadcast TV programming to automate the process of inserting local or regional advertising into the programming prior to re-transmission, as illustrated by Marsden, Germany, and Diedrich.”); *see also* Ex. 3001, 1:8–14 (patent application by Germany, relied upon by the Examiner, explaining the “need for a cueing system to facilitate the insertion of local announcements, regional broadcasts, alternative advertisements, and the like into different programs), Ex. 3002 (patent application by Marsden, relied upon by the Examiner, stating that it was a commercial television practice for “a common programme from a studio [to be] distributed to several different transmitting stations serving different areas, each of which inserts their own advertisements at intervals in the programme”). We do not find this to be an

inventive concept. Specifically, tailoring instructions based on device-specific information is no different than customizing radio or television advertising content based on geographic pricing information. Therefore, in view of the foregoing, we are not persuaded that Patent Owner has demonstrated that proposed substitute claim 22 is directed to a patent-ineligible abstract idea under 35 U.S.C. § 101.

3. Whether the Proposed Substitute Include Limitations That Represent Inventive Concepts

Turning to the second step in the analysis, we look for additional elements that can “transform the nature of the claim” into a patent-eligible application of an abstract idea. That is, we determine whether the claims include limitations that represent an “inventive concept,” i.e., an element or combination of elements sufficient to ensure that the patent in practice amounts to significantly more than a patent on the abstract idea itself. *Alice*, 134 S. Ct. at 2357. The relevant inquiry here is whether “additional substantive limitations . . . narrow, confine, or otherwise tie down the claim so that, in practical terms, it does not cover the full abstract idea itself.” *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1344–45 (Fed. Cir. 2013) (internal quotations and citation omitted). The Supreme Court in *Alice* cautioned that merely limiting the use of abstract idea “to a particular technological environment,” or implementing the abstract idea on a “wholly generic computer,” is not sufficient as an additional feature to provide “practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.” *Alice*, 134 S. Ct. at 2358 (brackets in original) (citation and internal quotation marks omitted).

In other words, the limitations of the claims must be examined to determine whether the claims contain an “inventive concept” to “transform” the claimed abstract idea into patent-eligible subject matter. *Id.* (internal quotation marks omitted) (citing *Alice*, 134 S. Ct. at 2357). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Alice*, 134 S. Ct. at 2357 (quoting *Mayo*, 132 S. Ct. at 1297) (alterations in original). Those “additional features” must be more than “well-understood, routine, conventional activity.” *Ultramercial, Inc. v. Hulu, LLC* 772 F.3d 709, 715 (Fed. Cir. 2014) (internal quotation marks omitted) (citing *Mayo*, 132 S. Ct. at 1298).

Petitioner contends that proposed substitute claim 22 fails to recite any meaningful limitations on the abstract idea. Opp, 9. Petitioner specifically argues that the limitations added to proposed substitute claim 22 “result in slightly narrowing the claim,” but “merely ‘add a degree of particularity’ to the abstract idea” that does not transform the abstract idea into patent-eligible subject matter. *Id.* (citing *Ultramercial, Inc.*, 772 F.3d at 715). Petitioner concludes that limiting the “instructions” to being “executable” “program instruction sets” that are “communicated” by the transmitter station does not render the claimed subject matter patentable under 35 U.S.C. § 101, because claims are patent eligible only if they include an inventive concept. *Id.*

Patent Owner contests Petitioner’s arguments that the challenged claims lack meaningful limitations that confine the claims to patentable subject matter. PO Reply 6–7. Patent Owner argues that with the further

technical limitations and clearly stated technical goal, claim 22 undoubtedly recites a technological invention with practical benefits rather than an abstract idea. *Id.* at 7 (citing Ex. 2028 ¶ 95; Ex. 2027 ¶¶ 10–13).

We find that when considered individually and “as an ordered combination,” the claim elements appear to be steps to perform the abstract concept of “completing incomplete or partial instructions” on a computer, which is not sufficient to transform an abstract idea into a patent-eligible invention. *See Alice*, 134 S. Ct. at 2359–60 (citing *Mayo*, 132 S. Ct. at 1297–98). Therefore, we find that Patent Owner has not demonstrated the patentability of proposed substitute claim 22. Accordingly, Patent Owner’s Motion to Amend is *denied*.

C. Analysis of the Patentable Distinction of the Propose Claim Over the Prior Art

We have determined that Patent Owner has not demonstrated the patentability of proposed substitute claim 22 under 35U.S.C. § 101. Accordingly, we need not reach a decision regarding whether proposed substitute claim 22 is patentable in view of the prior art.

IV. CONCLUSION

For the foregoing reasons, we conclude Petitioner has shown by a preponderance of the evidence that claim 9 of the ’587 patent would have been obvious in view of either Monat or Calo.

In addition, we conclude Patent Owner has not demonstrated, by a preponderance of the evidence, the patentability of proposed substitute claim 22, and therefore, we denied Patent Owner’s Motion to Amend.

V. ORDER

For the reasons given, it is

ORDERED that, by a preponderance of the evidence, claim 9 of the '587 patent is 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:

Brenton R. Babcock
Colin B. Heideman
Kent N. Shum
KNOBBE, MARTENS, OLSON & BEAR, LLP
2brb@knobbe.com
2cbh@Knobbe.com
2kent.shum@knobbe.com
BoxAmazon1@knobbe.com

PATENT OWNER:

Stephen T. Schreiner
Phong Dinh
GOODWIN PROCTER LLP
SSchreiner@goodwinprocter.com
PDinh@goodwinprocter.com

Thomas J. Scott, Jr., Vice President & General Counsel
PERSONALIZED MEDIA COMMUNICATIONS, LLC
tscott@pmcip.com