

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

ROVI GUIDES, INC.,
Patent Owner.

Cases IPR2017-01144, IPR2017-01145, IPR2017-01146¹
Patent 6,418,556 B1

Before KARL D. EASTHOM, BARBARA A. BENOIT, and
SUSAN L. C. MITCHELL, *Administrative Patent Judges*.

BENOIT, *Administrative Patent Judge*.

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

¹ This paper includes final written decisions for each of the identified proceedings, which challenge the same claims. The identified proceedings, however, are separate proceedings with individual records and have not been consolidated or joined.

I. INTRODUCTION

In these *inter partes* reviews—IPR2017-01144 (“44IPR”), IPR2017-01145 (“45IPR”), and IPR2017-01146 (“46IPR”), instituted pursuant to 35 U.S.C. § 314—Comcast Cable Communications, LLC challenges the patentability of claims 1–4, 6, 7, 10, 14, 16, 18–21, 28, 30, 33, and 35–40 (“the challenged claims”) of U.S. Patent No. 6,418,556 B1 (“the challenged patent” or “the ’556 patent”),² owned by Rovi Guides, Inc. (“Patent Owner”). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered in each *inter partes* review pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. This Decision is issued concurrently with a Final Written Decision in IPR2017-01147, which challenges the patentability of claims 11–13, 22, 24, 26, and 27 of the ’556 patent. This Decision also is issued concurrently with Final Written Decisions in IPR2017-01148, IPR2017-01149, IPR2017-01150, and IPR2017-01151, each of which challenges other claims in the ’556 patent.

For reasons discussed herein, Petitioner has shown by a preponderance of the evidence that claims 1–4, 6, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, and 35–40 of the ’556 patent are unpatentable.

A. Procedural History

Comcast Cable Communications, LLC (“Petitioner”) filed Petitions for *inter partes* review of the challenged claims in each of the three Petitions. 44IPR, Paper 2 (“44Pet.” or “44Petition”); 45IPR, Paper 2 (“45Pet.” or “45Petition”); 46IPR, Paper 2 (“46Pet.” or “46Petition”).

² The challenged patent is Exhibit 1001 in IPR2017-01144, Exhibit 1101 in IPR2017-01145, and Exhibit 1201 in IPR2017-01146.

Patent Owner filed a Preliminary Response in each proceeding. 44IPR, Paper 6 (“44Prelim. Resp.” or “44Preliminary Response”); 45IPR, Paper 6 (“45Prelim. Resp.” or “45Preliminary Response”); 46IPR, Paper 6 (“46Prelim. Resp.” or “46Preliminary Response”). On November 7, 2017, after considering the information presented in the Petition and the Preliminary Response, we instituted an *inter partes* review of the challenged claims on all grounds asserted by Petitioner. 44IPR, Paper 8 (“44Institution Decision” or “44Inst. Dec.”); 45IPR, Paper 8 (“45Institution Decision” or “45Inst. Dec.”); 46IPR, Paper 8 (“46Institution Decision” or “46Inst. Dec.”).

In each proceeding subsequent to the Institution Decision and by Order of the panel (Paper 10³), Patent Owner filed a single Response (“PO Resp.”; 44IPR, Paper 18; 45IPR, Paper 18; 46IPR, Paper 18), and Petitioner filed a single Reply (“Pet. Reply”; 44IPR, Paper 22; 45IPR, Paper 22; 46IPR, Paper 22). A consolidated hearing for these proceedings was held on July 12, 2018.⁴ See 44IPR, Paper 40; 45IPR, Paper 40; 46IPR, Paper 40 (collectively “Tr.”).

After the consolidated hearing, the parties filed additional briefing to address a claim construction issue arising out of the ITC Case identified as a related matter in the next section. See 44IPR, Paper 33; 45IPR, Paper 33; 46IPR, Paper 33 (collectively “Claim Construction Order”); 44IPR, Paper 34; 45IPR, Paper 34; 46IPR, Paper 34 (collectively “Patent Owner’s Sur-Reply”); 44IPR, Paper 36; 45IPR, Paper 36; 46IPR, Paper 36 (collectively

³ The order is Paper 10 in each proceeding.

⁴ Patent Owner objects to two of Petitioner’s demonstrative slides as impermissibly presenting new arguments. Paper 30. We have not relied on the objected-to slides in this decision and dismiss those objections as moot.

“Petitioner’s Response to Patent Owner’s Sur-Reply”); 44IPR, Paper 38; 45IPR, Paper 38; 46IPR, Paper 38 (collectively “Patent Owner’s Opposition to Petitioner’s Response to Patent Owner’s Sur-Reply”).

We note that, although there are differences among the 44IPR, 45IPR, and 46IPR (including, but not limited to, different combinations of prior art references and different reasons to combine), there is a significant overlap of arguments presented and evidentiary records among the proceedings. Each final written decision has been decided on its own record.

B. Related Matters

Petitioner identifies the following related district court matters involving the ’556 patent: *Rovi Guides, Inc. v. Comcast Corp.*, 2:16-cv-00322 (EDTX), transferred; *Rovi Guides, Inc. v. Comcast Corp.*, 1:16-cv-09826 (SDNY); *Comcast Corp. v. Rovi Corp.*, 16-cv-3852 (SDNY). *See, e.g.*, 44Pet. 1–2; 44IPR, Paper 3 (Patent Owner’s Mandatory Notice Information), 3; *see* 37 C.F.R. § 42.8(b)(2) (requiring parties to identify “any other judicial or administrative matter, that would affect, or be affected by, a decision in the proceeding”).

Petitioner notes Patent Owner asserted the ’556 patent “against [several] Comcast entities . . . in U.S. International Trade Commission Investigation No. 337-TA-1001, styled *In the Matter of Certain Digital Video Receivers and Hardware and Software Components Thereof*” (hg6565ui “ITC Case”). *See, e.g.*, 44Pet. 1–2; Paper 3, 3. The parties also identify pending applications that claim the benefit of the filing date of the application that issued as the challenged patent. *See, e.g.*, 44Pet. 3–4; 44IPR, Paper 3, 3–7.

In addition to IPR2017-01144, IPR2017-01145, and IPR2017-01146, Petitioner filed five other petitions challenging the '556 patent for which *inter partes* review has been instituted—IPR2017-01147, IPR2017-01148, IPR2017-01149, IPR2017-01150, and IPR2017-01151. *See, e.g.*, 44Pet. 3.

C. The '556 Patent

The '556 patent, titled “Electronic Television Program Guide Schedule System and Method,” provides a programming guide that allows a user “to view a broadcast program while, at the same time, interactively viewing program schedule information for other programs.” Ex. 1001, (54), 3:34–37; *see id.* at 23:18–22.

1. The Written Description

The challenged patent describes a preferred embodiment of an electronic program scheduling system in Figure 1, which is set forth below.

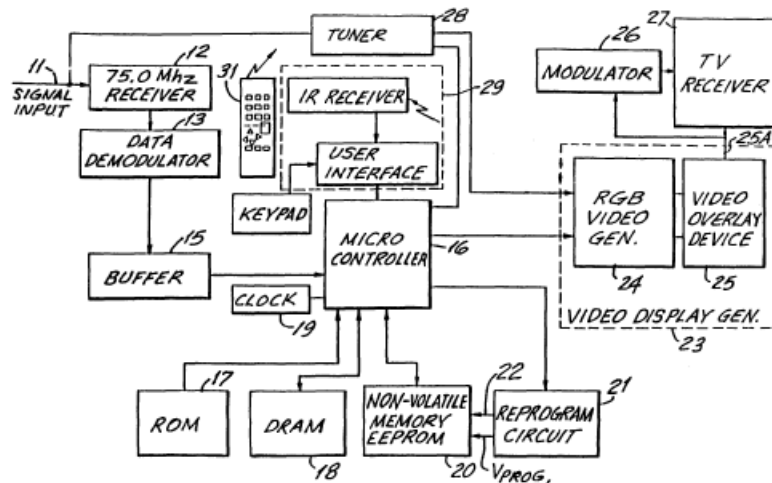


FIG. 1

Figure 1 depicts, among other components, “microcontroller 16” and “video display generator 23.” Microcontroller 16 “takes the program

schedule information stored in the DRAM⁵ 18” and “supplies it to a video display generator (VDG) 23.” *Id.* at 8:3–10. The video display generator “includes a standard RGB video generator 24, which takes the digital program schedule information sent by the microcontroller 16 and converts it to an RGB format . . . for the particular screen display then being presented to the user on the television receiver 27.” *Id.* at 8:12–17. The video display generator “includes a Video Overlay Device 25” which “converts and combines the RGB signal [that includes program schedule information] with the signal from the tuner 28, and produces a composite NTSC output signal containing both the program signal and the program schedule information.” *Id.* at 8:20–29, FIG. 2. The composite video signal can be “supplied directly to the television receiver 27.” *Id.* at 8:33–36.

The challenged patent also indicates that, as an alternative to storing program information in DRAM, “the program schedule information could be supplied in a ROM,⁶ disk or other non-volatile memory, or it could be downloaded to a storage disk, or other data storage device.” *Id.* at 7:11–14. The challenged patent also clarifies that “[t]he invention herein is not directed to the particular method of transmission or reception of the schedule information.” *Id.* at 7:14–16.

Also, the challenged patent describes a “surfing feature” that “provide[s] the user with current programming information for all programs as the user surfs through the available channels.” *Id.* at 4:8–10. Figure 5, reproduced below, illustrates an example of surfing in a “flip” mode:

⁵ Ex. 1001, 7:5–6 (indicating DRAM refers to “dynamic random access memory”).

⁶ Ex. 1001, 7:2–3 (indicating ROM refers to “read only memory”).

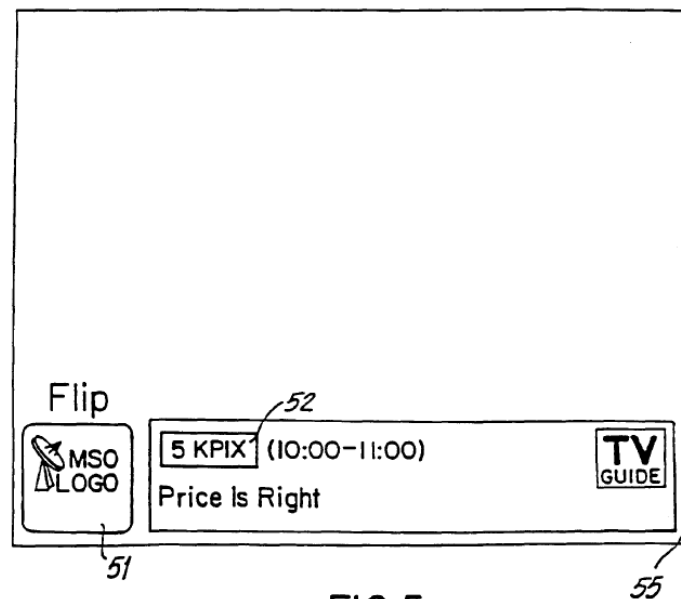


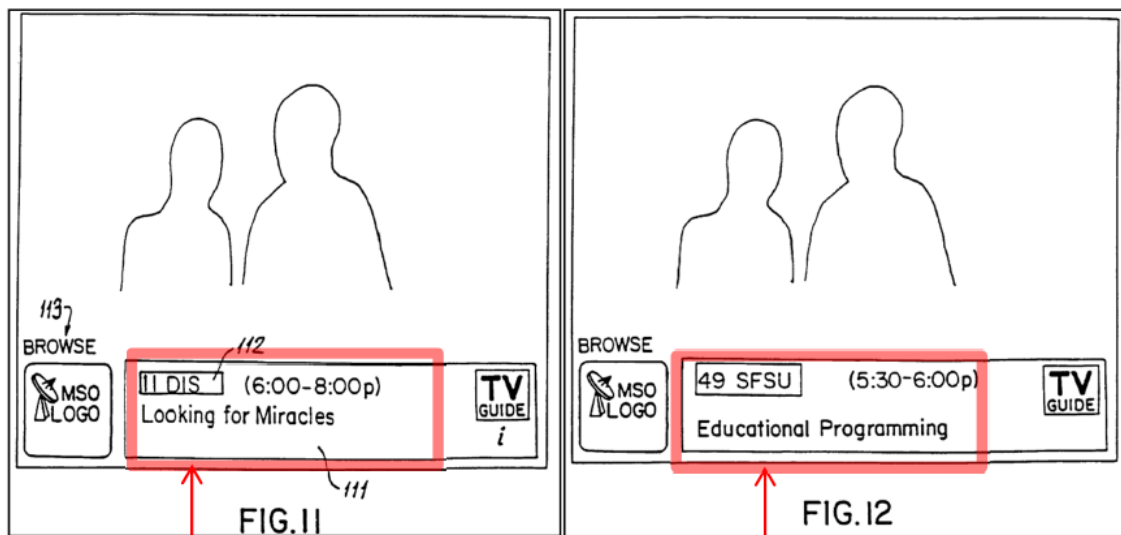
FIG. 5

As indicated by Figure 5 above, each time a user changes (i.e., “flips”) channels using remote control device 31, the system provides graphic program information 51 “superimposed in overlaying relationship with a received program signal 55” corresponding to the currently viewed channel (e.g., channel 52). *See id.* at 10:6–14.

In contrast to the Flip mode, in Browse mode a user may “scan through program schedule information for any channel” overlaying the signal corresponding to the currently viewed program. *See id.* at 11:29–33. When a user first enters the Browse mode (e.g., by depressing MODE switch 38 on remote controller 31, *see id.* at Fig. 3), like the Flip mode, information about the currently viewed program overlays the television signal. *See id.* at Fig. 11. Subsequently, in the Browse mode, remote controller 31 allows a user to view program information about a current program on a different channel or a future program on the same or a different channel, with said program information overlaying the currently viewed program signal. *See id.* at 12:35–48, Fig. 12A (showing programming information of a future

program (at 8:50 p.m.) overlaying a current television program signal (at 6:48 p.m.)); *id.* at 11:44–54 (describing a user pressing arrow keys on a remote controller to view program schedule information that appears in sequential time periods); 44Prelim. Resp. 6 (describing Ex. 1001, 11:44–54).

Petitioner annotates Figures 11, 12, and 12A to illustrate the Browse mode features. *See* 44Pet. 9–10. A reproduction of Petitioner’s annotated Figures 11, 12, and 12A follows:



Program information for
Channel 11 (current program)

Program information for a
different channel

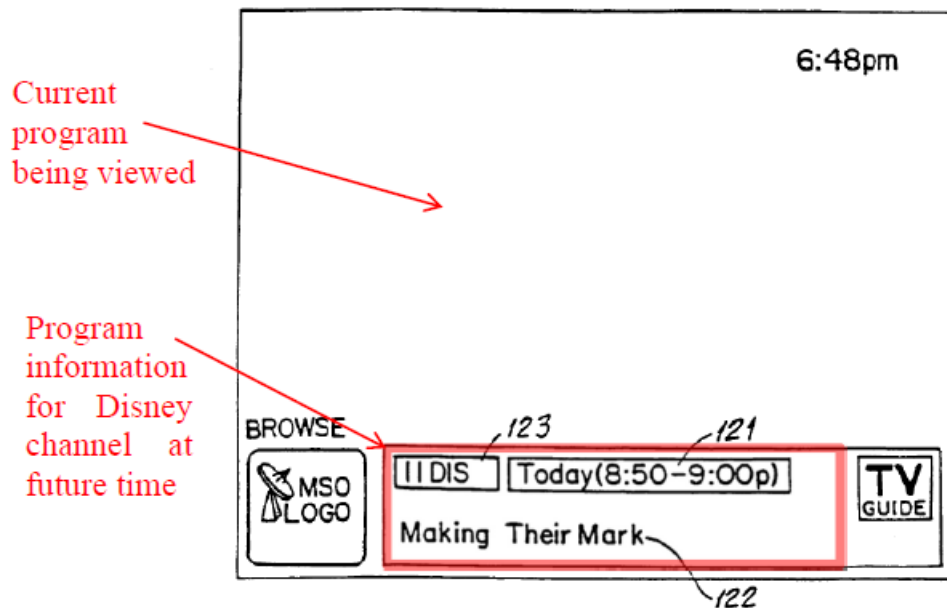


FIG. 12A

Id. As illustrated above in Petitioner’s annotated Figures 11, 12, and 12A, in the Browse mode, a user can surf through different types of program information overlaying a currently viewed program. *See, e.g.*, 44Pet. 9–10; Ex. 1001, 12:19–55.

In addition, the patent explains that “at any time during scanning of the program schedule information in the BROWSE mode, the user . . . [may] depress[] the ENTER button 44 and the tuner 28 will be tuned to that channel.” Ex. 1001, 12:1–7.

The ’556 patent describes “a particular need for a flexible program schedule system that allows a user to view selected broadcast programs on a portion of the screen of the television receiver while simultaneously viewing program schedule information for other channels and/or services on another portion of the screen.” *Id.* at 3:4–9. In general, “[t]he user may navigate through the program schedule system with a remote controller . . . [that]

operates on conventional principles of remote control . . . logic . . . , or other suitable user interface.” *Id.* at 8:49–54.

The ’556 patent generally refers to “other modes” in conjunction with a “highlighted program” associated with a cursor. *See* at 15:41–42. Using the remote controller, each mode provides navigation through channels. “The up/down direction arrow keys 37A allow a user to navigate through the different TV program channels when the program schedule system is in a FLIP or BROWSE mode, as will be fully described below, and also allow the user to navigate through highlighted bars displayed on the TV screen when in a MENU mode.” *Id.* at 9:9–15. In a section titled “Menu Mode,” the ’556 patent states “a moveable highlighted cursor 185 is used to indicate the currently selected program to the user.” *Id.* at 14:42–44, *see* Figs. 18, 25. In general, “[a]s with other modes, if a user wishes to tune to a highlighted program that is currently airing, he can do so by simply depressing the ENTER key on the remote controller” and for future programs, instead of tuning, exercise a reminder function. *Id.* at 15:41–46 (emphasis added).

2. *Illustrative Claims*

Petitioner challenges claims 1–4, 6, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, and 35–40, of which claims 1–4, 14, 16, 19, 20, 28, 30, 33, 39, and 40 are independent. Each of the challenged claims set forth in dependent form (claims 6, 7, 10, 18, 21, and 35–38) are set forth in multiple dependent form—“contain[ing] a reference, in the alternative only, to more than one claim previously set forth and then specify[ing] a further limitation of the

subject matter claimed.” 35 U.S.C. § 112 ¶ 5.⁷ We understand the Petitioner to use parenthetical notation, when referring to a challenged dependent claim, to indicate which one or ones of the multiple referenced claims are included in the challenge. For example, claim 7 is in multiple dependent claim form and depends from, in the alternative, one of independent claims 1, 2, 3, 4, and 5. Ex. 1101, 16:9–12. Petitioner’s notation identifies claim “7/(1–4)” as a challenged claim. Pet. 5 (Petitioner “petitions for *inter partes* review of claims 1–4, 6/1, 7/(1–4), 10/(1–4), 14, 16, 18/(14, 16), 19–21, 28, 30, 33, 35/(14, 16, 18/(14, 16)⁸), 36/(1–4, 20), 37/(1–4, 20), 38/(2–4, 14, 16, 20), 39, and 40.”). We understand Petitioner’s

⁷ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. §§ 103, 112 effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA version of §§ 103, 112 in this Decision.

⁸ We note that challenged claim 35 is set forth in multiple dependent form as depending from one of claims 14, 15, 16, 17, or 18. Ex. 1001, 35:46–47. In turn, challenged claim 18 (from which challenged claim 35 depends) also is set forth in multiple dependent form as depending from one of claims 14, 15, 16, or 17. Ex. 1001, 29:49–50. Thus, claim 35 appears on its face to be in a form prohibited expressly by 35 U.S.C. § 112 ¶ 5—“[a] multiple dependent claim shall not serve as a basis for any other multiple dependent claim.” In addition, by statute “[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 other conditions relevant to sections 102 or 103. 35 U.S.C. § 311(b) (specifying the scope of an *inter partes* review). We, however, are able to determine the scope of claim 35 under consideration here because the claims from which claim 18 depends—claims 14, 15, 16, and 17—also are identified as claims from which dependent claim 35 depends. Accordingly, the scope of claim 35 as challenged here is not “speculative as to the meaning of the terms employed and assumptions as to the scope of” the claim.” *Cf. In re Steele*, 305 F.2d 859 (CCPA 1962). Thus, we do consider the patentability of claim 35 under § 103 as challenged by the Petitioner in this *inter partes* review.

notation “7/(1–4)” indicates a challenge of claim 7 depending from independent claim 1, claim 7 depending from independent claim 2, claim 7 depending from independent claim 3, and claim 7 depending from independent claim 4—but not a challenge to claim 7 depending from independent claim 5. In these Final Written Decisions, we adopt Petitioner’s notation for consistency.

Independent claims 1 and 2⁹ illustrate the subject matter of the challenged claims:

1. An electronic programming guide for use with a television receiver having a plurality of television channels for displaying television programs and program schedule information for said television programs comprising[1[A]]:

memory means for storing television program schedule information for a set of television programs scheduled to appear on said plurality of television channels [1[B]];

user control means for choosing user control commands, including television tuning, guide channel-control and guide time-control commands, and transmitting signals in response thereto [1[C]];

data processing means for receiving said signals in response to said user control commands [1[D]];

and
a video display generator adapted to receive video control commands from said data processing means and program schedule information from said memory means for displaying interactively-selected successive portions of said program schedule information in overlaying relationship with another display signal currently appearing on a selected channel in at least one mode of operation of said programming guide [1[E]];

⁹ Petitioner’s abbreviation for claim limitations include a numeral representing the claim number and a bracketed uppercase alphabetic letter, such as “1[A].” *See, e.g.*, 44-Pet. App. A-1 to A-29. Petitioner’s abbreviations have been added in brackets to the claim language.

said data processing means controlling said video display generator with said video control commands in response to said user control commands to display each said portion of program schedule information for any chosen one of said television programs for a predetermined display period in partial overlaying relationship with another display signal currently being received on said television receiver [1[F]];

each said portion being displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is stored in said memory means, said data processing means being responsive to said television tuning commands for allowing a user to select any one of said television programs for which listing information is displayed in said partially overlaid portion of said schedule information [1[F]].

The '556 patent, 23:2–41 (paragraphing in original).

2. An electronic programming guide for use with a television receiver having a plurality of television channels for displaying television programs and program schedule information for said television programs comprising [2[A]]:

memory means for storing television program schedule information for a set of television programs scheduled to appear on said plurality of television channels [2[B]];

user control means for choosing user control commands, including television tuning and guide time-control commands, and transmitting signals in response thereto [2[C]];

data processing means for receiving said signals in response to said user control commands [2[D]]; and

a video display generator adapted to receive video control commands from said data processing means and program schedule information from said memory means for displaying interactively-selected successive portions of said schedule information for a currently tuned channel in overlaying relationship with another display signal currently appearing on

said channel in at least one mode of operation of said programming guide [2[E]];

said data processing means controlling said video display generator to display each said portion of program schedule information in partial overlaying relationship with said currently appearing display signal, each said portion comprising listing information for each successive one of said television programs scheduled to appear on said currently tuned channel and being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods for which program schedule information is stored in said memory means, said data processing means being responsive to said television tuning commands for allowing a user to select any one of said programs for which listing information is displayed in said partially overlaid portion of said schedule information [2[F]].

The '556 patent, 23:42–24:13.

3. *Prosecution History*

The application that issued as the '556 patent on July 9, 2002 was filed on September 9, 1993. Ex. 1001, [22], [45]. As filed, the application did not claim the “tuning feature” recited in the challenged claims. *Compare* Ex. 1006, 75 (application claims 1–4), *with* Ex. 1001, 23:2–41 (patent claim 1 requiring guide control commands for navigating through program listing information in a certain manner and television tuning commands (Ex. 1001, 23:32–41) not present in application claim 1). On August 11, 1994, the Examiner rejected the original claims (which did not recite the “tuning feature” that is recited in the issued claims) as anticipated by Young '801. Ex. 1006, 304, 308–309. According to the Examiner, Young '801

discloses an user interface television schedule system (see figure 22a, 22b) showing an user control means 212; a data processing

means 228; a video display generator 224; and memory means 232–240. In figures 14–17, and 20, Young ['801] further shows the details of the television channel selection menus which clearly meet the selection menu as claimed.

Ex. 1006, 309; *see* 44Pet. 19. In response to the rejection, the Applicant characterized Young '801 (among other characterizations) as disclosing “an electronic program guide that displays television schedule information to a user, allows the user to navigate through that information in a variety of ways and aids the user in recording programs on a VCR.” Ex. 1006, 416 (identifying August 11, 1994 as Office action to which the Applicant’s response is directed), 442–443 (characterizing Young '801). The Applicant distinguished the pending application claims as “allow[ing] a user who is viewing a particular program (or any other display signal) also to view program schedule information for programs appearing either 1) at any time on channels other than the currently tuned channel or 2) at times other than the current time on the currently tuned channel.” Ex. 1006, 443; Prelim. Resp. 8–9 (citing Ex. 1006, 443–444); *see* 44Pet. 19 (citing Ex. 1006, 689–690 (Applicant’s response to Office action dated February 2, 1995)).

Subsequently, after the Applicant met with the Examiner and at the suggestion of the Examiner, the Applicant amended the claims to include a tuning function to distinguish the prior art of record. Ex. 1006, 939 (Examiner Interview Summary Record of May 7, 1996¹⁰), 976 (Applicant’s

¹⁰ The Examiner Interview summary indicates the discussion concerned application claim 42 (patent claim 2), application claim 72 (patent claim 16), and application claim 73 (patent claim 17). Ex. 1006 (Part 3 of 9), 939 (Examiner Interview Summary Record); Ex. 1006 (Part 6 of 9), 1833–1900 (Rule 312 Amendment mapping application claims to issued claims); Ex. 1006 (Part 9 of 9), 2899 (Index of Claims showing application claim 42

written response noting interview of May 7, 1996), 979 (Applicant’s written response noting amendment regarding television tuning commands to expedite allowance); *see* Ex. 1006, 946–980 (Applicant’s response to Office action dated March 6, 1996); Prelim. Resp. 9 n.4; *see also* 44Prelim. Resp. 9 (citing Ex. 1006, 939, 978–979). Although the Examiner again rejected the pending claims over newly cited references (Ex. 1006, 1026), the patent issued with claims including a tuning feature. *See, e.g.*, Ex. 1001, 23:24–41 (“said data processing means being responsive to said television tuning commands for allowing a user to select any one of said television programs for which listing information is displayed in said partially overlaid portion of said schedule information”).

D. Instituted Grounds of Unpatentability

We instituted *inter partes* review on whether the challenged claims were unpatentable under 35 U.S.C. § 103 on the following particular grounds:

issued as patent claim 2).

Case: References	Claims Challenged
IPR2017-01144: Young '801, ¹¹ and Moro ¹²	1–4, 6/1, 7/(1–4), 10/(1–4), 14, 16, 18/(14, 16), 19–21, 28, 30, 33, 35/(14, 16, 18/(14, 16)), 36/(1–4, 20), 37/(1–4, 20), 38/(2–4, 14, 16, 20), 39, and 40.
IPR2017-01145: Young '801, Young '121, ¹³ and Reiter ¹⁴	2–4, 7/(2–4), 10/(2–4), 14, 16, 18/(14, 16), 19–21, 28, 30, 33, 35/(14, 16, 18/(14, 16)), 36/(2–4, 20), 37/(2–4, 20), 39, and 40
IPR2017-01145: Young '801, Young '121, Reiter, and Strubbe ¹⁵	1, 6/1, 7/1, 10/1, 36/1, 37/1, and 38/(2–4, 14, 16, 20)
IPR2017-01146: Young '801, Young '121, Remillard, ¹⁶ and AAPA ¹⁷	2–4, 7/(2–4), 10/(2–4), 14, 16, 18/(14, 16), 19–21, 28, 30, 33, 35/(14, 16, 18/(14, 16)), 36/(2–4, 20), 37/(2–4, 20), 39, and 40
IPR2017-01146: Young '801, Young '121, Remillard, AAPA, and Strubbe	1, 6/1, 7/1, 10/1, 36/1, 37/1, and 38/(2–4, 14, 16, 20)

44Inst. Dec. 56; 45Inst. Dec. 45; 46Inst. Dec. 49.

¹¹ Young et al., WO 92/04801 (published Mar. 19, 1992) (“Young '801”). Young '801 is Exhibit 1002 in IPR2017-01144, Exhibit 1102 in IPR2017-01145, and Exhibit 1202 in IPR2017-01146.

¹² Moro E.P. Pat. Pub. No. 0444496 (published Sept. 4, 1991) (“Moro”). Moro is Exhibit 1003 in IPR2017-01144.

¹³ Young, U.S. Pat. No. 4,706,121 (issued Nov. 10, 1987) (“Young '121”). Young '121 is Exhibit 1111 in IPR2017-01145 and Exhibit 1211 in IPR2017-01146.

¹⁴ Reiter, U.S. Pat. No. 4,571,578 (published June 14, 1988) (“Reiter”). Reiter is Exhibit 1104 in IPR2017-01145.

¹⁵ Strubbe et al., U.S. Pat. No. 5,047,867 (issued Sept. 10, 1991) (“Strubbe”). Strubbe is Exhibit 1110 in IPR2017-01145 and Exhibit 1210 in IPR2017-01146.

¹⁶ Remillard, U.S. Pat. No. 5,404,393 (issued Apr. 4, 1995, filed Sept. 28, 1992) (“Remillard”). Remillard is Exhibit 1205 in IPR2017-01146.

¹⁷ Petitioner contends that the challenged patent’s description of commercially available components used to implement the video display

II. DISCUSSION

A. *Principles of Law Concerning Demonstrating Unpatentability*

To prevail in challenging Patent Owner’s claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

Petitioner asserts that certain claims of the challenged patents are unpatentable under 35 U.S.C. § 103(a) as obvious over various combinations of references. A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int’l Co. v.*

generator and overlay technique described in the ’556 patent (Ex. 1201, 8:3–48) constitutes Applicant Admitted Prior Art (“AAPA”) that can be relied on for obviousness determinations. 1146-Pet. 21 (citing MPEP § 2129).

Teleflex, Inc., 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Consideration of the Graham factors “helps inform the ultimate obviousness determination.” *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc).

We note that Patent Owner did not put forth evidence of objective indicia of nonobviousness. Petitioner, however, addressed alleged evidence of nonobviousness that was submitted during prosecution. *See, e.g.*, 44Pet. 82–84.

B. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the pertinent art at the time of the invention, various factors may be considered, including the “types of problems encountered in the art; prior art solutions to those problems; rapidity with which innovation are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (internal quotation and citation omitted). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovention Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Citing the declaration testimony of Mr. Wechselberger, Petitioner describes the level of ordinary skill in the art as follows:

A person of ordinary skill in the art (POSITA) would have had a bachelor's degree in computer science, computer engineering, electrical engineering, or the equivalent thereof, and 3–5 years of experience in software development in the 1990–1993 time-frame, or the equivalent thereof, and some experience within the television industry (broadcast, cable, or satellite), including television signal processing in consumer appliances.

44Pet. 18 (citing Ex. 1009 ¶ 30); *see, e.g.*, 44 Inst. Dec. 35 (discussing level of ordinary skill).

Patent Owner does not dispute the description and provides a materially similar description of a person of ordinary skill in the art. *See* PO Resp. 15 (citing Ex. 2006 ¶¶ 1–19). During the Oral Hearing, Patent Owner indicated any differences between Petitioner's and Patent Owner's descriptions do not create a dispositive issue. *See* Tr. 75:5–17. On this record, Petitioner's description comports with the level of ordinary skill implied by the prior art references discussed further below. Accordingly, we adopt it.

C. Weight Given to Expert Testimony

Petitioner contends that the testimony concerning how one of ordinary skill in the art would have understood the references and whether one of ordinary skill in the art would have found the claimed invention obvious, which was provided by Patent Owner's expert, Alan C. Bovik, Ph.D., should be given little weight.¹⁸ Pet. Reply 2–7.

We weigh the particular testimony regarding each particular issue on which Dr. Bovik or Mr. Anthony J. Wechselberger opines based on the

¹⁸ We note that Patent Owner did not request a sur-reply or other opportunity to respond to Petitioner's arguments regarding Dr. Bovik's declaration testimony.

factual corroboration, articulated reasoning, and disclosure of underlying facts or data provided by the expert. *See In re Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) (“[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.”); *see also* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *Magnum Oil*, 829 F.3d at 1380 (Petitioner’s burden of proving obviousness cannot be satisfied by mere conclusory statements).

D. Claim Construction

The Board interprets claim terms of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which the claims appear. 37 C.F.R. § 42.100(b) (Apr. 1, 2016); *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of broadest reasonable construction standard in *inter partes* review); *see also* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018)(final rule) (“This rule is effective on November 13, 2018 and applies to all IPR, PGR and CBM petitions filed on or after the effective date.”). Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with “reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d

1475, 1480 (Fed. Cir. 1994). In addition, the broadest reasonable construction of a claim term cannot be so broad that the construction is unreasonable under general claim construction principles. *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) (en banc) (“A construction that is unreasonably broad and which does not reasonably reflect the plain language and disclosure will not pass muster.” (internal quotation marks and citation omitted)).

1. Means Plus Function Terms

In our institution decision we analyzed certain phrases recited by the ’556 patent that Petitioner asserted fell under, or could fall under, 35 U.S.C. § 112 ¶ 6. *See, e.g.*, 44Inst. Dec. 15–34. Neither party has contested our determinations in a manner that requires further analysis. *See* PO Resp. 21 (characterizing the construction of one term as “unduly narrow,” but asserting “for purposes of the present proceedings . . . resolution of these [claim construction] disputes is unnecessary”); Reply 7–16 (providing claim constructions for other terms discussed further below). The parties also do not point us to arguments or evidence that necessitates a further analysis of the prior claim constructions.

Accordingly, after a further review of the record, we incorporate by reference and adopt our analysis and conclusions in our institution decision regarding the following claim terms. IPR44 Paper 8, 15–34; *see, e.g.*, IPR45 Paper 8, 16–17 (relying on analysis set forth in the institution decision in IPR44); IPR46 Paper 8, 16–17 (relying on analysis set forth in the institution decision in IPR44).

Term	Construction	Analysis/Citation
“user control means for choosing user control commands . . . and transmitting signals in response thereto”	means-plus-function limitation; corresponding structure is a remote controller with conventional guide and selection control (Ex. 1001, 8:60–9:6; Figs. 1, 3)	IPR44 Inst. Dec. 16–17; IPR45 Inst. Dec. 16; IPR46 Inst. Dec. 16–17
“a video display generator . . . for displaying” (claims 1–4, 20, and 39), “a program schedule display generator . . . for displaying” (claims 14 16, 19, 28, 30, and 40), and “an event schedule display generator . . . for displaying” (claim 33)	denotes a class of analog hardware devices that overlay text information onto a video signal; not means-plus-function limitation	IPR44 Inst. Dec. 17–23; IPR45 Inst. Dec. 16; IPR46 Inst. Dec. 17
“data processing means”	means-plus-function limitation; corresponding structure is a microcontroller or processor with logic structure (as described at Ex. 1001, 8:3–12, 8:49–60, 10:23–24, 10:43–49, and 12:1–7) for receiving signals responsive to remote control commands, controlling the video display generator to provide interactive navigation of selected programming guide information overlaying a display signal in response to the remote control commands, being responsive	IPR44 Inst. Dec. 23–29; IPR45 Inst. Dec. 16; IPR46 Inst. Dec. 17

Term	Construction	Analysis/Citation
	to television tuner commands from a user, and only displaying the partial overlay for a predetermined display period (as required by claim 1)	
“memory means for storing television program schedule information for a set of television programs scheduled to appear on said plurality of television channels” (claim 2)	denotes well-known structure including different forms of memory; not means-plus-function limitation	IPR2017-01144 Inst. Dec. 29–31; IPR2017-01145 Inst. Dec. 16; IPR2017-01146 Inst. Dec. 17
“means for receiving television program schedule information”	means-plus-function limitation; corresponding structure is a television receiver, a cable converter box, a data storage device, or a computer, capable of receiving program schedule information (described at Ex. 1001, 6:61–63, 7:11–16, 8:38–42, 8:44–48).	IPR2017-01144 Inst. Dec. 31–32; IPR2017-01145 Inst. Dec. 16–17; IPR2017-01146 Inst. Dec. 17

2. *“at least one mode of operation of said programming guide”*

Independent claim 2 recites “for displaying interactively-selected successive portions of said schedule information for a currently tuned channel in overlaying relationship with another display signal currently appearing on said channel in at least one mode of operation of said programming guide.” We preliminarily construed “at least one mode of operation of said programming guide” (claims 1–4, 20, and 39) to define different configurations of the data processing means and, thus, the phrase

that requires displaying certain information “in at least one mode of operation of said programming guide” requires at least one configuration of the data processing means in which the configuration displays the recited program schedule information in overlaying relationship with the display signal currently appearing on the channel. IPR44 Inst. Dec. 32–34 (noting the specification describes several modes, including Browse and Menu modes, and Patent Owner argued during the ITC Case that “the phrase should be construed ‘such that reminder messages may be presented in one or more configurations’” (quoting and citing Ex. 2001, 63, 65–68); IPR1145 Inst. Dec. 17; IPR46 Inst. Dec. 17–18.

The specification describes several modes, including the Browse, Menu, and Flip modes, with the Browse mode having a television tuner function. *See* Ex. 1001, 12:1–7 (Browse mode tuner function); 15:11–13 (indicating Menu Mode), 15:44–47 (“other modes”). The specification does not limit the plain language of “at least one mode” to a single mode, two modes, or three modes. *See, e.g.*, Ex. 1001, 11:21–13:14 (describing “Browse Mode” without describing “at least one mode”); *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1333–34 (Fed. Cir. 2004) (declining to limit the function of “rotating said lamp unit in a horizontal direction” to “360° rotation” even though Wal-Mart argues “the only ‘horizontal drive means’ disclosed by the . . . patent is one that rotates through 360°”).

Moreover, the specification contemplates “a flexible program schedule system” that performs the broad function of “allow[ing] a user to view selected broadcast programs on a portion of the screen of the television receiver while simultaneously viewing program schedule information for other channels and/or services on another portion of the screen.” Ex. 1001,

3:4–9 (“[T]here is a particular need for a flexible program schedule system that allows a user to view selected broadcast programs on a portion of the screen of the television receiver while simultaneously viewing program schedule information for other channels and/or services on another portion of the screen.”). The ’556 specification indicates the claims require support from combined features from different modes of operation.

During the Oral Hearing, Petitioner conceded the administrative law judge in the ITC Case determined the claims were limited to the Browse mode (Tr. 13:8–17), but argued that the ITC Case involved “a completely different record than we have here today” (Tr. 20:5–6), and argued that Patent Owner characterized the Browse mode broadly during prosecution (Tr. 6:13–7).¹⁹

¹⁹ The ALJ’s infringement analysis appears to require the Browse mode feature of listing one program at a time (i.e., a single-entry feature, at least for one of the claim phrases—the selecting and displaying phrase discussed next). See PO Sur-Reply 2 (citing Ex. 2001, 72 n.33); Ex. 2001, 72 n.33; 99–100. To the extent the ALJ determined the selecting and displaying clauses only find support in a single-entry Browse mode (see Ex. 2001, 100–01), we arrive at a different conclusion based on a different record, a different claim construction standard, and refined arguments. The record here considers generic passages of the ’556 patent that form part of the intrinsic record to inform claim scope, whereas the ITC Case focuses on the Browse mode section of the ’556 patent. See Ex. 2001, 72 (citing the ’556 patent, 11:21–13:14). Also, both parties disagree with the central basis of the ALJ’s reasoning, as neither party argues here that the claims require the single-entry listing feature as discussed further below. The ALJ in the ITC Case construed “‘one mode of operation of said programming guide’ to mean ‘a simultaneous display or overlay of program schedule information with another video signal with the recited navigation and tuning functions.’” Ex. 2001, 72.

Patent Owner also characterized its claims more broadly in the ITC Case, as discussed further below. *See* Ex. 2001, 63 (Patent Owner arguing the Browse mode “‘unduly narrows’ the claim scope”), 60 (Patent Owner arguing “[t]he inventors did not disavow the plain and ordinary scope of ‘one mode of operation of said programming guide’ such that it narrowly covers only a ‘browse mode’ of operation”).

On this record, including consideration of the ITC Case and the prosecution history, for the reasons above and further below, we determine the challenged claims include features from different modes to provide a flexible program system not limited to any single mode for simultaneous viewing of multiple programs in a partial overlay. *See* Ex. 1001, 3:4–9 (“[T]here is a particular need for a flexible program schedule system that allows a user to view selected broadcast programs on a portion of the screen of the television receiver while simultaneously viewing program schedule information for other channels and/or services on another portion of the screen.”). In other words, as explained further below in the next section, nothing restricts the challenged claims to the Browse mode.

Our construction here is consistent with our preliminary construction of “at least one mode of operation of said programming guide” to define different configurations of the data processor. *See* IPR44 Inst. Dec. 32–34; IPR1145 Inst. Dec. 17; IPR46 Inst. Dec. 17–18.

3. *“said television tuning commands for allowing [a/said] user to select any one of said [programs/television programs/receivable signals] for which listing information is displayed in said partially overlaid portion of said schedule information”*

Independent claim 1 recites “said television tuning commands for allowing a user to select any one of said television programs for which

listing information is displayed in said partially overlaid portion of said schedule information.” Ex. 1001, 23:37–41. Each of the other challenged independent claims recites a similar limitation, except that independent claims 39 and 40 do not recite that the listing information is displayed “in said partially overlaid portion of said schedule information.” See independent claims 1–4, 14, 16, 19, 20, 28, 30, 33, 39, and 40; *see also* PO Resp. 16 (proposing construction for “said television tuning commands for allowing [a/said] user to select any one of said [programs/television programs/receivable signals] for which listing information is displayed [in said partially overlaid portion of said schedule information]” that is recited in “all challenged claims”).

Petitioner contends that “television tuning commands for allowing a user to select any one of said programs for which listing information is displayed in said partially overlaid portion of said schedule information” means “[c]ommands allowing a user to select a listed television program and that cause a tuner to tune to the selected television program.” 44Pet. 18 (citing Ex. 1001, 12:1–7, Ex. 1009 ¶ 41); 45Pet. 18; 46Pet. 17.

Patent Owner contends that the term “requires the user be able to interact with the information in the overlay to select the desired program or other receivable signal.” PO Resp. 17 (citing Ex. 2006 ¶¶ 35, 36). Patent Owner asserts that Petitioner’s construction is overly broad because it “encompasses a user mentally choosing a desired program from the overlay and then, without interacting with the guide, uses channel up/down functionalities (separate from the overlay) to tune to a channel.” PO Resp. 17 (citing Ex. 2006 ¶37). For support, Patent Owner cites to the specification’s discussion of the reminder feature, the specification’s

discussion of the Browse mode, and Dr. Bovik's declaration testimony. PO Resp. 17–18 (citing Ex. 1001, 12:49–13:10, 11:37–43; 12:1–7, 12:22–27, 12:49–59, Figs. 12, 14; Ex. 2006 ¶¶ 35–42).

In reply, Petitioner maintains that the “plain language does not require interaction and the claims should not be limited to the Browse mode, which is only explicitly recited in claim 19.” Pet. Reply 8.

Petitioner's proposed construction, “commands allowing a user to select a listed television program and that cause a tuner to tune to the selected television program,” reflects the plain language of the term: “television tuning commands for allowing a user to select any one of said programs for which listing information is displayed in said partially overlaid portion of said schedule information.” The plain language of the claim requires allowing a user to select, but does not require any particular manner of selecting.

Moreover, we find Patent Owner's proposal that “the term requires the user be able to interact” with the displayed schedule information introduces ambiguity as to what type of interaction is required. The phrase itself is clear: “allowing a user to select . . . a program for which listing information is displayed.” Because of this clarity, we find that no express construction is required. *See also* Pet. Reply 8 (indicating that the parties resolved infringement and validity contentions in the ITC case without construing this limitation).

4. *“for displaying interactively-selected successive portions of said program schedule information in overlaying relationship with another display signal” and “each said portion being displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is stored in said memory means”*

Claim 1 recites the above-listed limitations. 44-Ex. 1001, 23:19–21, 23:32–36. In greater context, claim 1 recites “a video display generator adapted to receive video control commands from said data processing means and program schedule information from said memory means ***for displaying interactively-selected successive portions of said program schedule information in overlaying relationship with another display signal*** currently appearing on a selected channel in at least one mode of operation of said programming guide.” Ex. 1001, 23:16–23. Also, in greater context, claim 1 recites “said data processing means controlling said video display generator with said video control commands in response to said user control commands to display each said portion of program schedule information for any chosen one of said television programs. . . ***each said portion being displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is stored in said memory means.***” Ex. 1001, 23:24–36.

All challenged claims recite some form of the limitations. For example, independent claim 2 recites “a video display generator . . . for displaying interactively-selected successive portions of said schedule information for a currently tuned channel in overlaying relationship with another display signal” and “each said portion . . . being consecutively

displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods for which program schedule information is stored in said memory means.” Notably, independent claim 2 recites “*successively navigating through listing information for sequential time periods*”(rather than “sequential time periods *or programs*,” as recited by most other independent claims). In another example, independent claim 3 recites “a video display generator . . . for displaying interactively-selected successive portions of said schedule information for a set of channels, including ones different from a currently tuned channel, in overlaying relationship with another display signal” and “each said portion . . . being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs.”

Petitioner contends “under the broadest reasonable interpretation, ‘successive portions’ can refer to portions that are either successive in time (as shown in Ex-1001, FIGs. 11–12A) or spatially successive (as shown in FIGs. 18 and 25; *see also* Ex-1001, 14:1–27, explaining cursor movement).” Pet. Reply 9. Similarly, Petitioner contends “under the broadest reasonable interpretation, ‘consecutively displayed’ can include either consecutive in time, or spatially consecutive.” Pet. Reply 12.

In other words, Petitioner contends that by using control commands to move a highlighted cursor across, up, or down, a grid that displays multiple programs, channels, and times, as depicted in Figure 18, with the grid being overlaid with a program, as broadly described in connection with a passage at column 3, lines 4–9 described below, corresponds to “displaying

interactively-selected successive portions of said program schedule information in overlaying relationship with another program signal” (i.e., commanding the cursor to move to interactively-select successive portions), with “each said portion displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information has been received” (i.e., displaying the successive portions of a grid as highlighted provides successive navigation for time periods or programs). See Reply 10–11 (Petitioner characterizing this position as the same position as advanced by Patent Owner during the ITC Case).

Stated differently, commanding the cursor to move selects successive portions, and the moving cursor highlights a new selection, thereby displaying it as a highlighted selection. The specification supports this reading of the challenged claims. For example, within the Menu Mode (Ex. 1001, 13:15)—in the “All- Listings mode” (Ex. 1001, 14:42) or in the “‘Category Listing’ mode” (Ex. 1001, 14:54)—commanding the cursor to move informs the user of a selection by displaying the selection as highlighted, which *further allows* the user immediate options for that displayed selection—options to tune to the highlighted program or to set a reminder message (assuming a highlighted future program) (Ex. 1001, 15:8–13).

Patent Owner does not provide a construction for the related claim elements, but raises arguments that Petitioner contends turn on claim construction thereof. See PO Resp. 16–21 (Claim Construction section); Reply 9 (citing Resp. 33–34). According to Patent Owner, “successive

portions of the schedule information are displayed based on the user having interactively-selected to change the displayed schedule information by a channel in the channel domain or by a time period in the time domain.” PO Resp. 34. Apparently, this argument requires a “change” of “displayed schedule information” above and beyond a change related to a highlighted cursor (which Petitioner proposes).

Characterizing Patent Owner’s position, Petitioner contends Patent Owner argues that “‘interactively-selected successive portions’ means successive in time – i.e., it cannot correspond to using a cursor to navigate through program listings that are displayed simultaneously.” Pet. Reply 7–8. In similar fashion, Petitioner characterizes Patent Owner’s arguments as unduly restricting the “consecutively displayed” limitation to require “that program listings must be deleted and new ones added as the user enters successive commands.” Pet. Reply 10–11 (citing PO Resp. 32–34; Ex. 2006 ¶¶ 83–85, 93–94).

Patent Owner’s position rests on the argument that the challenged claims require the disclosed Browse mode. See PO Resp. 34 (“This is confirmed by the remaining claim language . . . , the disclosure of the Browse mode in the specification, and the explanation of the claimed invention in the prosecution history).

Petitioner contends the Browse mode does not limit the challenged claims. See Pet. Reply 12 n.4 (stating “under BRI, the claims do not recite this mode,” “except for [unchallenged] independent claim 19” (which recites a “for displaying program schedule information in a browse mode” (Ex. 1001, 29:67–30:2)). Petitioner agrees the challenged claims cover “portions that are . . . successive in time,” as would occur during the Browse mode,

but also contends that Figures 18 and 25, which relate to other modes, support its claim construction that includes “spatially successive” portions of a guide. See Pet. Reply 9 (citing Ex. 1001, 14:1–67).

The challenged patent supports Petitioner. The patent specification generally describes (i.e., without mentioning a specific mode of operation), “a particular need *for a flexible program schedule system* that allows a user to view selected broadcast programs on a portion of the screen of the television receiver *while simultaneously viewing program schedule information for other channels and/or services* on another portion of the screen.” Ex. 1001, 3:4–9 (emphases added). During the Oral Hearing, Patent Owner described this quoted passage as “just a generic characterization,” without stating the passage limits the claimed invention to the Browse mode. See Tr. 44:1–4, 49:9–50:7. Patent Owner’s counsel explained that only the Flip and Browse mode provide for overlays, but his explanation does not address this passage, which also provides for overlays without any mention of the Browse mode (or any mode). See Tr. 50:2–7; Ex. 1001, 3:4–9.

Another passage similarly describes viewing a single program with schedule information for multiple programs *simultaneously*: “It is . . . an object of the present invention to provide a system that will allow the user to view a broadcast program while, *at the same time, interactively viewing program schedule information for other programs.*” Ex. 1001, 3:33–37 (emphasis added)). The ’556 patent also provides a generic navigation mechanism that tracks the claims—“the user may *navigate through the program schedule system* with a remote controller . . . [using] *conventional principles of remote control . . . logic*, such as by infrared or other signaling,

or other suitable user interface.” Ex. 1001, 8:49–54 (emphasis added). So the ’556 patent describes using a conventional remote controller to control a cursor or otherwise control selections.

Moreover, like the clause in claim 14 (“displaying, in a partial overlay on said display signal, user-selected portions of said schedule information comprising listing information *for at least one program* different from said display signal” (emphasis added)), the generic passage at column 3 contemplates viewing multiple listings while simultaneously viewing “selected broadcast programs”—i.e., “viewing *program schedule information for other channels and/or services* on another portion of the screen.” Ex. 1001, 3:4–9 (emphasis added). The plain language of the claim does not limit *a portion* to a single program listing.

Furthermore, the ’556 patent describes splitting the television screen, or on a single screen, showing two or more programs while employing the Browse mode. Ex. 1001, 11:61–66 (“[I]t may also be possible to simultaneously display *multiple broadcast programs* on a single screen for viewing, or to split the screen to show, for example, broadcast programs in combination with advertisements.” (emphasis added)). The ’556 also describes including different information in a Browse overlay, for example, “a currently aired program [on another channel not being viewed currently] or a clip of a future program corresponding to the schedule information then appearing in the Browse overlay.” Ex. 1001, 11:54–58.

These disclosures contemplate viewing different types of information in an interactive overlay simultaneously with multiple television video programs—coupling interactive program overlay information for each of the broadcast programs appearing on a single screen. This shows that the ’556

patent involves listing multiple interactive items of program information as an overlay corresponding to one or more broadcast programs on the screen.²⁰ Based further on the highlighting disclosures noted above and further below, this implies using a cursor to select and display among the interactive items and implies multiple listings or different types of selectable information for a single or multiple television broadcast program(s).

Also, in relation to Figures 18 and 25 relied upon by Petitioner (Pet. Reply 9), as part of the “All Listings mode” (which appears to be a configuration related to or within the “Menu mode” (*see* Ex. 1001, 13:15–14:44)), the specification states “[i]n the All Listings mode, *a moveable highlighted cursor 185 is used to indicate the currently selected program to the user.* The user manipulates the cursor movement using the direction arrow keys on the remote controller.” Ex. 1001, 14:42–44 (emphasis added). In other words, in this All Listings mode, the moveable cursor “indicate[s] the currently selected program to the user,” which supports Petitioner’s position that moving a highlighted cursor corresponds to the “consecutively displayed” and “displaying interactively-selected successive portions” limitations.

In the Menu Mode (or All Listings Mode), the specification states “no program signal from the tuner is displayed on the television receiver”—i.e., no overlay occurs. Ex. 1001, 13:28–29. Nevertheless, as discussed above, the specification generally describes “a particular need for a flexible

²⁰ During the Oral Hearing, Patent Owner similarly characterized the claims as including several mode features. *See* Tr. 49:5–8 (“[W]e’re saying there’s at least one mode that operates that way. You might have other modes that do other things. It’s a comprising claim.”).

program schedule” so that the specification does not restrict overlays to any particular mode—i.e., “to view selected broadcast programs on a portion of the screen . . . while simultaneously viewing program schedule information *for other channels and/or services on another portion of the screen*”—i.e., viewing information about channels in the plural, instead of just one channel at a time. Ex. 1001, 3:4–9 (emphasis added). Although, as noted in the discussion of the ITC Case, the ALJ determined that the Browse mode only lists one program at a time, Patent Owner contended no need exists in the instant cases to resolve that question. See Tr. 45:14–16 (“And whether or not it should be limited to one display, I don’t think that’s a question we need to reach here because there is no successive display at all.”). Later, however, Patent Owner responded “I think it does” during a colloquy about whether the ’556 patent supports selecting one of two simultaneous listings with a cursor in the Browse mode. See Tr. Tr. 45:25–46:4 (contending this question does not appear in the briefing).²¹

Accordingly, even Patent Owner does not contend that the claims require listing overlays as single programs. It follows that features of the Menu Mode as combined with features of the Browse mode, or other modes, per the generic passage at column three, allow for display selections provided by a cursor.

Patent Owner raises the prosecution history, but Patent Owner does not explicitly contend it narrows the challenged claims. For example, in a section titled “Relevant Prosecution History” (PO Resp. 10), Patent Owner notes it argued during prosecution that “the Reiter and Strubbe combination

²¹ This question arises further in context of the infringement allegations in the ITC Case, as discussed further below.

did not disclose the claims ‘directed to the Browse mode in combination’ with the reminder functionality. *See* PO Resp. 14–15 (quoting Ex. 1006, 979 arguing the Examiner allowed the claims based on the “reminder function”). In another section that does not address claim construction, Patent Owner refers to its prosecution history arguments “discussed above” and “the disclosure of the Browse mode,” but does not specifically show how any specific prosecution history argument limits the challenged claims such that they *require* changing the displayed schedule information to list new information, i.e., “successive portions of the schedule information are displayed based on the user having interactively-selected to change the displayed schedule information by a channel in the channel domain or by a time period in the time domain.” *See* PO Resp. 34.

The cited prosecution history argument (PO Resp. 14–15 (citing Ex. 1006, 979)) reveals Patent Owner argued “[a]s *also* reflected in the Interview Summary Record, the Examiner also found separately allowable claims directed to the Browse mode in combination with the capability of a user to select a reminder for a chosen program.” Ex. 1006, 979 (emphasis added). This argument, which purportedly summarizes the noted interview with the Examiner, at most shows Patent Owner deemed *some claims* to include a Browse mode. Patent Owner concluded by arguing “[a]ll of the pending claims remaining in the application now include either the tuning or reminder aspect.” Ex. 1006, 979. This argument does not refer to the Browse mode. Ex. 1006, 979.

In addition, contrary to how Applicant characterized the May 7, 1996, interview in its prosecution arguments, the May 7, 1996 Interview Summary Record does not refer to the Browse mode. Ex. 1006, 939. Furthermore, it

lists only three claims, claims 42, 72, and 73, as the “[c]laims discussed.” Ex. 1006, 939. Claims 42, 72, and 73 appear to have issued as claims 2, 16, and 17. (The record reveals that then claim 73 did not issue until Patent Owner amended it further. See Ex. 1006, 961 (referring to “Sub. M6” implying a later amendment)).²²

In any event, if Patent Owner had been referring to then-numbered claims 42, 72, and 73, only original claims 72 and 73, arguably have language implicating limitations of aspects of the Browse mode, implicitly, by reciting “said navigation including deleting one program listing appearing in the overlay and adding another program listing in the overlay.” Ex. 1006, 661–62, 1845–46. In contrast, only claims 16 and 30 of the challenged claims include this or a similar limitation.²³ As Petitioner persuasively argues, because these claims (and claim 17) expressly recite the adding and deleting limitations, this dictates against imputing any specifically argued

²² The Examiner issued a Response to Rule 312 Communication, referring to an amendment of November 29, 2001 filed by Applicant. See Ex. 1006, 1829. Applicant filed that amendment pursuant to 37 C.F.R. § 1.312. Ex. 1006, 1833. The amendment does not include arguments for allowability or show changes made to the claims but indicates the “amendment merely corrects various minor inadvertencies in the claims.” Ex. 1006, 1867. The Notice of Allowability refers to an “amendment filed on 7/30/2001, but neither it nor the Response to Rule 312 Communication provide reasons for allowance. Ex. 1006, 1824–29. On July 30, 2001, the record indicates Patent Owner did not present arguments for patentability, but presented a paper stating it amended the inventorship. See Ex. 1006, 1817–23.

²³ Claim 17 recites “said navigation including deleting *at least one* program listing appearing in the overlay and adding *at least another* program listing in the overlay.” Deleting and adding similarly is recited in challenged claim 16.

Browse mode limitations not expressly recited into all of the challenged claims. *See* Pet. Reply 12–13.

Also, “in response to the Office Action dated March 6, 1996” (Ex. 1006, 946) and “the personal interview held on May 7, 1996)” (Ex. 1006, 976), Patent Owner deleted “one at a time” from the phrase “displayed [one at a time]” in original claim 72 (now claim 16). Ex. 1006, 961–962. Patent Owner referred to “the principal invention of the claims remaining in the present application - - i.e., to so-called ‘Browse’ mode of operation—permits a user to interactively scan through program listings in a time and/or channel domain while continuing to view the current program The user can thus interactively navigate through the listing information . . . by issuing appropriate sequential time and/or channel control commands, while not missing any content of the program being simultaneously viewed.” Ex. 1006, 977.

Patent Owner also added “at least” to the phrase “adding at least another program listing in the overlay” to claim 72. Ex. 1006, 960–962. This shows that Patent Owner considered claims not to be restricted to displaying single programs, whatever Patent Owner considered to be the Browse mode. Also by referring to “the principal invention of the claims remaining in the present application—i.e., to so-called ‘Browse’ mode of operation,” Patent Owner did not, in a clear fashion, restrict the claims to any specific feature of the Browse mode. The argument merely shows Patent Owner, at most, may have intended the claims to include some features of the “so-called ‘Browse’ mode of operation”—without clearly specifying the features.

Relevant to deleting and adding, Patent Owner argues the challenged claims “are directed to interactively-selected successive portions of schedule information *for display*—namely, successive portions of the schedule information are displayed based on the user having interactively-selected to *change the displayed schedule information by a channel in the channel domain or by a time period in the time domain.*” PO Resp. 34 (citing Ex. 2006 ¶¶ 82–83). This argument about “change” appears to track the noted claims that involve adding and deleting listed programs. With respect to the other challenged claims, as discussed above, passages in the specification (*e.g.* Ex. 1001, 3:4–9) quoted above, describe a need for flexible overlays without regard to features of a single mode, such as the Browse mode, which involves adding and deleting information. *See* Ex. 1001, Fig. 12a.

Moreover, as Petitioner argues, unchallenged claim 19 specifically recites the “browse mode of operation” (Ex. 1001, 30:1–2), showing that all of the challenged claims do not require that mode. *See* Pet. Reply 15 n.5. In other words, none of the challenged claims recite the Browse mode or inherently require all of the disclosed browse mode limitations, indicating under the doctrine of claim differentiation and the intent of the patentee, the challenged claims do not require the limitation. *See Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1379 (Fed. Cir. 2018) (“If the patentee had intended to similarly restrict the resource allocator in claim 1, it could have done so using the language of [dependent] claim 19, but did not.”). Assuming for the sake of argument that alleged prosecution history disavowals apply in these *inter partes* proceedings, “[d]isavowal is an ‘exacting’ standard under which it must be established that the patentee ‘demonstrate[d] an intent to deviate from the ordinary and accustomed

meaning of a claim term’ through ‘expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.’” *Intellectual Ventures I*, 902 F.3d at 1378 (quoting *Epistar Corp. v. Int’l Trade Comm’n*, 566 F.3d 1321, 1334 (Fed. Cir. 2009)).

Patent Owner’s brief remarks in the instant case that rely on prosecution history fail to show how it met the exacting standard of disclaimer of claim scope during prosecution required to limit the challenged claims to the disclosed, but unclaimed, Browse mode. In summarizing its position during prosecution, Patent Owner stated “[t]he fact that all of the pending claims remaining in the application now include either the selecting or reminder aspect *is an independent basis for allowance of the present application.*” Ex. 1006, 1032 (May 27, 1997 Applicant remarks (emphasis added)). Patent Owner stressed that “the references currently relied on teach or suggest no more — i.e., the display of schedule information as an overlay.” Ex. 1006, 1031. Applicant explained its claims require “a fully interactive capability for allowing the user to sequentially navigate through the program schedule information in any time and/or channel domain.” Ex. 1006, 1030.

Tracking this broader language and the more generic disclosure at column 3, lines 4–9 described above, the challenged claims broadly recite displaying “successive *portions of said schedule information*”—i.e., not necessarily a single program (which may implicate aspects of the Browse mode). In light of the disclosure of “a moveable highlighted cursor 185 . . . used to indicate the currently selected program to the user” (see Fig. 18), this suggests that highlighting successive time slots or channels on a screen, without changing the rest of the screen, corresponds to the “successive

portions” and “consecutively displayed” limitations of the challenged claims (except challenged claims 16 and 30, which each further recites the deleting and adding limitations discussed above).

Challenged claims 1 and 2 each requires displaying schedule information in an overlaying relationship “in at least one mode of operation of said programming guide” showing, per the explicit claim terms (i.e., “at least one mode”), that the challenged claims do not require selecting a television program to which to tune in a single mode of operation (such as the Browse mode). *See, e.g.*, Ex. 1001, 15:8–11 (“As with the All Listings mode, if the user highlights a show which is currently airing, he can immediately tune to that show by depressing the ENTER key on the remote controller.”).).

Another claim 1 phrase recites “to display each said portion of program schedule information for any chosen one of said television programs for a predetermined display period in partial overlaying relationship with another display signal currently being received on said television receiver.” The Browse mode does not include such a feature as disclosed—the Flip mode does—further showing the claims cover a combination of mode features. *See* Ex. 1001, 10:43–65, 12:14–16 (“Once in the FLIP mode, the graphic overlay will be removed after the duration of the time-out interval has passed.”). Claim 14 recites a display of “listing information for at least one program” as a partial overlay. The general passage at column 3, lines 4–9 supports claim 14. *See also* Tr. 52:1–2 (Patent Owner’s counsel stating, *inter alia*, “I think that goes back to the original question at the browse mode as described as one program at least.”).

Accordingly, even if the claims include the Browse mode, nothing limits the claims to that mode—even with respect to selecting and displaying a portion of a program guide as a partial overlay.²⁴ Based on the foregoing reasons, we agree with Petitioner’s claim constructions and apply them here. The recited selected successive portions and consecutively displayed portions, therefore, include consecutive in time or spatially consecutive displays of portions.

5. The ITC Case Infringement Allegations

Petitioner contends Patent Owner’s infringement allegations during the ITC Case support its claim construction positions. Reply 9–11, 13–15. As discussed above in the claim construction section, in the Institution Decisions, we preliminarily determined that the ITC Case supports our initial determination that “at least one mode” as recited in the challenged claims includes more than just the Browse mode. *See, e.g.*, 44Inst. Dec. 32–34. As also indicated above, Patent Owner conceded during the Oral Hearing that its claim construction arguments rest on the challenged claim being limited to the Browse mode (*see* Tr. 46:11–22), which the record does not support for the reasons noted above.

Nevertheless, the panel ordered and authorized additional briefing to explore further Patent Owner’s contention during the Oral Hearing that its ITC Case position does not contradict its position here. *See* 44IPR, Paper 33; 45IPR, Paper 33; 46IPR, Paper 33 (collectively “Claim Construction

²⁴ During the Oral Hearing, Patent Owner appeared to characterize the claims as including several modes. *See* Tr. 55:19–22 (“[W]e’re saying there’s at least one mode that operations that way. You might have other modes that do other things. It’s a comprising claim.”).

Order”). Accordingly, Patent Owner filed a Sur-Reply (44IPR, Paper 34; 45IPR, Paper 34; 46IPR, Paper 34 (collectively “PO Sur-Reply”)), Petitioner filed a Response to the Sur-Reply (44IPR, Paper 36; 45IPR, Paper 36; 46IPR, Paper 36 (collectively “Pet. Resp. Sur-Reply”)), and Patent Owner filed an Opposition (44IPR, Paper 38; 45IPR, Paper 38; 46IPR, Paper 38 (collectively “PO Opp.”)).

In its Sur-Reply, Patent Owner contends it maintains consistent claim construction positions in the instant cases and the ITC Case. PO Sur-Reply 1. According to Patent Owner,

[a]t the ITC, Patent Owner’s contentions and expert’s report discussed using arrow buttons to navigate through listings in Comcast’s X1 On-Screen Guide and X1 Mini Guide, but did not, as Comcast asserts, rely on “simply moving a cursor” between cells of a displayed grid “without changing” the display, as satisfying either of the above-limitations relating to the consecutive display of successive portions of schedule information. . . . For both features of the X1 guide, the expert demonstrated that program schedule information displayed on the screen changed, as discussed further below. Comcast was not focused on this issue at the ITC, and did not dispute that displayed information changed, but instead argued that the claims were limited to displaying information for one program only at any time.

PO Sur-Reply 1–2 (citing Ex. 2001, 69, 70, 72 n.33, 99, 100).

Contrary to Patent Owner’s argument, however, Petitioner sufficiently shows that Dr. Delp did not mention changing screen information as occurring during cursor movement in the allegedly infringing products. *See* Pet. Resp. Sur-Reply 1 (arguing Patent Owner’s ITC Case position did not rely on “the banner or any other part of the grid changing”). Even if some of the grids upon which Dr. Delp relied happen to show some banner information changing on the bottom of the screen, Dr. Delp never mentioned

that aspect in any testimony that the parties rely upon. *See* Pet. Resp. Sur-Reply 1; *see generally* PO Sur-Reply; PO Opp. Moreover, Petitioner points to at least one example that shows no information changing in a product alleged by Patent Owner to infringe exemplary claim 3 at the ITC Case. Pet. Resp. Sur-Reply 1–3 (citing Ex. 1028, 2–3; Ex. 1029; Ex. 1030, 44–45, 59–60, 79–80, 85–88; Ex. 1031, 59–62, 66–67, 97–98; Ex. 1025, 3, 21–23, 33–39, 41–42, 55, 58). For example, Dr. Delp explains that “limitation 3f” in claim 3, i.e.,

each said portion comprising listing information for each successive one of said television programs scheduled to appear on said set of channels and being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is stored in said memory means,

reads on “[t]he Mini Guide.” *See* Ex. 1028, 2. Dr. Delp summarizes in general that “the Mini Guide is . . . configured to respond to guide control commands by *responsively displaying the appropriate listing information.*” *Id.* (emphasis added). He further explains that “CX-1601.000014 and CX-1601.000015 illustrate a user navigating through the overlaid program schedule information by moving the highlighted programming thirty minutes forward.” *Id.* He explains that “using the arrow buttons on a remote controller” allows a user to navigate through time and/or channel domains, and it “corresponds to ‘listing information . . . being *consecutively displayed* in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information

is stored.” Ex. 1028, 2 (emphasis added). This testimony tracks Petitioner’s claim construction here.

In its Opposition, Patent Owner responds by arguing “Dr. Delp pointed to the cursor movement for ‘navigating’ within the guide, and not for the disputed ‘display of interactively-selected successive portions’ and ‘consecutively displaying each said portion’ limitations.” PO Opp. 3 (citing Ex. 1028, 2). The cited evidence does not support Patent Owner. Rather, the cited evidence shows persuasively that Dr. Delp did not limit his testimony to the “navigating” aspect of the clause at issue in claim 3 during the ITC Case. *See* Ex. 1028, 2–3. Rather, as repeated above, Dr. Delp’s testimony responsively explains how the Legacy Mini Guide satisfies the whole clause 3f of claim 3, and that clause includes a “consecutively displayed” limitation. *See* Ex. 1028, 2–3. At the outset, Dr. Delp generally stated “[t]hey do” after being asked if “the Legacy guide boxes satisfy this [claim 3f] limitation.” *See* Ex. 1028, 2. The claim 3 limitation, including “consecutively displayed in response to corresponding consecutive . . . commands,” reasonably corresponds to the challenged claims limitations of “consecutively displayed” and “interactively-selected [successive] portions.”

Based on the foregoing discussion, Petitioner shows persuasively that Patent Owner’s positions in the ITC Case support Petitioner’s claim construction here and contradict Patent Owner’s claim construction arguments here.²⁵

²⁵ Both parties appear to have switched positions to a certain extent relative to positions in the ITC Case. *See, e.g.*, Ex. 2001, 68–73, 100. Nevertheless, the record here supports Petitioner’s claim construction for the reasons explained herein, and the ITC Case involved a narrower claim construction standard than the standard employed here.

6. *Other Claim Terms*

To the extent it is necessary for us to construe any other claim terms, we do so below in the context of analyzing whether the asserted prior art renders the claims unpatentable.

E. Disclosures of the Prior Art References

Petitioner asserts the references are prior art to all the challenged claims, which Patent Owner has not disputed during the trial. *See, e.g.*, 44Pet. 20 (asserting Young '801 and Moro are prior art); 45Pet. 21 (asserting Reiter, Strubbe, and Young '121 are prior art); *see generally* PO Resp. In its Preliminary Response, however, Patent Owner disputed whether Remillard was prior art based on the filing of a Rule 1.131 Declaration during prosecution that Examiner accepted. Patent Owner has not renewed its challenge to the prior art status of Remillard during the trial. *See generally* PO Resp.; *see also* 46Inst. Dec. 23–25. In our Institution Decision, we noted that the Rule 1.131 Declaration did not address tuning features recited in all the challenged claims and instituted the asserted grounds relying on Remillard. 46Inst. Dec. 24–25.

We make the following findings of fact concerning the disclosures of the prior art references asserted by Petitioner.

1. Disclosure of Young '801

Young '801 describes techniques that allow “a television viewer to access on screen television program listings and use the program listings . . . to control operation of a video cassette recorder (VCR) or other recording

device.” Ex. 1002,²⁶ 1:4–9. Young ’801 discloses program schedule information for a currently tuned channel and other channels. *See, e.g.*, Ex. 1002, 13:5–7, 13:28–30, Figs. 2, 6. Young ’801 describes an interactive program guide grid including program schedule information stored in schedule memory 232 and outputted to video display generator 224. Ex. 1002, 26:5–7. A user navigates through the guide grid using a movable cursor to select programs for recording by a television tuner and to access additional information about programs (e.g., program description). Ex. 1002, 11:30–12:26, 13:28–14:5.

Figure 2 of Young ’801 is set forth below:

	11:00 AM	11:30 AM	12:00 PM
2	JUDGE(PART 1)	JUDGE(PART 2)	AT NOON
4	GOLDEN GIRLS	NEWS	INSIDE EDITION
5	YOUNG & RESTLESS ²⁶	NEWS ²⁶	NEWS ²⁶
7	PERFECT STRA	LOVING	ALL MY CHILD
9	SESAME STREET ²⁶		
13	ALL MY CHILDREN		NEWS
44	EVERYDAY ²⁶		MOVIE
A&E	LORNE GREEN'S WORLD OF S		FUGITIVE
CNN	NEWS		NEWS
DIS	WALT DISNEY PRESENTS		LUNCH BOX
LIF	JANE WALLACE		FRUGAL GOURM
TNT	MOVIE ²⁶		
CH 2	KNTV-FOX	CBL 2	11:25A TUE APR 3

FIG. – 2

Figure 2 above illustrates a television schedule grid with information about the program on a currently tuned channel (channel 2) displayed to the right of the channel, and information about the tuned channel on the bottom of the grid. *Id.* at 12:33–13:16.

²⁶ Young ’801 is Exhibit 1002 in IPR2017-01144, Exhibit 1102 in IPR2017-01145, and Exhibit 1202 in IPR2017-01146. We refer to Exhibit 1002 for brevity.

As shown above, upon first opening the guide, the cursor 32 appears situated on the current program of the currently-tuned channel. Ex. 1002, 13:28–30. The grid highlights the currently-tuned channel. Ex. 1002, 13:5–7, Fig. 1.

Figure 6 of Young '801 (as annotated by Petitioner) is set forth below:

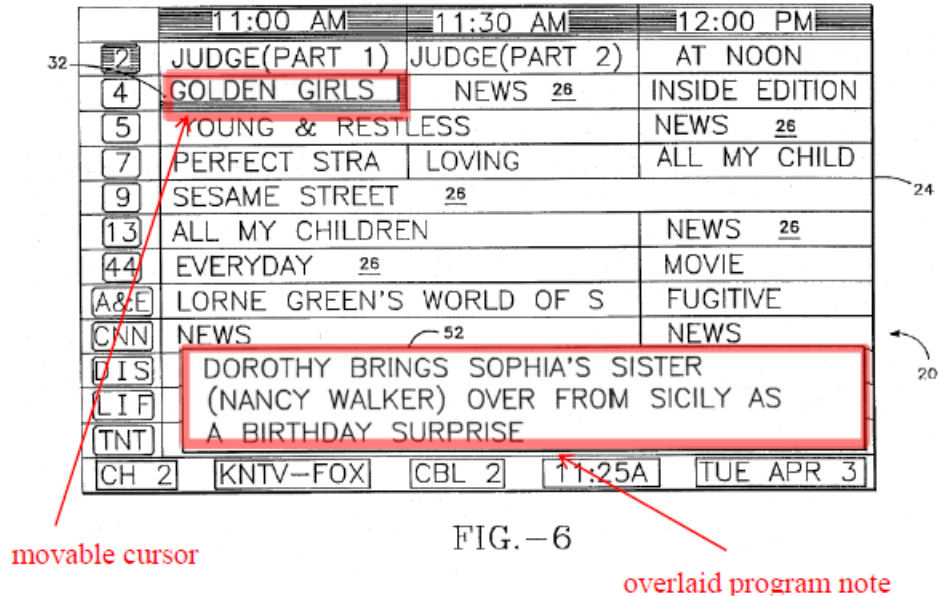


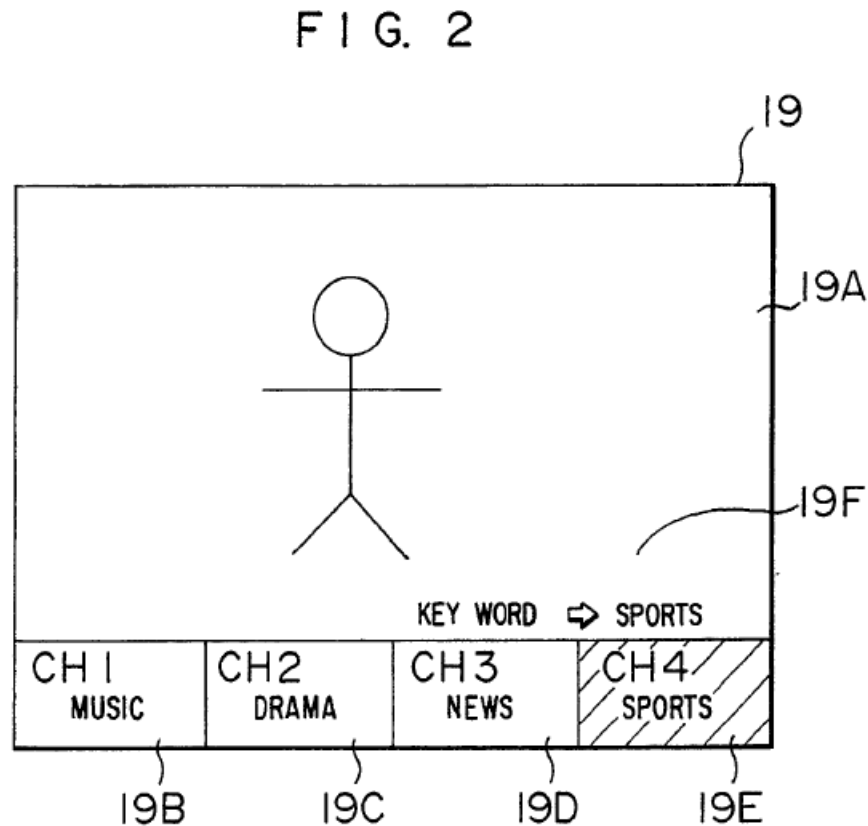
Figure 6 depicts “a television schedule grid screen 20 with a program note overlay 52.” Ex. 1002, 11:30–31, Fig. 6. “Program notes for a selected program are overlaid over the grid guide upon [user] request.” Ex. 1002, 12:14–16.

In addition, Young '801 depicts in an arrow in Figure 1 that Young '801 calls “grid continuity icon 38.” Ex. 1002, Fig. 1. The grid continuity icon indicates that the displayed cell is continued on the next screen. Ex. 1002, 9:30–10:5; Pet. Reply 15–16 (discussing Young '801's grid continuity icon).

2. Disclosure of Moro

Moro discloses overlaying interaction menus on a portion of a

television broadcast using a remote control device. Ex. 1003, Abstract, 2:40–53, 5:36–41. Moro’s system displays a video signal of a first program while superimposing program information for other currently-available channels, and allows a user to tune to one of the superimposed channels. *See id.* A reproduction of Moro’s Figure 2 follows:



Moro’s Figure 2 above shows present program information for different channels (19B, 19C, 19D, and 19E) overlaying a different program depicted in 19A. *See id.* at 4:45–5:9. Moro describes one benefit of the system as allowing a user to obtain information about other programs without interrupting the currently viewed show. *Id.* at 6:6; *see id.* at 5:31–35. Character information 19B–19E “may be adapted to disappear automatically a predetermined time after starting display without operating . . . the remote controller 21.” *Id.* at 5:21–23.

Moro was not considered during the prosecution of the application that issued as the challenged patent. Ex. 1001, [56]; *see generally* Ex. 1006. During examination of a later-filed continuation application of the challenged patent, however, that Examiner indicated that Moro “discloses . . . displaying a plurality of program listings simultaneously with at least a substantial portion of a video.” Ex. 1008, 75; *see* Pet. 21–22 (citing Ex. 1008, 75).

3. *Disclosure of Young ’121*

Young ’121 teaches allowing a user to select a program from a program guide to create a reminder for selected future and recurring programs by toggling keys on remote control transmitter 116 or 118, with the reminder superimposed as a subtitle on the future TV program. Ex. 1111,²⁷ 9:48–50; 15:19–16:41, 20:39–46, Figs. 3, 5, 13 (flow box 508). Young ’121 also teaches the desirability to eliminate manual selections and allow all programs to be selected from a guide “by pointing to menu items.” *Id.* at 3:21–24. Figure 5 of Young ’121 is set forth below.

²⁷ Young ’121 is Exhibit 1111 in IPR2017-01145 and Exhibit 1211 in IPR2017-01146. We refer to Exhibit 1111 for brevity.

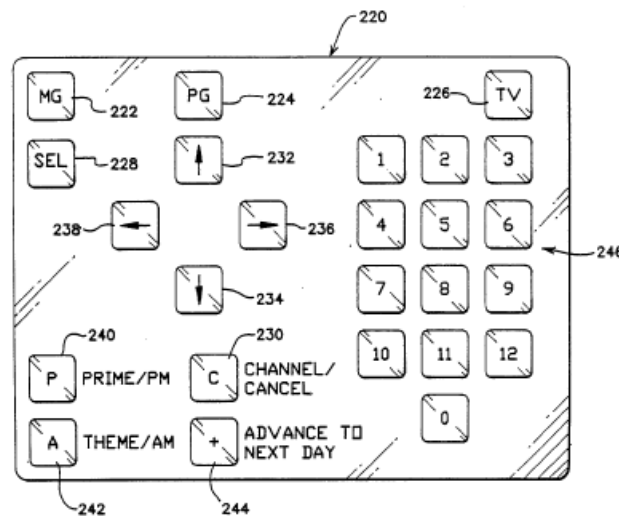


FIG. 5

Figure 5 shows the layout of keyboard 220 used in remote control transmitters for a television receiver control system. *Id.* at 7:33–35, 9:48–50. According to Young ’121, key “MG 222” allows access to “Master Guide (MG)” mode that “allows direct selection of a program from the listing.” *Id.* at 9:51–52, 10:13–18.

4. Disclosure of Reiter

Reiter discloses a system for controlling a television with updateable television programming information, including overlaying program schedule information on current programs, using a remote control device. Ex. 1104, 6:13–38, 3:13–26. Reiter provides an option of displaying the television schedule information in a partial overlay format so that “the viewer may continue to view the television program he is currently watching.” *Id.* at 6:29–38, 3:13–26 (options for an “overlay,” “window,” or “full screen,” with “scrolling”), 4:63–65 (similar disclosure). Reiter’s system allows a

viewer who “wished to view a subset of the information, e.g., the television program schedule for the day, the viewer, through a different set of code signals could then direct the microcontroller to output only a part of the information stored in the microcontroller RAM.” *Id.* at 5:16–22.

Reiter discloses mixer 70 that mixes video data with program information and/or closed caption data to provide the overlay. *See id.* at Fig. 1, Fig. 2. The mixer mixes “a regularly received television signal with the signal generated by the microcontroller.” *Id.* at 2:45–47. In operation, microcontroller 60 accesses RAM to send stored television programming schedule information to mixer 70, which also receives television video data from RF section 64. *Id.* at 5:2–7. Mixer 70 converts the program information “into a format which can be viewed [on television 40] in the same way [as] the video data received via RF section 64 and mix the two in accord with the output format directed by the microcontroller.” *Id.* at 5:7–15.

5. *Disclosure of Remillard*

Remillard²⁸ discloses overlaying interaction menus on a portion of a television broadcast using a remote control device. Ex. 1205, Abstract, 2:63–3:3, 5:55–61 (“television broadcast”). Figure 3 of Remillard is set forth below.

²⁸ Patent Owner contested the prior art status of Remillard before institution but has not raised the issue during the trial. 46Inst. Dec. 23–24; *see generally* 46PO Resp.

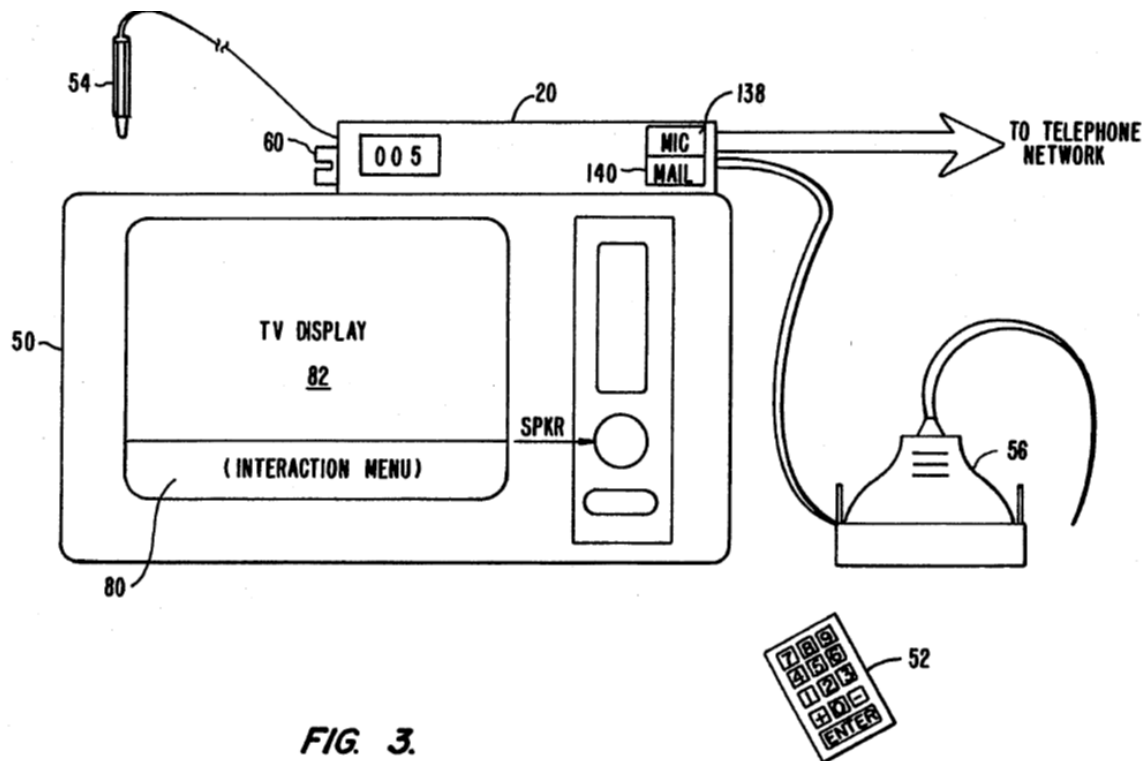


Figure 3 shows an interaction menu overlaid on a portion of a television broadcast, and shows remote control device 52 for interacting with the menu. Ex. 1205, 7:35–43, Fig. 3. Remillard allows a user to display the “interaction menu over all or a portion of a television screen, as desired,” but “[t]he preferred embodiment adds the interaction menu to a bottom portion of the screen and preempts or overlays the incoming programming in that portion of the screen displaying the interaction menu.” Ex. 1205, 2:63–3:1.

6. Disclosure of Strubbe

Strubbe describes an interactive menu system that provides overlay messages including reminder messages. Strubbe discloses that “[a] further object of the present invention is to provide a system in which the user is informed which and when each of his/her favorite programs is going to be

broadcast in the near future and optionally is given an automatic reminder.”

Ex. 1110,²⁹ 1:35–37. According to Strubbe,

[e]xtended channel D shows a Future Programs menu page of upcoming programs (for example 7) chronologically occurring in the near future. This information is obtained from the memory part 36A of the microcomputer 30 which stores information concerning the user’s favorite broadcast programs and information concerning particular broadcast programs which the user has defined as being desirable to watch or to record.

Ex. 1110, 4:21–29.

Strubbe also discloses displaying informational messages and television content, including reminder messages, in a partial overlaying relationship over a display signal for a predetermined period of time.

Ex. 1110, 6:45–49 (“This reminder may be . . . a visual message (typically shown as a [picture-in-picture (PIP)] display). At the appointed time, the PIP may then show the opening, for example, 10 seconds of the program.”), 8:19–24 (“In order to record a program presently being broadcast, the user depresses the Record Now button 52.6 on the remote control transmitter 52 and the graphic ‘Recording’ appears for approximately 10 seconds overlaid on the television screen with the program being recorded as shown in FIG. 11a.”).

It should also be noted that the PIP display may be used to display various reminder messages. For example, at the start of a Future Program if another program is being watched, the PIP may display the initial 10 seconds of the Future Program allowing the user to selectively switch to that program if desired by swapping the PIP and the main display. Alternately, the PIP

²⁹ Strubbe is Exhibit 1110 in IPR2017-01145 and Exhibit 1210 in IPR2017-01146. We refer to Exhibit 1110 for brevity.

may be used to announce the commencement of recording of a Future Program.

Id. at 10:6–14.

Strubbe also discloses reminder selection messages, with messages selected using a remote controller, for chosen future television programs and with the messages overlaying a television signal:

Change B button 52.3 toggles between whether a reminder is desired and which kind of audible/visual reminder is to be given, for example, five minutes before the starting time of the program. This reminder may be an audible signal, or a visual message (typically shown as a PIP display). At the appointed time, the PIP may then show the opening, for example, 10 seconds of the program.

Id. at 6:42–49.

Figures 6a and 6b of Strubbe, showing reminder selection message functionality, follow:

FAVORITE PROGRAMS			
1	60 MINUTES	7:00 PM	CBS
2	ABC NEWS	6:30 PM	ABC
3	AS THE WORLD TU	2:00 PM	CBS
4	DATING GAME	2:30 PM	CH 9
5	FRONTLINE	8:00 PM	CH 13
6	GENERAL HOSPITAL	3:00 PM	ABC
7	JEOPARDY	7:00 PM	ABC
MORE SHOW SECOND PAGE			

FIG. 6a

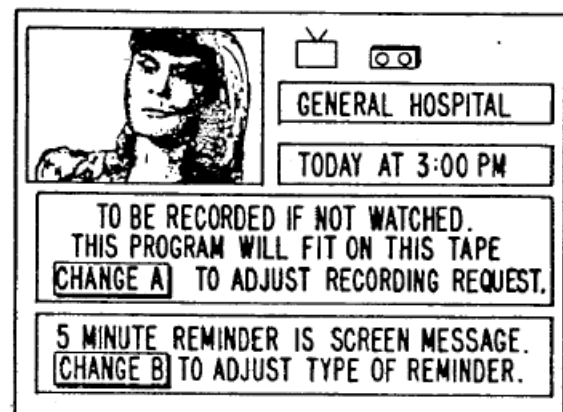


FIG. 6b

Figures 6a and 6b represent a future program chosen by a user, such as “GENERAL HOSPITAL,” with the system providing a reminder selection message (i.e., “CHANGE B” for selecting a reminder to be displayed a selectable or default (5) number of minutes prior to future show

“GENERAL HOSPITAL).” *See id.* at 5:20–50, 6:42–49 (describing selecting “whether a reminder is desired” and the types for the reminder messages).

F. Obviousness

Across the three Petitions, Petitioner contends that claims 1–4, 6, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, and 35–40³⁰ of the challenged patent are unpatentable under 35 U.S.C. § 103(a) based on Young ’801 in combination with various references. In IPR44,³¹ the combination includes Moro. In IPR45,³² the combinations include Young ’121, Reiter, and, for some dependent claims, Strubbe. In IPR46,³³ the combinations include Young ’121, Remillard, identified AAPA, and, for some dependent claims, Strubbe.

Petitioner relies on Young ’801 for teaching most of the limitations in the independent claims and applies one of either Moro (44Pet.), Young ’121 and Reiter (45Pet.), or Young ’121, Remillard, and identified AAPA (46Pet.) for their teachings related to currently tuned channel in overlaying relationship with schedule information (“partial overlay of information”) and

³⁰ Specifically, concerning the multiple dependent claim limitations, Petitioner challenges 1–4, 6/1, 7/(1–4), 10/(1–4), 14, 16, 18/(14, 16), 19–21, 28, 30, 33, 35/(14, 16, 18/(14, 16)), 36/(1–4, 20), 37/(1–4, 20), 38/(2–4, 14, 16, 20), 39, and 40.

³¹ Petitioner labeled exhibits filed in IPR44 with a prefix of “10,” such as Ex. 1001.

³² Petitioner labeled exhibits filed in IPR45 with a prefix of “11,” such as Ex. 1101.

³³ Petitioner labeled exhibits filed in IPR46 with a prefix of “12,” such as Ex. 1201.

tuning commands to allow a user to select a program for which listing information is displayed (“television tuning commands”).

Having considered the parties’ arguments and weighed the entirety of the evidence before us—both evidence for and evidence against obviousness—and for the reasons set forth below, we find that a preponderance of the evidence establishes that the subject matter of the challenged claims would have been obvious over the references as set forth by Petitioner.

1. Young ’801 and Moro

Petitioner contends that the combination of Young ’801 and Moro renders claims 1–4, 6, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, and 35–40 of the ’556 patent unpatentable under 35 U.S.C. § 103(a). 44Pet. 5, 21–85. Petitioner contends that its asserted combination of Young ’801 and Moro was not considered during prosecution because Moro was not considered during prosecution. 44Pet. 19–20, 21. Petitioner also provides a persuasive summary of the prosecution history showing, as a whole, the Petition presents arguments and evidence not considered by the Examiner during prosecution of the ’556 patent. *See* 44Pet. 11–12 (citing Ex. 1009 ¶¶ 53–71), 21–22 (citing Ex. 1008); *see also* Ex. 1009 ¶¶ 53–71 (Mr. Wechselberger discussing prosecution history). We find Petitioner’s summary persuasive because it is supported by the prosecution history. *See, e.g.,* Ex. 1006, 416–448 (Applicant discussing disclosures of Young), 939 (Examiner Interview Summary Record), 940–980 (Amending application claims to recite television tuning commands).

Petitioner relies on Young ’801 for teaching or suggesting most of the limitations of the claims except for teachings related to currently tuned

channel in overlaying relationship with schedule information (“partial overlay of information”) and tuning commands to allow a user to select a program for which listing information is displayed (“television tuning commands”). For these features, Petitioner relies on Moro in combination with Young ’801. *See* 44Pet. 23–79.

*a. Independent Claim 2*³⁴

Independent claim 2 is directed to an electronic program guide that includes limitations related to four elements: (i) memory means for storing television program schedule information, (ii) user control means for choosing user control commands, including television tuning and guide time-control commands, and transmitting signals, (iii) video display generator for displaying television program schedule information, and (iv) data processing means for receiving the signals transmitted from user control means, controlling the video display generator, and being responsive to television tuning commands.

(i) Petitioner’s Combination of Young ’801 and Moro

We begin by presenting a high-level summary of Petitioner’s combination of Young ’801 and Moro to provide context for the detailed analysis that follows. Petitioner relies on Young ’801’s description of memory 232 storing television program schedule information, user-operated remote controller 212, a video display generator, and CPU 228 that receives

³⁴ Petitioner starts its claim analysis with independent claim 2. According to Petitioner, many of the limitations of the challenged claims are identical or very similar to those in independent claim 2 and, therefore, analyzes the other claims referring to claim 2. 44-Pet. 26; 45-Pet. 27; 46-Pet. 27.

signals from remote controller. *See, e.g.*, 44Pet. 27 (explaining Young '801's schedule memory 232 reads on the recited memory means), 28–30 (explaining Young '801's remote controller 212 reads on the recited user control means), 31 (explaining Young '801's CPU 228 reads on the recited data processing means), 32 (explaining Young 801's video display generator 224 reads on the recited video display generator).

For the display, tuning command, and guide control command limitations,³⁵ in large measure, Petitioner relies on Young '801's full-screen interactive program guide that operates in the context of a television and a video cassette recorder (VCR). *See, e.g.*, 44Pet. 24. Young '801's guide displays program schedule information and allows a user to navigate through the guide using a movable cursor to select programs for recording by a television tuner and to access additional information about programs (e.g., program description note). Ex. 1002, 11:30–12:26, 13:28–14:5, Figs. 1–3, 6; *see, e.g.*, 44Pet. 24. Petitioner additionally relies on Moro's disclosure of displaying program information in a “‘partially overlaying relationship’ with a currently broadcast (tuned and displayed) program.” 44Pet. 43. Moro's system displays a video signal of a first program while superimposing program information for other currently available channels, and allows a

³⁵ Independent claim 2 recites “video display generator . . . for displaying interactively-selected successive portions of said schedule information for a currently tuned channel in overlaying relationship with another display signal” and recites “data processing means being responsive to said television tuning commands for allowing a user to select any one of said programs for which listing information is displayed in said partially overlaid portion of said schedule information.”

user to tune to one of the superimposed channels. See Ex. 1003, Abstract, 2:40–53, 5:36–41.

Young '801's Figures 6 and 7 as well as Moro's Figure 2 (all of which have been previously presented) are reprinted below.

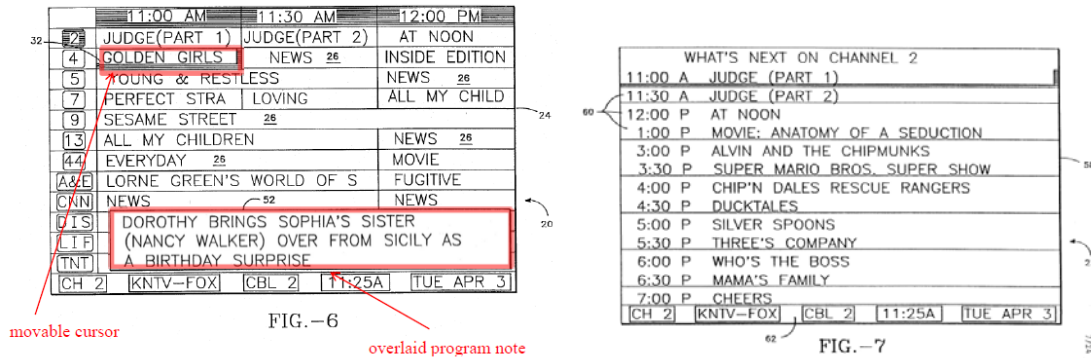
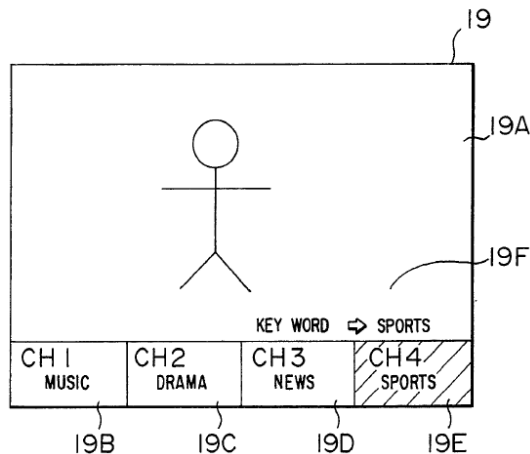


FIG. 2



In general, Petitioner relies on Young '801's disclosure (such as by Figures 6 and 7) of using a cursor to navigate an electronic program schedule by time or channel. Petitioner relies on Moro's superimposing program information for currently available channels (Channels 1–4) over the video signal of the currently tuned program, and on Moro description of a user turning to one of the superimposed channels.

(ii) Electronic Programming Guide Preamble

Independent claim 2 recites “[a]n electronic programming guide for use with a television receiver having a plurality of television channels for displaying television programs and program schedule information for said television programs.” Ex. 1001, 23:42–45 (preamble of claim 2). The parties do not dispute that Young ’801 teaches the electronic program guide as recited in the preamble.

We agree with Petitioner that the electronic programming guide preamble of independent claim 2 reads on Young ’801’s programming guide at Figure 6 (including television schedule grid 24) and on Young 801’s television tuner and television monitor (video display 210). Pet. 26–27 (citing Ex. 1002, 1:4–9, 4:15–18, Fig. 22B (elements 207, 210)). We also agree with Petitioner that Young ’801 discloses “show[ing] television programs and an electronic programming guide that includes television program schedule information on a television.” Pet. 27, 32 (citing Ex. 1002, 12:27–32, 14:30–32, Figs. 1, 10, 22B (elements 207, 210); Ex. 1009 ¶¶ 93–96). Our findings are based on the following clear descriptions of Young ’801.

As discussed previously in Section II.E, Young ’801 describes showing programming schedule information on a television that receives multiple television channels. Ex. 1002, 12:27–32, 14:30–32 (describing “overlays [shown in Figures 9 and 10] that provide information on current programs when switching channels while watching television”). Young ’801’s shows program information, including television channels, for the listed programs. *See, e.g.*, Ex. 1002, Fig. 6. Figure 22B of Young ’801 shows some hardware used in Young ’801’s system and appears below.

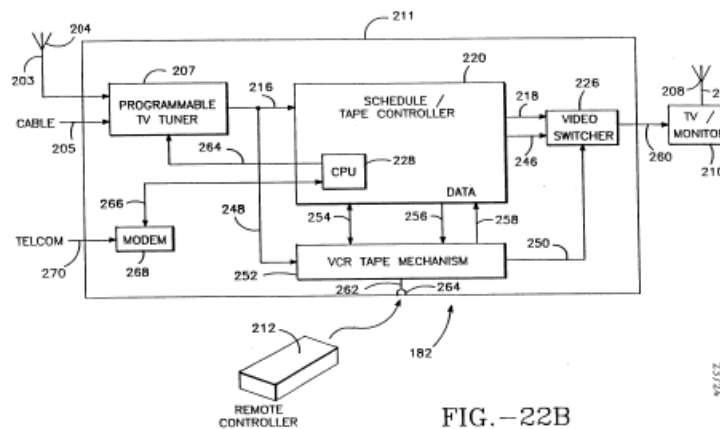


FIG. -22B

Figure 22B shows television/monitor 210, programmable television tuner 207, and remote controller 212. Schedule/tape controller 220 includes CPU 228.

For these reasons, we find that Young '801 teaches the preamble (Ex. 1001, 23:42–45) for the electronic program guide to which independent claim 2 is directed.

(iii) Memory Means

Independent claim 2 recites “memory means for storing television program schedule information for a set of television programs scheduled to appear on said plurality of television channels.” Ex. 1001, 23:46–48. As noted previously in Section II.D, the recited memory means denotes well-known memory structures including different forms of memory.

Petitioner relies on Young '801's description of memory 232 storing television program schedule information. 44Pet. 27. We agree with Petitioner's analysis. Young '801's TV tuner 202 receives program schedule information in a VBI (vertical blanking interval). Ex. 1002, 25:26–33, Fig. 22A (schedule memory 232); 44Pet. 27 (citing Ex. 1002, 25:26–33, Fig. 22A (schedule memory 232); Ex. 1009 ¶ 97). Young '801 discloses storing listing data in schedule memory 232 and cable channel assignment

data in cable-specific RAM memory 238, to be retrieved later for display.
See Ex. 1002, 25:26–34, 26:5–10.

Based on these unambiguous teachings of Young '801, we find Young '801 teaches the required memory means. This finding is consistent with the Examiner's findings during prosecution of the challenged patent, as discussed previously in Sections I.C. *See, e.g.*, Ex. 1006 (Part 3), 939 (indicating the disclosure of Young '801³⁶ and application claim 42, which issued as patent claim 2, was discussed); Ex. 1006 (Part 3), 951 (application claim 42 reciting substantially the same memory means as independent claim 2³⁷).

(iv) User Control Means

Independent claim 2 further recites “user control means for choosing user control commands, including television tuning and guide time-control commands, and transmitting signals in response thereto.” Ex. 1001, 23:49–52. As noted previously in Section II.D, the recited user control means denotes a remote controller with conventional guide and selection control.

³⁶ As recognized by Petitioner and not contradicted by Patent Owner, Young '801 has the same disclosure as the Young reference (U.S. 5,479,268) applied by the Examiner in the Office action of March 6, 1996, which was the subject of the interview. Ex. 1006 (Part 3), 853 (identifying Young (5,479,268)), 854 (applying Young '268 to application claim 42); *see, e.g.*, 44Pet. 30 (representing that Young '268 and Young '801 have the same disclosure); *see generally* PO Resp.

³⁷ The additional “a set of” to further modify “television programs scheduled to appear on said plurality of television channels” in view of Young '801's electronic program guide as discussed above does not conflict or otherwise undermine the conclusion that the Examiner viewed Young '801 as disclosing the memory means prior to Applicant's amendment.

Petitioner contends that Young '801's remote controller 212 and Moro's remote controller 21 read on the recited user control means. 44Pet. 28–30. Young '801 unambiguously discloses remote controller 212 that transmits signals. Ex. 1002, 24:17–32, Fig. 21 (showing a remote controller with cursor keys and a SELECT key), Fig. 22a (element 212); *see also* Ex. 1002, Fig. 21 (showing a remote controller of the scheduling system). Moro plainly teaches, in Figure 1, remote controller 21 provides signals to microcomputer 17 through photo detector 20. Ex. 1003, Fig. 1, 3:7–14 (describing Fig. 1); 44Pet. 31 (citing Ex. 1003, 5:16–17, 5:37–41, Fig. 1 (elements 17, 20, 21); Ex. 1009 ¶ 109).

For the types of user control commands recited in independent claim 2—“television tuning and guide time-control commands”—Petitioner relies on a combination of Young '801 and Moro. 44Pet. 28–30 (citing Ex. 1002, 24:17–32, Fig. 21 (showing a remote controller with cursor keys and a SELECT key), Fig. 22a (element 212); Ex. 1003, 5:37–41; Ex. 1009 ¶¶ 98–101). We find that Young '801's remote controller in combination with Moro's teaching of “a remote control device that allows the user to tune to a user-selected one of the other programs appearing at the bottom of [Moro's] screen” would have taught or suggested the recited user control means. Ex. 1002, 24:17–32, Fig. 21 (showing a remote controller with cursor keys and a SELECT key), Fig. 22a (element 212); Ex. 1003, 5:37–41. Young '801 plainly teaches user-activated cursor keys that allow the user to move through the guide grid both by time period (for example, as shown by displaying current and future time periods) and by channel (for example, as shown by display of program information for different channels at the current time). *See, e.g.*, Ex. 1002, Fig. 6. We agree with Petitioner that the

left and right cursor arrow keys allow a user to navigate through the program listings by time, which teaches “guide time-control commands.” *See, e.g.*, Ex. 1002, 24:17–33, Fig. 21; Pet. 28 (citing Ex. 1002, 24:17–33, Fig. 21). We also agree with Petitioner that the up and down cursor keys allow a user to navigate through the program listings by channel, which teaches “channel-control commands.” *See, e.g.*, Ex. 1002, 24:17–33, Fig. 21; Pet. 28 (citing Ex. 1002, 24:17–33, Fig. 21).

In addition to asserting the combination would read on the recited remote controller, Petitioner provides reasons to support a conclusion of obviousness. 44Pet. 30 (citing Ex. 1009 ¶¶ 102–103). Specifically, Petitioner asserts, relying on Mr. Wechselberger’s testimony, that “[i]t would have been obvious to modify Young ’801 to allow for television tuning, as taught by Moro, to allow users to use Young ’801’s guide to change currently tuned channels in addition to selecting a channel for recording.” 44Pet. 30 (citing Ex. 1009 ¶ 102).

Again relying on Mr. Wechselberger’s testimony, Petitioner further contends that “[s]uch a modification merely involves combining prior art elements according to known methods to yield predictable results.” 44Pet. 30 (citing Ex. 1009 ¶ 103). Petitioner contends the “known elements are the navigable program listing in Young ’801 and the tuning feature disclosed in Moro” and that the “predictable results are allowing the viewer to immediately tune to a program included in the program listing.” 44Pet. 30; *see* Ex. 1009 ¶ 103. Petitioner further supports its contention with Moro’s express statement “that a viewer would want to tune to one of the other programs shown on the screen.” 44Pet. 30 (quoting Ex. 1003, 5 (“When the user is desirous of viewing a sport program . . . the remote controller 21 or

the like is operated to switch the fourth channel”). Petitioner further asserts, with support of Mr. Wechselberger’s testimony, that one of ordinary skill in the art “would have had the skills and knowledge to carry out the above-described combination.” 44Pet. 30 (citing Ex. 1009 ¶ 104); Ex. 1009 ¶ 104 (explaining the “trivial” nature to make firmware changes to accomplish the modification).

We find Petitioner’s statements to be sufficient reasoning with rational underpinning to support a legal conclusion of obviousness because one of ordinary skill in the art would have understood the benefits of tuning to a particular program identified on the television monitor. Based on the reason expressed in Moro—that a viewer would want to turn to a particular program shown on the screen (Ex. 1003, 5:37–41), we find that one of ordinary skill in the art would have had that reason to combine Moro’s tuning function with Young ’801’s guide to change currently tuned channels. 44Pet. 30 (citing Ex. 1003, 5). We credit Mr. Wechselberger’s testimony in this regard because it relies on specific passages of Moro that support his testimony. See Ex. 1009 ¶ 104 (citing Ex. 1003, 5).

We also credit Mr. Wechselberger’s testimony that such a modification would have been within the ordinary level of a skilled artisan, who would have had a bachelor’s degree in electrical engineering, computer engineering, or computer science and three to five years relevant work experience. Ex. 1009 ¶¶ 102–104. Mr. Wechselberger explains that Young ’801’s CPU 228 and microcomputer 17 both are “firmware-driven processors” and making “firmware changes to employ the keypad 132 of the remote controller of Figure 21 to enable immediate tuning as taught by Moro via the ‘select/goto’ or another button.” Ex. 1009 ¶ 104.

Mr. Wechselberger's testimony provides a reasoned explanation for his conclusion and specifically relates to the context of each of Young '801 and Moro, which enhances its credibility. Ex. 1009 ¶ 102.

For these reasons, we find that the combination of Young '801 and Moro teaches or suggests the recited user control means.

(v) “video display generator” and “data processing means”

Independent claim 2 recites “data processing means for receiving said signals in response to said user control commands” and “video display generator.” Ex. 1001, 23:53–54, 55–63.

Petitioner reads the video display generator (and recited functions) partially on Young '801's VDG 224, which receives commands from CPU 228 (data processing means). See 44Pet. 31–45. Petitioner employs teachings of Moro's overlay to modify or replace Young 801's VDG. See *id.* (citing inter alia, Ex. 1003, 2:48–52, 3:55–58, 5:31–35, 6:3–7, Figs. 1, 2); Ex. 1009 ¶¶ 105–137,). As to the hardware and algorithmic structure for part of the recited “data processing means,” Petitioner relies on modifying Young '801's CPU 228 (“data processing means”) with Moro's overlay technique. See 44Pet. 42–45. As to interacting with the data processing means, Petitioner cites Young '801's video display generator 224 (“video display generator”) and remote controller 212, to generate grid/guide 24 with interactive program listings for display. 44Pet. 28–29 (citing Ex. 1002, Fig. 22A); Ex. 1002, Fig. 22A.

Young '801's CPU 228 receives signals from remote controller 212 through the IFR receiver 264, as shown in Figure 22A and discussed above. Ex. 1002, 27:1–13, Fig. 24; see 44Pet. 31 (citing Ex. 1002, 27:1–13, Fig. 24; Ex. 1009 ¶ 105). Young '801 goes on to describe tuner selection as a

control command in the context of processing user commands from the remote controller. Ex. 1002, 27:17–33; *see* 44Pet. 31 (citing Ex. 1002, 27:17–33, Fig. 24). Young ’801 also describes controlling the displayed program grid 24 by commands. Ex. 1002, 12:15–16 (“SELECT command”), 12:33–13:9 (Channel up/down and page commands); *see* 44Pet. 31 (citing Ex. 1002, 12:15–16, 26:5–10, 27:1–13; Ex. 1009 ¶ 106).

Based on a plain reading of Young ’801, we find that Young ’801’s CPU 228 reads on the recited data processing means “for receiving said signals in response to said user control commands” that were transmitted by the remote controller (i.e., the recited user control means) and the user control commands include television tuning, guide channel-control, guide time-control commands. Ex. 1001, 23:9–11 (reciting user control commands include television tuning, guide channel-control, guide time-control commands), 23:12–13 (reciting receiving signals in response to user control commands. *See* 44Pet. 31 (citing Ex. 1002, 12:15–16, 26:5–10, 27:1–13, 27:17–33; Ex. 1009 ¶¶ 105–106).

Independent claim 2 further recites that the “video display generator [is] adapted to receive video control commands from said data processing means and program schedule information from said memory means for displaying interactively-selected successive portions of said program schedule information in overlaying relationship with another display signal currently appearing on a selected channel in at least one mode of operation of said programming guide.” Ex. 1001, 23:56–63.

Young ’801 describes processing a request to see program schedule information by retrieving program listing information stored in schedule memory 232, processing the retrieved information by CPU 228, and

outputting the processing scheduling information to video display generator 224. Ex. 1002, 26:5–10; *see* 44Pet. 32 (quoting Ex. 1002, 26:5–10).

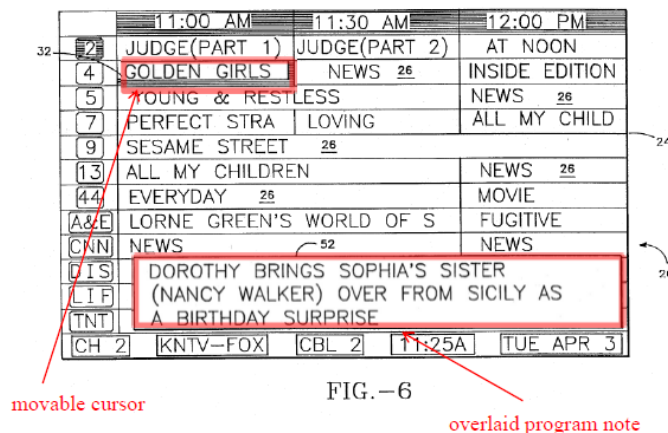
Young '801 then describes “[v]ideo switcher 226 is enabled by CPU output 246 to select the video display generator 224 output whenever schedule data is to be presented to the TV/monitor 210.” Ex. 1002, 26:8–10; *see* 44Pet. 32 (quoting Ex. 1002, 26:5–10). Based on these unambiguous passages, we find that Young '801 teaches or suggests “video display generator adapted to receive video control commands from said data processing means and program schedule information from said memory means for displaying interactively-selected successive portions of said schedule information,” as recited in independent claim 2. Ex. 1001, 23:54–61; 44Pet. 32 (quoting Ex. 1002, 26:5–10).

The recited video display generator is adapted to perform the required display “in at least one mode of operation of said programming guide.” Ex. 1001, 23:62-63. As noted above in Section II.D, we explained that this term requires at least one configuration of the data processing means in which the configuration displays the recited program schedule information in overlaying relationship with the display signal currently appearing on the channel. Our finding that the combination of Young '801 and Moro would have taught or suggested the required display also supports a finding that the display is performed “in at least one mode of operation of said programming guide.” This is because a programming guide performing something necessarily teaches the programming guide performing that something in one mode of operation.

(vi) “interactively selected,” “consecutively displayed”
and navigating limitations

We next turn to the interactively selected,” “consecutively displayed” and navigating limitations³⁸ of the video display generator and the data processing means. Regarding the display and guide control commands limitations, in large measure, Petitioner relies on Young ’801’s full-screen interactive program guide that operates in the context of a television and a video cassette recorder (VCR). *See, e.g.*, 44Pet. 24; 45Pet. 25; 46Pet. 24. Young ’801’s guide displays program schedule information and allows a user to navigate through the guide using a movable cursor to select programs for recording by a television tuner and to access additional information about programs (e.g., program description note). Ex. 1002, 11:30–12:26, 13:28–14:5, Figs. 1–3, 6; *see, e.g.*, 44Pet. 24; 45Pet. 25; 46Pet. 24. For example, in response to a user’s request, “[p]rogram notes for a selected program are overlaid over the grid guide upon [user] request,” as illustrated by Petitioner’s annotation of Young ’801’s Figure 6, which appears below. Ex. 1002, 12:14–16.

³⁸ Independent claim 2 recites “displaying interactively-selected successive portions of said schedule information for a currently tuned channel” and “consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods.” Ex. 1001, 23:59–61, 24:4–7.



44Pet. 24. Young '801's Figure 6 depicts "a television schedule grid screen 20 with a program note overlay 52." Ex. 1002, 11:30–31, Fig. 6.

The user can move the cursor, which initially highlights the currently tuned channel, to highlight another program currently appearing on a different channel or to highlight another program to appear on the currently tuned channel at a later time. Ex. 1002, 13:28–30 (describing initial placement of cursor), 9:7–29 (describing cursor movement 24:17–31 (explaining remote control keys related to controlling electronic program guide), Fig. 1 (electronic program guide showing highlight of current channel 56); Fig. 21 (showing remote controller with up, down, left, right, page, and "select/goto" keys, among others); *see also* Ex. 1002, 24:30–32 (noting the use of the keys has been explained or "is apparent from their labels"); 44Pet. 24, 28–29, 33–34, 42, 44. Young '801 describes how the grid page 24 can be changed by using the page key on the remote control. Ex. 1002, 13:7–11 ("A grid 24 page may be changed by either a page command or by entering a channel Up/Dn command as described above. If a page is turned using the page command, the current channel is now located in the previous page, and will not be seen in the new page."); Ex. 1002, 12:33–13:4 (describing use of the Tuner Up/Down channel command); *see*

44Pet. 28 (quoting Ex. 1002, 24:17–33); Pet. Reply 16 (citing Ex. 1002, 13:5–16; Ex. 1021, 105:17–106:6). This includes navigation by time and/or channel. (Ex. 1002, 3:14–17, 4:27–5:3, 13:5–15:2, FIG. 7.”); *see also* 44Pet. 44 (citing Ex. 1002, 14:6–13, Figs. 2, 7; Ex. 1009 ¶ 135). In addition, when discussing the problem of irregular cell size, Young ’801 describes how “a cursor right command may cause an abrupt jump to a cell situated several hours from the current page.” Ex. 1002, 3:14–19; *see* 44Pet. 44 (“Young ’801 discloses a display method for highlighting program listings as a user navigates the listings using cursor keys on the remote control. (Ex. 1002, 8:28–9:29.)”).

According to Petitioner, these features of Young ’801 teach or suggest “displaying interactively-selected successive portions of said schedule information” because the display shows a selected program highlighted when the user moves the cursor to highlight a program on a different channel or a program on at a different time. 44Pet. 40. In other words, the highlighting for the cursor shows that a particular program has been interactively selected and the highlighted program is displayed with the program listings, which are successive portions of schedule information. Thus, the user moving the cursor results in “displaying interactively-selected successive portions of said schedule information.”

Petitioner also relies on these features to teach or suggest the data processing means function of controlling the video display generator to display “listing information for each successive one of said television programs scheduled to appear on said currently tuned channel.” 44Pet. 32. As Petitioner notes, Young ’801’s Figure 6 shows the currently tuned

channel and program information for that channel appearing at three time periods (i.e., 11:00 a.m., 11:30 a.m., and 12:00 p.m.). 44Pet. 32–33.

In addition, Petitioner further relies on these features to teach or suggest the data processing means function of controlling the video display generator to display each portion of program schedule information “being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods for which program schedule information is stored in said memory mean.” 44Pet. 32, 44 (“Young ’801 discloses a display method for highlighting program listings as a user navigates the listings using cursor keys on the remote control. (Ex. 1002, 8:28–9:29.) This includes navigation by time and/or channel. (Ex. 1002, 3:14–17, 4:27–5:3, 13:5–15:2, FIG. 7.)”).

Regarding navigation by time, Petitioner also relies on Young ’801’s Figure 7 depicted below.

WHAT'S NEXT ON CHANNEL 2				
11:00 A	JUDGE (PART 1)			
11:30 A	JUDGE (PART 2)			
12:00 P	AT NOON			
1:00 P	MOVIE: ANATOMY OF A SEDUCTION			
3:00 P	ALVIN AND THE CHIPMUNKS			
3:30 P	SUPER MARIO BROS. SUPER SHOW			
4:00 P	CHIP'N DALES RESCUE RANGERS			
4:30 P	DUCKTALES			
5:00 P	SILVER SPOONS			
5:30 P	THREE'S COMPANY			
6:00 P	WHO'S THE BOSS			
6:30 P	MAMA'S FAMILY			
7:00 P	CHEERS			
CH 2	KNTV-FOX	CBL 2	11:25A	TUE APR 3

FIG.-7

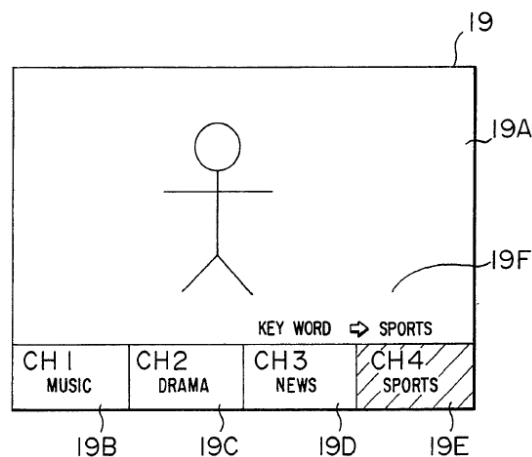
Figure 7 shows a program list 58 for a single channel by time that can be accessed from the program grid 24. Ex. 1002, 14:6–13, Fig. 7; *see* 44Pet. 44 (citing Ex. 1002, 14:6–13 (navigating by time periods for a particular channel), Fig. 7). When returning to the program grid 24 from the program

list 58, “the grid cursor 32 will be pointed to the channel and schedule time last selected on the single channel guide 58.” Ex. 1002, 14:25–29; *see* 44Pet. 44.

Petitioner asserts Young ’801’s system does not display the program guide at the same time (“in overlaying relationship”) as a program, “requir[ing] a viewer who wishes to view the program schedule information to interrupt viewing a program to view the guide.” 44Pet. 35.

Petitioner additionally relies on Moro’s disclosure of displaying program information in a “‘partially overlaying relationship’ with a currently broadcast (tuned and displayed) program,” as shown in Moro’s Figure 2. 44Pet. 43. Moro’s system displays a video signal of a first program while superimposing program information for other currently available channels, and allows a user to tune to one of the superimposed channels. *See* Ex. 1003, Abstract, 2:40–53, 5:36–41. A reproduction of Moro’s Figure 2 follows:

F I G. 2



Moro's Figure 2 above shows present program information for different channels (19B, 19C, 19D, and 19E) overlaying a different program depicted in 19A. *See id.* at 4:45–5:9.

In sum, Petitioner turns to Moro to “teach[] partially overlaying program information for other channels over a currently tuned and displayed program so that the viewer can continue to view the program while also viewing program information for the other channels.” 44Pet. 37. According to Petitioner, “Moro thus provides an explicit motivation to modify Young '801.” 44Pet. 37 (citing Ex. 1003, 3:55–58); *see also* 44Pet. 36 (citing Ex. 1003, Fig. 2 (disclosing superposing character 19B–19E on a television signal of a currently viewed program)).

Petitioner articulates a reason for modifying Young '801 as follows:

It would have been obvious to modify Young '801 to use Moro's known overlaying technique to overlay program schedule information, including interactively-selected portions of schedule information for a currently tuned channel and interactively-selected portions of schedule information for programs on channels different from the currently tuned channel (both scenarios taught by Young '801), over a display signal currently appearing on the tuned channel to allow a viewer to view program information without interrupting the currently tuned and displayed program as taught by Moro. (Ex. 1009 ¶¶ 111–117.) Such a modification merely involves use of a known technique (Moro) to improve similar devices and methods (Young '801) in the same way. (Ex. 1009 ¶ 117).

44Pet. 38 (citing Ex. 1009 ¶¶ 111–117).

Petitioner provides another reason for the proposed modification:

It would have been apparent to [one of ordinary skill in the art] that Young '801's program guide could be reduced in size to prevent it from obscuring most of the currently tuned and displayed program, (Ex. 1009 ¶ 124) and in view of Young '801's teaching that “supplemental schedule information is

presented in overlays that obscure a minimum amount of useful other information.”

44Pet. 38–39 (quoting Ex. 1002, 4:15–18; Ex. 1009 ¶139).

Petitioner adds “[t]he prosecution history also shows that it would have been obvious to combine a currently-tuned program and program schedule information with the known partial overlaying technique.”

44Pet. 39 (citing Ex. 1009 ¶¶ 120–123). Citing relevant portions of the prosecution history, Mr. Wechselberger explains “[t]he examiner never changed his position [that] using an overlaying technique was obvious.” Ex. 1009 ¶¶ 120–123 (discussing and quoting Ex. 1006, 797, 854, 1024–1025). Mr. Wechselberger further explains “[t]oward the end of prosecution,” Applicant amended claims to include a “tuning limitation” in order to overcome the Examiner’s rejections. *Id.* ¶ 138 (citing Ex. 1006, 939, 946–980). Mr. Wechselberger notes further that during prosecution Applicant conceded “the references currently relied on teach or suggest . . . the display of schedule information in an overlay.” *Id.* ¶ 137 (quoting Applicant, Ex. 1006, 1031).

Further regarding the VDG, Petitioner contends it would have been obvious to replace or modify Young ’801’s VDG 224 and video switcher 226 with Moro’s character generator section 18 to implement the overlay functionality recited in the claims. 44Pet. 39. According to Petitioner, Moro’s “[c]haracter generator section 18 converts character information received from microcomputer 17 and superposes (overlays) the character information onto video signals that are sent to monitor 19 for display.” 44Pet. 39 (citing Ex. 1003, 3:55–58, Fig. 1).

Petitioner also contends

it would have been obvious to implement Moro's character generator section 18 using a video graphics card having an ability to overlay text on a video signal, in view of trends in the television industry to incorporate computer components such as graphics cards, and in view of the knowledge of those of skill in the art.

44Pet. 40 (citing Ex. 1009 ¶¶ 129–130); Ex. 1009 ¶ 130 (citing Ex. 1009 ¶¶ 14–16; Ex. 1015, Abstract (U.S. patent filed in 1982 showing merged video including European PAL or NTSC broadcast signals mixed with graphics, titling and any other data)). Regarding such video graphics cards as part of evolving trends, the '556 patent cites a known commercially available video graphics card as an embodiment of a VDG. Ex. 1001, 8:8–12, 39–42; Ex. 1009 ¶¶ 129–130 (citing Ex. 1015 and admissions in the '556 patent regarding known hardware components).

Petitioner relies on the combination of Young '801 and Moro to address the data processing means function of controlling the video display generator to display program schedule information partially overlaid on the currently appearing [i.e., currently tuned] display signal (identified by Petitioner as 1)³⁹; storing the requisite program scheduling information in memory (identified by Petitioner as 3); and the data processing means being responsive to the television tuning commands to allow the user to select any of the listed programs (identified by Petitioner as 4). See 44Pet. 40–45 (addressing limitation “2[F]”). For the requirements that the program schedule information includes listing information for television programs over sequential time periods including programs scheduled to appear on the

³⁹ For clarity, we use Petitioner's clause numbering. See, e.g., 44Pet. 41.

currently tuned channel and that the user can successively navigate through those listings using the guide control commands (identified by Petitioner as clause requirement 2), Petitioner relies on Young '801. *See* 44Pet. 44.

We find Petitioner's explanations and evidence to be sufficient reasoning with rational underpinning to support a legal conclusion of obviousness because one of ordinary skill in the art would have understood the benefits of combining Moro's program information overlaying the currently tuned program with Young '801's program information. First, Moro provides an express reason why one of ordinary skill in the art would combine Young '801 and Moro in the manner proposed by Petitioner. *See* Ex. 1003, 5 ("When the user is desirous of viewing a sport program . . . the remote controller 21 or the like is operated to switch the fourth channel"); 44Pet. 30 (quoting Ex. 1003, 5). Second, we again note Mr. Wechselberger's credible testimony, that one of ordinary skill in the art "would have had the skills and knowledge to carry out the above-described combination." 44Pet. 30 (citing Ex. 1009 ¶ 104); Ex. 1009 ¶ 104 (explaining the "trivial" nature to make firmware changes to accomplish the modification). We credit Mr. Wechselberger's testimony in this regard because he provides sufficient explanation regarding firmware to support his conclusion that it would have been within the level of ordinary skill. *See* Ex. 1009 ¶ 104. We also again note that the level of ordinary skill is having a bachelor's degree in electrical engineering, computer engineering, or computer science and three to five years relevant work experience. This further supports a finding that combining Moro's overlay and tuning function with Young '801's program schedule information would be within the skill level of one of ordinary skill in the art.

In sum, as discussed above, Petitioner relies on cursor movement on various portions of the programming information grid 24 displayed in Figures 2 and 6. 44Pet. 33–35. We agree that Young ’801’s cursor movement highlights portions of schedule information that has been selected by the user and, as such, displays interactively-selected information—the highlighted program. In Figure 6, Young ’801 also displays the currently tuned channel. Ex. 1002, Fig. 6; *see* 44Pet. 34. Young ’801 also describes how a user can select by time or by channel. Ex. 1002, 24:17–33, Figs. 2, 6, 21. Figures 2 and 6 shows three time-slots for which information is displayed. Ex. 1002, Figs. 2, 6. Thus, we find Young ’801 teaches or suggests displaying interactively-selected information for a currently tuned channel.

We agree with Petitioner that Moro teaches displaying program information in a “‘partially overlaying relationship’ with a currently broadcast (tuned and displayed) program,” as shown in Moro’s Figure 2. 44Pet. 36–37 (citing Ex. 1003, 2:48–52, 3:55–58, 5:6–9, Fig. 2). Moro’s system displays a video signal of a first program while superimposing program information for other currently available channels, and allows a user to tune to one of the superimposed channels. Ex. 1003, Abstract, 2:40–53, 5:36–41; *see* 44Pet. Ex. 1003, 36–37 (citing Ex. 1003, 2:48–52, 3:55–58, 5:6–9, Fig. 2).

For the reasons explained above, we find that these passages from Young ’801 and Moro collectively would have taught or suggested to one of ordinary skill in the art “a video display generator adapted to receive video control commands from said data processing means and program schedule information from said memory means for displaying interactively-selected

successive portions of said schedule information for a currently tuned channel in overlaying relationship with another display signal currently appearing on said channel in at least one mode of operation of said programming guide” and “said data processing means controlling said video display generator to display each said portion of program schedule information in partial overlaying relationship with said currently appearing display signal, each said portion comprising listing information for each successive one of said television programs scheduled to appear on said currently tuned channel and being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods for which program schedule information is stored in said memory means, said data processing means being responsive to said television tuning commands for allowing a user to select any one of said programs for which listing information is displayed in said partially overlaid portion of said schedule information,” as recited in claim 2.

(vii) Conclusion regarding Independent Claim 2

In light of the record, including considering Patent Owner’s arguments summarized and addressed below, Petitioner demonstrates by a preponderance of the evidence that the subject matter of independent claim 2 would have been obvious over the combination of Young ’801 and Moro set forth by Petitioner.

b. Independent Claim 1

Petitioner makes a similar showing for independent claim 1. Petitioner points out independent claim 1 recites similar limitations to

independent claim 2 and provides a chart addressing the similarities and differences. *See* 44Pet. 45–49.

(i) Guide Control Commands

One of the differences identified by Petitioner is that independent claim 1 recites “guide channel-control” commands as an additionally enumerated user control command. Pet. 45–46. As discussed above with regard to independent claim 2, Young ’801 recites channel-control commands that allow a user to move through the grid guide by channel in addition to time. *See, e.g.*, Ex. 1002, 24:17–33, Fig. 21; Pet. 28 (citing Ex. 1002, 24:17–33, Fig. 21). In addition, Petitioner’s reasoning with rational underpinning applies with equal force with regard to the subject matter of “guide channel-control commands.”

Many other independent claims also recite “guide channel-control commands.” *See, e.g.*, independent claims 1, 3, 4, 14, 16, 19, 20, 28, 30, 33, 39, 40; *see* 44Pet. 45–46 (regarding claim 1), 49 (regarding claim 3), 51 (regarding claim 4), 57 (regarding claim 14), 60 (regarding claim 16), 62 (regarding claim 19), 64 (regarding claim 20), 68 (regarding claim 28), 70 (regarding claim 30), 71 (regarding claim 33), 76 (regarding claim 39), 79 (regarding claim 40).

(ii) Selected Channel (Rather than Currently Tuned Channel)

Another difference in claim 1 is that independent claim 1 does not require that the program schedule information be “for a currently tuned channel.” Rather, while independent claim 2 requires the video display generator to receive video control commands for displaying scheduling information in overlaying relationship with “another display signal *currently*

appearing on said channel,” independent claim 1 recites for displaying scheduling information in overlaying relationship with another display signal currently *appearing on a selected channel*. 44Pet. 46. Petitioner contends this requirement is broader than independent claim 2’s requirement of a “currently tuned channel” and so Young ’801 and Moro also teach this limitation. 44Pet. 46. Young ’801’s guide grid displays the currently tuned channel and allows the user to select another channel. *See, e.g.*, Ex. 1002, 24:17–33, Fig. 21; Pet. 28 (citing Ex. 1002, 24:17–33, Fig. 21). Thus, overlaying a selected channel occurs because the user previously selected the channel. We find Petitioner’s showing to be sufficient in this regard.

(iii) Navigating through Listing Information for Sequential Time Periods or Programs

Independent claim 1 recites “navigating through listing information for sequential time periods *or programs*,” whereas independent claim 2 recites “navigating through listing information for sequential time periods.” Thus, Petitioner’s position regarding Young ’801’s disclosure of “navigating through listing information for sequential time periods” also teaches “navigating through listing information for sequential time periods *or programs*.” *See, e.g.*, 44Pet. 44–46 (discussing user navigation through cursor keys with regard to independent claim 2), 46–48 (discussing user navigation through cursor keys with regard to independent claim 1). Also, as explained below in response to Patent Owner’s argument, independent claim 1 requires guide control commands for either time period or program navigation.

For these reasons, we find Petitioner’s showing to be sufficient in this regard.

In addition, many other independent claims also recite “navigating through listing information for sequential time periods *or programs*.” See, e.g., independent claims 3, 4, 14, 16, 20, 28, 30, 33, 39, 40; see 44Pet. 50–51 (regarding claim 3), 51 (regarding claim 4), 57 (regarding claim 14), 60 (regarding claim 16), 64 (regarding claim 20), 68 (regarding claim 28), 70 (regarding claim 30), 70–72 (regarding claim 33), 75–78 (regarding claim 39), 79–81 (regarding claim 40).

(iv) Predetermined Time Periods

Independent claim 1 recites “said data processing means controlling said video display generator with said video control commands in response to said user control commands to display each said portion of program schedule information *for any chosen one of said television programs for a predetermined display period* in partial overlaying relationship with another display signal currently being received on said television receiver.” Petitioner correctly observes that this limitation “requires that the program schedule information is displayed ‘for any chosen one of said television programs for a predetermined display period.’” 44Pet. 47.

Regarding the display of a signal for a predetermined time, Petitioner relies on Moro’s teaching that the displayed program information in Figure 2 “may be adapted to disappear automatically a predetermined time after starting [the] display without operating the MAC information search button at the remote controller 21.” 44Pet. 48 (citing Ex. 1003, 5:21–22). Petitioner contends that one of ordinary skill in the art “would have appreciated that displaying schedule information for a predetermined time period, as shown in Moro, would provide the information while limiting distractions.” 44Pet. 48 (citing Ex. 1009 ¶ 138); Ex. 1009 ¶ 138

(Mr. Wechselberger opining that “[o]ne skilled in the art would have appreciated that displaying schedule information for a predetermined time period, as shown in Moro, would provide the information while limiting distractions and input requirements of the user.”).

Based on the unambiguous passage in Moro, we find that Moro teaches the recited “predetermined display period.” In addition, we agree with Petitioner that one of ordinary skill in the art would have understood the benefits of automatically removing the program information after a predetermined time to limit distractions for the viewer, as taught by Moro. 44Pet. 48. Removing program information would limit distractions for the viewer because the program information would no longer be a visible distraction.

In light of the record, including considering Patent Owner’s arguments summarized and addressed below and the Petitioner’s arguments made with regard to independent claim 2 discussed above, Petitioner demonstrates by a preponderance of the evidence that the subject matter of independent claim 1 would have been obvious over the combination of Young ’801 and Moro set forth by Petitioner.

c. Dependent Claims

The following discussion addresses the additional limitations recited by the challenged dependent claims 6, 7, 10, 18, 21, and 35–38. 44Pet. 53–56, 61, 67, 72–75.

Dependent claim 6 additionally recites “wherein said predetermined display period is a user-selectable variable time period chosen in response to a user control command.” Similarly, dependent claim 38 recites “wherein said program schedule information is displayed for a display period and

wherein said display period is a user-selectable variable time period chosen in response to a user control command.” For these features, Petitioner relies on a combination of Young ’801’s programming guide for displaying television schedule information and Moro’s disclosure that the displayed scheduling information “may be adapted to disappear automatically a predetermined time after starting.” 44Pet. 53 (claim 6) (citing Ex. 1003, 5:21–26); 44Pet. 74–75 (claim 38) (citing Ex. 1003, 5:21–26). For the predetermined time being adjustable, building on Moro’s “adapted” statement, Petitioner contends

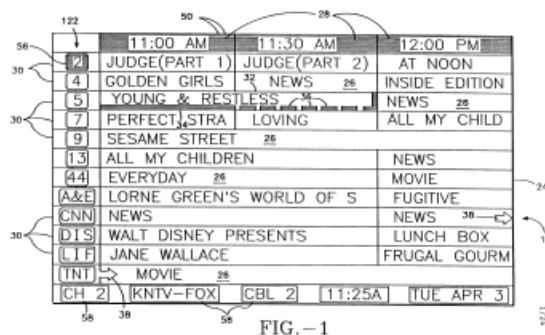
[i]t would further have been obvious to allow the user to configure the predetermined time (“chosen in response to a user control command”) for displaying the program listings. It was widely-known that many predetermined values could be user-configurable, thereby providing a customized and improved user experience. (MPEP § 2144.04 (“making adjustable”); Ex. 1009, ¶¶ 142–143.) Modifying the combination of Young ’801 and Moro to make the program schedule information disappear after a user-selectable variable time period merely involves combining prior art elements according to known methods to yield predictable results. (Ex. 1009 ¶¶ 142–144).

44Pet. 54 (claim 6); *see also* 44Pet. 74–75 (for claim 38 relying on claim 6 arguments).

Petitioner relies on that one of ordinary skill in the art would have known many predetermined values could be adjustable or user-configurable, which would provide a customized and improved user experience. 44Pet. 85 (citing MPEP § 2144.04 (“making adjustable”)); Ex. 1009 ¶ 143). We credit Mr. Wechselberger’s declaration testimony in this regard because he explains that “Young ’801 includes multiple examples that show that it was known to make options adjustable or customizable including the display of a program note[] and titles.” Ex. 1009 ¶ 143 (citing Ex. 1102, 15:8–16,

Fig. 11 (showing process used for titles and program notes while viewing TV)). We recognize that the portion of Young '801 cited by Mr. Wechselberger discusses activating and deactivating titles and program notes. Ex. 1002, 15:8–16, Fig. 11. We agree that this passage teaches that customizing the display of titles and program notes. We find that given the level of ordinary skill—a bachelor's degree in electrical engineering, computer engineering, or computer science and three to five years relevant work experience—that such customization would have at least suggested to one of ordinary skill in the art making the display period to be a user-selectable variable time period.

Dependent claim 7 additionally recites “wherein said schedule information displayed by said video display generator comprises at least program title and program channel.” Similarly, dependent claim 21 further recites “wherein said portion of displayed program schedule information comprises at least program title and program channel.” For these limitations in its combination of Young '801 and Moro, Petitioner relies on Young '801's unambiguous teaching of program title and program channel in Young '801's Figure 1, reproduced below. 44Pet. 55 (citing Ex. 1009 ¶ 145) (claim 7); 44Pet. 67 (claim 21).



As shown in Young '801's Figure 1, and discussed previously, Young '801's program schedule information includes program channels and program titles. For these reasons, we agree with Petitioner.

Dependent claim 10 additionally recites "wherein said another display signal is a television program." In context of independent claim 2, for example, dependent claim 10 requires "a video display generator . . . for displaying interactively-selected successive portions of said schedule information for a currently tuned channel in overlaying relationship with another display signal currently appearing on said channel." In its combination of Young '801 and Moro, Petitioner further relies on Young '801's disclosure of "channel grazing overlays 64 and 66 [in Figures 9 and 10] that provide information on current programs when switching channels while watching television." 44Pet. 56 (citing Ex. 1002, 14:30–32 ("while watching television"; Ex. 1009 ¶¶ 146–148). Based on this plain disclosure of Young '801, we agree with Petitioner that Young '801 teaches the requisite displaying schedule information in overlaying relationship with another display signal that is a television program.

Dependent claim 18 further recites "wherein the navigation is controlled by user-activated direction keys provided on said user control means." For this additional limitation, Petitioner relies on Young '801's remote controller in Figure 21 that includes left, right, up, down, and page cursor keys. 44Pet. 61 (citing Ex. 1002, 24:17–33, Fig. 21; Ex. 1009 ¶ 151). Based on this unambiguous teaching of Young '801, we find Young '801 teaches this additional limitation.

Dependent claim 35 further recites “wherein said display signal is chosen from the group consisting of a television program, promotional video clip or an advertisement.” For this requirement, in its combination of Young ’801 and Moro, Petitioner relies again on Young ’801’s disclosure of a television program and a program guide and on Moro for rationale for combining the two in an overlay format. 44Pet. 72–73 (citing Ex. 1009 ¶¶ 158–159). For the reasons explained previously, we agree that Petitioner’s combination of Young ’801 and Moro teaches or suggests that the display signal is a television program, which reads on claim 35.

Dependent claim 36 additionally recites “wherein said another display signal is an advertisement.” Relying on Mr. Wechselberger’s testimony, Petitioner contends Young ’801’s television programs inherently would include advertisements. 44Pet. 73 (citing Ex. 1009 ¶¶ 160–162).

Mr. Wechselberger testifies

[i]t was notoriously well-known that television programs are broadcast with advertisements. It was well known that the display of television programs would inherently include advertisements. In the alternative, it would have been obvious to include advertisements as part of television program broadcasts to generate revenue to support the television programming, as is well known.

Ex. 1009 ¶ 160. In the context of the claim here—that the program schedule information is overlaid on an advertisement display signal—we find Mr. Wechselberger’s testimony, though brief, to be credible that a television program would inherently include advertisements and that fact was well-known. Based on Mr. Wechselberger’s testimony that a television program would include advertisements, we find overlaying an advertisement would be necessarily present or the natural result of Petitioner’s combination

of Young '801 and Moro. *See PAR Pharm., Inc. v. TWI Pharm. Inc.*, 773 F.3d 1194–96 (Fed. Cir. 2014) (discussing inherency in the context of 35 U.S.C. § 103). Accordingly, we find that Petitioner's combination of Young '801 and Moro would have at least suggested overlaying program schedule information on an advertisement display signal.

Dependent claim 37 additionally recites “wherein said another display signal is a promotional video clip.” Petitioner again relies on Mr. Wechselberger's testimony setting forth similar reasoning regarding the requirement that the overlaid display signal is a promotional video clip. 44Pet. 73–74 (citing Ex. 1009 ¶ 163). Here, Mr. Wechselberger opines

[i]t was notoriously well-known (for decades) that television programs have been broadcast with promotions for movies and other videos, long before the filing date of the '556 Patent. Accordingly, the disclosure of television program broadcasts would have inherently (or at least obviously) included display signals having promotional video clips, such as portions of movies.

Ex. 1009 ¶ 163. Here, too, we find Mr. Wechselberger's testimony, although brief, to be credible in its discussion of a particular type of promotional video clip—a portion of a movie. Therefore, based on Mr. Wechselberger's testimony that a television program would include portions of movies as promotional video clips and have done so for decades, we find overlaying an a signal having a promotional video clip would be necessarily present or the natural result of Petitioner's combination of Young '801 and Moro. Accordingly, we find that Petitioner's combination of Young '801 and Moro would have at least suggested overlaying program schedule information on a display signal that is a promotional video clip.

d. Remaining Challenged Independent Claims

Petitioner makes similar showings for the remaining challenged independent claims. Petitioner points out independent claims 3, 4, 14, 16, 19, 20, 28, 30, 33, 39, and 40 recite similar limitations and provides charts addressing the similarities and differences. See 44Pet. 49–53, 56–66, 68–72, 75–81. Petitioner makes similar arguments regarding these claims as discussed above. We agree with Petitioner’s clear presentation in its 44Petition regarding how one of ordinary skill in the art would understand the cited portions of the reference to teach or suggest the limitations recited by these independent claims, why one of ordinary skill in the art would have made the combinations proposed by Petitioner, and that the proposed combinations would have been within the level of ordinary skill. We agree with Petitioner because Petitioner’s arguments logically follow from Petitioner’s arguments discussed above, with which we agree for the reasons explained.

(i) Independent claims 3 and 39 require “set of channels”

The challenged independent claims include various requirements concerning the displayed channel. In addition to independent claim 2’s requirement regarding displaying the currently tuned channel and independent claim 1’s requirement for displaying a selected channel. Petitioner observes that independent claims 3 and 39 each further recites “each successive one of said television programs scheduled to appear on said set of channels, including ones different from a currently tuned channel.” See Pet. 49–50 (claim 3), 76 (claim 39); Ex. 1001, 24:31–32 (claim 3), 36:11–13 For the . Petitioner identified “scheduled to appear on said set of

channels” as a difference in independent claim 3 and in independent claim 39 from Petitioner’s reference claim 2. *See, e.g.*, 44Pet. 49–51 (claim 3), 76–77 (claim 39).

Relying on Figure 1 in Young ’801, Petitioner contends that “schedule information is shown for channels different from the currently tuned channel (**e.g., channel 4, 5, 6, 7, etc.**).” 44Pet. 77 (emphasis by Petitioner); 44Pet. 51 (materially similar citation).

We find that schedule information displayed for multiple channels in Young ’801’s Figure 1 teaches or suggests the required “each successive one of said television programs scheduled to appear on said set of channels,” required by claim 3.

(ii) Independent Claim 4

Petitioner contends independent claim 4 is very similar to claim 2 and highlights differences in a chart. 44Pet. 51–53. We agree with the Petitioner’s clear position, which relies on unambiguous teachings in the cited references. In addition, we have addressed previously the highlighted differences—“guide channel-control commands” and displaying information about television programs scheduled to appear “on a different channel from said currently tuned channel.”

Accordingly, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 4.

(iii) Independent Claim 14

Petitioner contends independent claim 14 is very similar to claim 2 and highlights differences in a chart. 44Pet. 56–60. We agree with the Petitioner’s clear position, which relies on unambiguous teachings in the

cited references. In addition, we have addressed previously the highlighted difference of “guide channel-control commands” and “navigating through listing information for sequential time periods *or programs*.”

We agree with Petitioner that “program schedule display generator” recited in independent claim 14 is “coupled to said data processing means” and performs functions recited by the “video display generator” recited in independent claim 2 that Petitioner’s combination that teaches or suggests the video display generator also teaches or suggests the “program schedule display generator” recited in independent claim 14. *See* 44Pet. 58–60

Accordingly, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 14.

(iv) Independent Claim 16

Petitioner contends independent claim 16 is very similar to claim 14 and highlights differences in a chart. 44Pet. 60–61. Independent claim 16 recites “said navigation including deleting at least one program listing appearing in the overlay and adding at least another program listing in the overlay.” For this feature, Petitioner relies on Young ’801’s description of a “page” control that allows a user to “page” through program listings, which replaces one page of program listings with another, which effectively deletes the program listings on the prior page and adds the program listings on the new page. *See* 44Pet. 60–61 (citing Ex. 1002, 13:5–16). We agree with Petitioner that the page control of Young ’801 teaches or suggests the requisite deleting and adding.

Accordingly, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 16.

(v) Independent Claim 19

Petitioner contends independent claim 19 is very similar to claim 14 and highlights differences in a chart. 44Pet. 62–63. In addition to “guide control commands” discussed previously, Petitioner highlights the recited “means for receiving television schedule information” being coupled to the program display generator and requires the browse mode. 44Pet. 62–63. We agree with Petitioner that Young ’801’s unambiguous description of receiving broadcast program schedule information at receiver 202 teaches or suggests the recited receiver means. Ex. 1002, 25:16–25, Fig. 22A (programmable TV tuner/cable decoder 202); 44Pet. 62 (citing Ex. 1002, 25:16–25, Fig. 22A; Ex. 1009 ¶ 152).

For the required “in browse mode of operation,” Petitioner relies on a its combination of Young ’801 and Moro, which has been discussed extensively with regard to independent claim 2, that allows a user to interactively scan through program listings by time or channel while continuing to view the current program. We agree with Petitioner for the reasons discussed previously with respect to independent claim 2—that the combination of Young ’801 and Moro would allow such interactive scanning of program listings. 44Pet. 63. We also agree with Petitioner that Moro shows scanning through program listings while continuing to view the current program. 44Pet. 63. Moro’s Figure 2 plainly shows a listing of four programs while displaying the currently tuned program.

Accordingly, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 19.

(vi) Independent Claim 20

Petitioner contends independent claim 20 is very similar to claim 2 and highlights differences in a chart. 44Pet. 64–66. We agree with the Petitioner’s clear position, which relies on unambiguous teachings in the cited references and its combination of the references with which we agree, for the reasons explained previously. In addition, we have addressed previously the highlighted difference of “guide channel-control commands.” We agree with Petitioner that Young ’801’s grid guide displays information for programs appearing in channels different from a currently tuned channel. *See, e.g.*, Ex. 1002, Fig. 1; 44Pet. 64–65. For the reasons discussed previously with respect to Petitioner’s combination of Young ’801 and Moro, we agree that Young ’801’s system of Moro’s character generator teaches or suggests a system that displays schedule information for a plurality of different channels overlaid on a television signal (“at the same time as the currently appearing display signal”), so that the viewer can see the schedule information while watching a currently-viewed program. 44Pet. 66.

We also agree with Petitioner that Young ’801’s guide grid teaches or suggests navigation through listing information for sequential programs (in addition to teaching navigation through sequential time periods recited in claim 2). 44Pet. 65; *see* Ex. 1002, Fig. 1.

Accordingly, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 20.

(vii) Independent Claim 28

Petitioner contends independent claim 28 is very similar to claim 14 and highlights differences in a chart. 44Pet. 68–69. As discussed previously

with respect to independent claim 19, we find Young '801's programmable TV tuner/cable decoder 202 teaches or suggests the recited "means for receiving television program schedule information" and that Young '801 teaches information has been received Ex. 1002, 25:16–25, Fig. 22A; *see* Pet. 68–69.

Accordingly, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 28.

(viii) Independent Claim 30

Petitioner contends independent claim 30 is very similar to claim 28 and highlights differences in a chart. 44Pet. 69–70. In addition, Petitioner highlights that independent claim 30 (like independent claim 16) recites "said navigation including deleting at least one program listing appearing in the overlay and adding at least another program listing in the overlay." Petitioner makes similar arguments relying on Ex. 1002, 13:5–16. For the reasons stated above with respect to independent claim 16, we find that Young '801's page control teaches or suggests the requisite adding and deleting program listings.

Accordingly, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 30.

(ix) Independent Claim 33

Petitioner contends independent claim 33 is very similar to claim 14 and highlights differences in a chart. 44Pet. 70–72. The memory means in independent claim 33 recites storing information regarding scheduled events, which encompasses storing television program schedule information (i.e., a scheduled television program is a type of scheduled event). Thus, we agree

with Petitioner that the prior art disclosure of storing television program schedule information also discloses the broader scope of storing a schedule event. 44Pet. 70–71.

In addition, independent claim 33 recites “an event schedule display generator” (rather than a program schedule display generator, as recited in independent claim 14) that is coupled to the data processing means and memory means for performing the recited functions. Independent claim 33 also recited “at least one *receivable* signal different from said display signal” (as opposed to independent claim 14 that recites “at least one *program* signal different from said display signal”). We agree with Petitioner that, in the context of the claim language and specification, for the same reasons the prior art teaches or suggests a program schedule display generator and a program signal, the prior art also teaches or suggests the event schedule display generator and receivable signal recited in independent claim 33. 44Pet. 71–72.

For these reasons, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 33.

(x) Independent Claim 39

Petitioner contends independent claim 39 is very similar to claim 2 and highlights differences in a chart. 44Pet. 75–78. For example, Petitioner identifies “guide channel control means,” “a set of channels, including ones different from a currently tuned channels” and “means for receiving.” 44Pet. 75–76. For reasons discussed previously, we agree with Petitioner’s clear reasoning regarding the highlighted features.

In addition, we agree with Petitioner that its combination that teaches or suggests displaying scheduling information in overlaying relationship

with the display signal (as discussed extensively above) also teaches or suggests displaying the information simultaneously with another display signal. 44Pet. 76. This is because displaying scheduling information in *overlying relationship* with the display signal also must display the information *simultaneously*. In other words, there cannot be an overlying relationship without simultaneous display.

We agree with Petitioner’s clear position regarding independent claim 39 because Petitioner’s position substantially reflects Petitioner’s contentions with which we agree for the reasons discussed above as well as reflecting unambiguous disclosures of the prior art. *See* 44Pet. 75–78,

For these reasons, we also find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 39.

(xi) Independent Claim 40

Petitioner contends independent claim 40 is very similar to claim 2 and highlights differences in a chart. 44Pet. 79–81. Petitioner again identifies “identifies “guide channel control means,” “a program schedule display generator,” displaying “simultaneously” with the display signal, displaying schedule information of a “program different from the display signal” (as opposed to “for a currently tuned channel”), and “sequential time periods or programs.” 44Pet. 79–81. Petitioner presents substantially the same arguments as previously discussed.

For the reasons discussed previously, we find Petitioner has demonstrated the combination teaches or suggests the limitations in independent claim 40.

e. Conclusion Regarding Obviousness over Young '801 and Moro

Petitioner addresses potential evidence of secondary considerations filed during prosecution of the application. 44Pet. 82–84. Patent Owner has not presented evidence of secondary considerations during the *inter partes* reviews. After reviewing the Declaration of Bruce Davis (Ex. 1006, 1027–1044) presented during prosecution of the application, we agree with Petitioner that the Declaration is insufficient to show non-obviousness for the reasons set forth in the Petition.

In conclusion, based on the foregoing discussion and a review of the record, Petitioner makes a detailed and sufficient showing with respect to the obviousness of independent claim 2. *See* 44Pet. 22–45. Petitioner also makes a detailed and persuasive obviousness showing with respect to the remaining challenged claims, as discussed above. *See* 44Pet. 45–92. For the reasons discussed above, we also conclude that Petitioner has provided a reason why one of ordinary skill in the art would have combined the references in the manner proposed and would have had a reasonable expectation of success of doing so. Accordingly, we determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claims 1–4, 6, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, and 35–40 would have been obvious over Young '801 and Moro.

2. Young '801, Young '121, and Reiter (IPR45)

In its 45Petition Petitioner contends that claims 2–4, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, 35, 36, 37, 39, and 40 of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Petitioner's combination of Young '801 (Ex. 1102), Young '121 (Ex. 1111), and Reiter (Ex. 1104). 45Pet. 11, 24–

78. Petitioner acknowledges Young '121 was considered by the Examiner but contends the “Petition presents Young '121 in a new light” relative to the prosecution history of the '556 patent. 45Pet. 23.

Petitioner relies on Young '801 for teaching or suggesting most of the limitations of the claims except for teachings related to currently tuned channel in overlaying relationship with schedule information (“partial overlay of information”) and tuning commands to allow a user to select a program for which listing information is displayed (“television tuning commands”). For these features, Petitioner relies on, in combination with Young '801, Young '121 for the television tuning commands and Reiter for the partial overlay of information). *See* 45Pet. 23–79.

a. Independent Claim 2

In the same manner as in the asserted ground of Young '801 and Moro in 44IPR, Petitioner relies on Young '801 for the recited electronic program guide preamble,⁴⁰ memory means,⁴¹ user control means,⁴² data processing means,⁴³ and video display generator.⁴⁴ We agree with the Petitioner for the reasons discussed previously with regard to Young '801 in IPR44.

⁴⁰ *See, e.g.*, 45Pet. 27–28 (citing Ex. 1102, 1:4–9, 4:15–18, 12:27–32, 14:30–32, Figs. 1, 10, 22B (elements 207, 210)).

⁴¹ *See, e.g.*, 45Pet. 28 (citing Ex. 1102, 25:26–33, Fig. 22A (schedule memory 232); Ex. 1109 ¶ 102).

⁴² *See, e.g.*, 45Pet. 28–32 (citing Ex. 1102, 24:17–32, Fig. 21 (showing a remote controller with cursor keys and a SELECT key), Fig. 22a (element 212)).

⁴³ *See, e.g.*, 45Pet. 32–33 (citing Ex. 1102, 12:15–16, 26:5–10, 27:1–13, 24:17–33, Fig. 22A; Ex. 1109 ¶¶ 111–112)).

⁴⁴ *See, e.g.*, 45Pet. 33–37.

(i) Menu Selection and Television Tuning of Young '121

For the recited user control means, Petitioner additionally relies on Young '121's teaching of "an MG Master Guide Mode that allows for direct selection of a program from a guide." 45Pet. 31 (citing Ex. 1111, 10:12–14, 11:51–65); *see* 45Pet. 28–32. We agree that, based on a plain reading of the cited passages, that Young '121 teaches the tuning command. Ex. 1111, Fig. 5, 11:51–65 ("The cursor keys 232–236 can be used to select a different program. . . . Once a desired program is indicated by the cursor, the SEL key 228 [on the remote controller] will automatically cause the Program Master to return to the TV broadcast with the channel tuned to the selected program.").

In addition, we agree that Petitioner has articulated sufficient reasoning with some rational underpinning to support the legal conclusion of obviousness. Petitioner has provided a reason why one of ordinary skill in the art would have combined the references in the manner proposed and would have had a reasonable expectation of success. Petitioner asserts, relying on Mr. Wechselberger's testimony, that "[i]t would have been obvious to modify Young '801 to allow for tuning, as taught by Young '121, to allow users to use the menu guide disclosed in Young '801 to change currently tuned channels in addition to selecting a channel for recording when the current time matches the scheduled time for the program." 45Pet. 31–32 (citing Ex. 1109 ¶ 108). Again relying on Mr. Wechselberger's testimony, Petitioner further contends that "[s]uch a modification merely involves combining prior art elements according to known methods to yield predictable results." 45Pet. 32 (citing Ex. 1109 ¶ 109). Petitioner contends the "prior art elements are the navigable program listing in Young '801 and

the tuning feature in Young ’121” and that the “predictable results are allowing the viewer to tune to a program included in the program listing.” 45Pet. 32; *see* Ex. 1109 ¶ 109. Petitioner contends one of ordinary skill in the art “would have looked to Young ’121 because it was referenced in the background of Young ’801.” 45Pet. 32 (citing Ex. 1002, 2); Ex. 1102, 2:18–22 (referencing “[c]ommonly assigned U.S. Patent 4,706, 121”).

Petitioner also contends that one of ordinary skill in the art would have combined the references based on “explicit motivation” in Young ’121—elimination of manual channel selection by providing channel selection by pointing to menu items. 45Pet. 32 (citing Ex. 1111, 3:20–24); Ex. 1111, 3:20–24 (“It is another object of the invention to provide such a system and process in which the need to make manual channel selection is eliminated and all programs are selected by pointing to menu items.”).

Petitioner further asserts, with support of Mr. Wechselberger’s testimony, that one of ordinary skill in the art “would have had the skills and knowledge to carry out the above-described combination.” Pet. 32 (citing Ex. 1109 ¶ 110); Ex. 1109 ¶ 110 (explaining the “trivial” nature to make firmware changes to accomplish the modification). We credit Mr. Wechselberger’s testimony that provides sufficient explanation and identifies specific prior art passages that support his testimony. We also agree with Petitioner because Petitioner’s contentions rely on specific prior art passages that provide support.

For these reasons (in addition to the reasons discussed regarding Young ’801’s teaching of a user control means), we find Petitioner’s combination of Young ’801 and Young ’121 teaches or suggests the recited user control means. We also conclude that Petitioner has provided a reason

why one of ordinary skill in the art would have combined the references in the manner proposed and would have had a reasonable expectation of success of doing so.

For the data processing means, Petitioner additionally relies on “Young ’121 teaches that its CPU 110 is responsive to ‘television tuning’ commands from remote controller 116, to allow a user to select any one of the television programs for tuning.” 45Pet. 33 (citing Ex. 1111, 7:51–57, 11:51–65, Fig. 3). Petitioner further contends that one of ordinary skill in the art would have reason “to modify the algorithm in Young ’801 to receive tuning commands from a remote control to allow users to select television programs and change channels with a remote control, as taught by Young ’121” for the reasons provided previously with regard to the user control means. 45Pet. 33. Petitioner contends, too, that the “resulting algorithm is the same as or equivalent to the algorithm disclosed in the [challenged patent].” 45Pet. 33. We agree with Petitioner’s reading of Young ’121 that comports with a plain reading of the cited passages.

In addition, we find Petitioner has provided sufficient articulated reasoning with some rational underpinning as to why one of ordinary skill in the art would have combined the references in the manner Petitioner’s proposes and would have had a reasonable expectation of success. For example, Petitioner contends that Young ’121’s passages provide “an explicit motivation to modify Young ’801” “to allow the currently tuned program and program schedule information to be viewed at the same time.” 45Pet. 38, 43 (apparently referring to Ex. 1104, 6:33–38 (indicating the reason so “the viewer may continue to view the television program he is currently watching”))).

Accordingly, we conclude that Petitioner's combination of Young '801 and Young '121 teaches or suggests the recited data processing means. We also conclude that Petitioner has provided a reason why one of ordinary skill in the art would have combined the references in the manner proposed and would have had a reasonable expectation of success of doing so.

(ii) Video Display Generator

For the recited video display generator, based on the natural reading of Reiter, we agree with Petitioner that Reiter "teaches displaying program schedule information in an overlay format so the viewer can continue to view a television program." 45Pet. 38 (citing Ex. 1104, 6:29–38, Fig. 3 (element 155 "overlay format"); Ex. 1109 ¶ 120)); Ex. 1104, 6:33–38 (indicating under certain conditions "the viewer is supplied at 155 with a television overlay format" and "the viewer may continue to view the television program he is currently watching").

Also regarding the video display generator, Petitioner contends it "would have been obvious to replace or modify Young '801's video display generator 224 and video switcher 226 with Reiter's mixer 70 to implement the recited functions." 45Pet. 40. According to Petitioner, Reiter's "[m]ixer 70 receives program schedule information from microcontroller 60, mixes the information with video data received from RF section 64, and sends the mixed signal to television 40." 45Pet. 40 (citing Ex. 1004, 5:2–15, Fig. 2; Ex. 1109 ¶ 137). Petitioner, relying on Mr. Wechselberger's declaration testimony, also contends

it would have been obvious to implement Reiter's mixer 70 using a video graphics card having the ability to overlay text on a video

signal to implement the “overlying” function in the combination of Young ’801 and Reiter in view of trends in the television industry to incorporate computer components such as graphics cards, and in view of the knowledge of those of skill in the art at the time of the alleged invention.

45Pet. 41 (citing Ex. 1109 ¶¶ 138–139); Ex. 1109 ¶ 14 (citing Ex. 1109 ¶¶ 14–16); Ex. 1109 ¶¶ 14–16 (citing Exs. 1107, 1112, 1115). We find credible Mr. Wechselberger’s testimony that is supported by references to prior art materials. *See, e.g.*, Ex. 1109 ¶ 139. In addition, the challenged patent cites a known commercially available video graphics card that is an embodiment of a video display generator. Ex. 1101, 8:11–21 (discussing a “commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec,” “includes a standard RGB video generator 24” and video overlay device 25). This weighs toward finding one of ordinary skill in the art would have had a reasonable expectation of success.

Petitioner further articulates a reason for modifying Young ’801 with Reiter’s overlay as follows:

It would have been obvious to use Reiter’s known overlaying technique to overlay the program schedule information, including interactively-selected portions of schedule information for a currently tuned channel and interactively-selected portions of schedule information for programs on channels different from the currently tuned channel (both scenarios taught by Young ’801) over a display signal currently appearing on the tuned channel to allow a viewer to view the program information without interrupting the currently tuned and displayed program as taught by Reiter. Such a modification merely includes use of a known technique (Reiter) to improve similar devices and methods (Young ’801) in the same way. (Ex. 1109, ¶ 121.)

45Pet. 38–39 (citing Ex. 1109 ¶¶ 121). Petitioner provides yet another reason:

It would have been apparent to a POSITA that Young '801's program guide could be reduced in size to prevent it from obscuring most of the currently tuned and displayed program. (Ex. 1109, ¶ 124.) Young '801 also states that "supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information." (Ex. 1102, 4:15–18.)

45Pet. 39–40 (quoting Ex.1102, 4:15–18; Ex. 1109 ¶ 124).

Based on Mr. Wechselberger's credible testimony and the express teachings of Reiter (to allow a viewer to view the program information without interrupting the currently tuned and displayed program) and Young '801 (to minimize obscured information), we find Petitioner has provided articulated reasoning with some rational underpinning as to why one of ordinary skill in the art would have made the combination as proposed by Petitioner and would have had a reasonable expectation of success in doing so.

(iii) Additional Functions of Data Processing Means

Petitioner relies on the combination of Young '801, Young '121, and Reiter to address the additionally recited functions of the data processing means, as set forth in the independent claim 2. 45Pet. 41–46; 45Pet. 42 (identifying four functions as (1)–(4)).

Petitioner relies on teachings in Young '801 and Reiter for the requirement that the data processing means control the video display generator to display program schedule information partially overlaid on the "currently appearing" (which Petitioner contends is the currently tuned) display signal and the requirement that the program schedule information is stored in the memory. 46Pet. 42 (Petitioner's items 1 and 3); 45Pet. 42–44. For these features, as discussed previously, Petitioner relies on

“Young 801’s CPU 228 [that] controls its video display generator 224 and retrieves information from schedule memory 232 to generate interactive schedule screens,” as explained previously. 45Pet. 42–44 (citing Ex. 1102, 13:5–7, 13:28–30, 26:5–10, Fig. 2). Petitioner further relies on Reiter showing “the currently-tuned channel appears on the screen.” 45Pet. 43 (citing Ex. 1104, 6:36–38); Ex. 1104, 6:36–38 (Reiter indicating “the viewer may continue to view the television program he is currently watching”).

Petitioner contends that it “would have been obvious to modify Young ’801 to include the partial overlay feature of Reiter to allow currently tuned program and program schedule information to be viewed at the same time.” 45Pet. 44. Petitioner contends that one of ordinary skill in the art also would have found it obvious “to modify the algorithm in Young ’801” to display the overlaying program information for the same reason—“to allow a user to view the program information without interrupting the currently tuned and displayed program.” 45Pet. 44. For the reasons discussed above, including Reiter’s express teaching of the benefit of doing so (Ex. 1104, 6:36–38), we agree that Petitioner’s combination of Young ’801 and Reiter would have taught or suggested the requisite overlaying, and one of ordinary skill in the art would have had a reason to combine the references as proposed by Petitioner and further one of ordinary skill in the art would have had a reasonable expectation of success.

Petitioner also relies on Young ’801 disclosing techniques for the required “navigating the program listings using cursor keys on the remote control by both time and program.” 45Pet. 45 (Petitioner’s item 2) (citing Ex. 1102, 3:14–17, 4:27–5:3, 8:28–9:29, 13:5–15:2, Figs. 2, 7; Ex. 1109 ¶ 149). As discussed previously with regard to Young ’801’s disclosure in

the Young '801 and Moro ground, we agree with Petitioner's reading of Young '801 that comports with a plain reading of the cited passages for the reasons discussed previously.

For the requisite the data processing means is responsive to the television tuning commands to allow the user to select any of the listed programs (Petitioner's item 4), Petitioner relies on Young '121's description that its CPU 110 is responsive to television tuning commands from the remote controller to select a program. 45Pet. 45 (citing Ex. 1111, 7:51–57, 11:51–65, Fig. 3). As discussed previously with regard to Young '801's disclosure in the Young '801 and Moro ground, we agree with Petitioner's reading of Young '121 that comports with a plain reading of the cited passages, as discussed previously.

For these reasons, we find that Petitioner's combination of Young '801, Young '121, and Reiter teaches or suggests the recited data processing means and Petitioner has supplied sufficient articulated sufficient reasoning with some rational underpinning to support the legal conclusion of obviousness.

(iv) Conclusion

For these reasons, we find that Young '801, Young '121, and Reiter would have taught or suggested the limitations received by independent claim 2, as Petitioner contends. For the reasons discussed above, we also conclude that Petitioner has provided a reason why one of ordinary skill in the art would have combined the references in the manner proposed and would have had a reasonable expectation of success of doing so. Accordingly, we determine that Petitioner has provided sufficient articulated reasoning with rational underpinning to support a conclusion that the subject

matter of independent claim 2 would have been obvious over Young '801, Young '121, and Reiter.

b. Claims 3, 4, 7, 10, 14, 16, 18), 19–21, 28, 30, 33, 35, 36, 37, 39, and 40

As with the 44Petition, for the other independent claims challenged in the Young '801, Young '121, and Reiter ground, Petitioner indicates the claim limitations are very similar to a previously discussed claim (usually independent claim 2) and provides a chart addressing the similarities and differences for each claim. See 45Pet. 46–78. As with the 44Petition, Petitioner relies on additional disclosures by Young '801 discussed above. Compare 44Pet. 49–53, 56–61, 62–66, 68–72, 75–81 (claims 3, 4, 14, 16, 19, 20, 28, 30, 33, 39, 40), with 45Pet. 46–51, 53–69, 71–78. We find Petitioner's contentions persuasive here for the same reasons discussed above.

For challenged dependent claims 7, 10, 18, 21, and 35–37 (as each depends from one of the independent claims challenged in this asserted ground), Petitioner relies on additional passages in Young '801 in its asserted combination of Young '801, Young '121, and Reiter. Petitioner makes the same arguments as set forth in 44Petition, which we find persuasive for the reasons discussed above. Compare 44Pet. 55, 56, 61, 67, 72–74 (claims 7, 10, 18, 21, and 35–37), with 45Pet. 51, 52–53, 58–59, 64, 69–71 (claims 7, 10, 18, 21, and 35–37).

c. Conclusion Regarding Obviousness over Young '801, Young '121, and Reiter

Petitioner addresses potential evidence of secondary considerations filed during prosecution of the application. 45Pet. 87–89. Patent Owner has

not presented evidence of secondary considerations during the *inter partes* reviews. After reviewing the Declaration of Bruce Davis (Ex. 1106, 1028–1044) presented during prosecution of the application, we agree with Petitioner that the Declaration is insufficient to show non-obviousness for the reasons set forth in the Petition.

Accordingly, for these reasons and in light of the record, including considering Patent Owner’s arguments summarized and addressed below, Petitioner demonstrates by a preponderance of the evidence that the subject matter of claims 2–4, 7, 10, 14, 16, 18), 19–21, 28, 30, 33, 35, 36, 37, 39, and 40 would have been obvious over the combination of Young ’801, Young ’121, and Reiter, as forth by Petitioner. 45Pet. 11, 24–78.

3. Young ’801, Young ’121, Reiter, and Strubbe (IPR45)

In the 45Petition, Petitioner also contends that claims 1, 6, 7, 10, 36, 37, and 38 of the ’556 patent are unpatentable under 35 U.S.C. § 103(a) based on Petitioner’s combination of Young ’801 (Ex. 1102), Young ’121 (Ex. 1111), Reiter (Ex. 1104), and Strubbe (Ex. 1110). 45Pet. 79–87.

a. Independent Claim 1

For the independent claim 1 (the only independent claim challenged in this ground), Petitioner indicates the claim limitations are very similar to previously discussed independent claim 2 and provides a chart addressing the similarities and differences between the claims. 45Pet. 79–83. Except for relying on Strubbe as discussed below, Petitioner relies on additional passages in Young ’801 and presents the same arguments that we found persuasive with regard to claim 1 in the 44Petition.

Regarding Petitioner’s additional reliance on Strubbe for independent

claim 1 (45 Pet. 82), Petitioner contends that Strubbe teaches “displaying content and informational messages in a partial overlaying relationship over a display signal for a predetermined period of time.” 45Pet. 82 (citing Ex. 1110, 6:45–49, 8:21–27, 10:6–14); *see generally* 45Pet. 79–87. We agree with Petitioner because Strubbe expressly teaches providing a visual reminder message, usually in a picture-in-picture window, on a television screen at an appointed time before a program begins. Ex. 1110, 6:45–49; *see also* Ex. 1110, 8:21–27, 10:6–14. Strubbe also indicates that the picture-in-picture window “may then show the opening, for example, 10 seconds of the program” at the appointed time. Ex. 1110, 6:45–49. Strubbe’s description of showing later at a particular time the program opening in the same portion of the television screen (i.e., the picture-in-picture window) as the reminder text would have been understood by one of ordinary skill in the art as teaching or at least suggesting displaying the reminder message for a predetermined period of time—until the opening seconds of the show is displayed.

We also agree with Petitioner, as discussed previously, that one of ordinary skill in the art “would have appreciated that displaying messages or other content for a predetermined time period . . . would provide the information while limiting distractions and input requirements of the user.” 45Pet. 82. We also find that one of ordinary skill in the art would have had a reasonable expectation of success. This is because the modification involves combining prior art elements (the display of Young ’801’s schedule information and Strubbe’s predetermined time period) according to methods known to one of ordinary skill in the art with a bachelor’s degree in electrical engineering, computer engineering, or computer science and three

to five years of relevant work experience. The results of providing information for a limited time period and limiting distractions for the user would have been predictable. *See* 45Pet. 82–83 (citing Ex. 1109 ¶ 169).

b. Dependent Claims 6 and 38

Dependent claim 6 additionally recites “wherein said predetermined display period is a user-selectable variable time period chosen in response to a user control command.” Similarly, dependent claim 38 recites “wherein said program schedule information is displayed for a display period and wherein said display period is a user-selectable variable time period chosen in response to a user control command.”

In the combination of Young ’801, Young ’121, Reiter and Strubbe, Petitioner relies on Strubbe’s teaching of displaying a reminder message for a predetermined period of time, discussed above with respect to independent claim 1. *See* 45Pet. 83–84 (claim 6) (citing Ex. 1110, 6:45–49, 8:21–27, 10:6–14); 45Pet. 85–86 (referring to claim 6 arguments); *see also* 45Pet. 82 (regarding independent claim 1) (citing Ex. 1110, 6:45–49, 8:21–27, 10:6–14). Petitioner further contends that it would have been obvious to modify Young ’801 to display schedule information for a predetermined time period to provide information while limiting distractions. As discussed previously, we found this contention to be persuasive.

Petitioner further contends, as it did with regard its challenge that dependent claim 6 would have been obvious over Young ’801 and Moro, that it would have been obvious to allow the user to configure the predetermined time. 45Pet. 85; *see* 44Pet. 54 (claim 6). Here, too, Petitioner relies on that one of ordinary skill in the art would have known many predetermined values could be adjustable or user-configurable, which

would provide a customized and improved user experience. 45Pet. 85 (citing MPEP § 2144.04 (“making adjustable”)); Ex. 1109 ¶ 173.

We credit Mr. Wechselberger’s declaration testimony in this regard because he explains that “Young ’801 includes multiple examples that show that it was known to make options adjustable or customizable including the display of a program note[] and titles.” Ex. 1109 ¶ 173 (citing Ex. 1102, 15:8–16, Fig. 11 (showing process used for titles and program notes while viewing TV)). For the reasons discussed above with respect to the challenge to claim 6 in the 44Petition (regarding Young ’801 and Moro), we agree with Petitioner that the claims 6 and 38 would have been obvious over Young ’801, Young ’121, Reiter, and Strubbe.

c. Dependent Claims 7, 10, 36, and 37

Regarding dependent claims 7, 10, 36, and 37 and their dependency from independent claim 1, Petitioner indicates the additional limitations have been addressed in the 45Petition’s asserted ground of Young ’801, Young ’121, and Reiter.

We agree with Petitioner’s position that these claims also would have been obvious in view of Young ’801, Young ’121, and Reiter for the reasons discussed above with regard to the asserted ground of Young ’801, Young ’121, and Reiter and the previous discussion regarding independent claim 1.

d. Conclusion Regarding Obviousness over
Young ’801, Young ’121, Reiter, and Strubbe

Accordingly, for these reasons and in light of the record, including considering Patent Owner’s arguments summarized and addressed below, Petitioner demonstrates by a preponderance of the evidence that the subject

matter of claims 1, 6, 7, 10, 36, 37, and 38 would have been obvious over the combination of Young '801, Young '121, Reiter, and Strubbe, as forth by Petitioner. 45Pet. 79–87.

4. Young '801, Young '121, and Remillard (IPR46)

In the 46Petition Petitioner contends that claims 2–4, 7, 10, 14, 16, 18–21, 28, 30, 33, 35–37, 39, and 40 of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Petitioner's combination of Young '801 (Ex. 1202), Young '121 (Ex. 1211), Remillard (Ex. 1205), and identified AAPA (Ex. 1201, 8:3–48) as set forth in the 46Petition. 46Pet. Petitioner acknowledges Remillard was considered by the Examiner but contends that “Remillard qualifies as prior art and is presented in a new light” relative to the prosecution history of the '556 patent. 46Pet. 22. Remillard was not considered after the application claims were amended to recite a tuning function. 46Pet. 22. Nor was Remillard considered in combination with Young '121. 46Pet. 22.

Petitioner relies on Young '801 for teaching or suggesting most of the limitations of the claims except for teachings related to currently tuned channel in overlaying relationship with schedule information (“partial overlay of information”) and tuning commands to allow a user to select a program for which listing information is displayed (“television tuning commands”). For these features, Petitioner relies on, in combination with Young '801, Young '121 for the television tuning commands and Remillard for the partial overlay of information). See 46Pet. 23–27, 27–73.

a. Independent Claim 2

In the same manner as in the asserted ground of Young '801 and Moro, Petitioner relies on Young '801 for the recited electronic program guide preamble,⁴⁵ memory means,⁴⁶ user control means,⁴⁷ data processing means,⁴⁸ and video display generator.⁴⁹ We agree with the Petitioner for the reasons discussed previously with regard to Young '801. In general, Petitioner relies on Young '121 for teaching television tuning and on Remillard and AAPA for teaching the requisite partially overlaying function.

(i) Television Tuning of Young '121

Like the asserted ground of Young '801, Young '121, and Reiter, Petitioner additionally relies on Young '121's teaching of "an MG Master Guide Mode that allows for direct selection of a program from a guide" in the same way as in the asserted ground of Young '801, Young '121, and Reiter.⁵⁰ We agree that, based on a plain reading of the cited passages, that Young '121 teaches the tuning command.

Regarding "data processing means for receiving said signals in response to said user control commands," Petitioner relies on Young '121's

⁴⁵ See, e.g., 46Pet. 27–28 (citing Ex. 1202, 1:4–9, 4:15–18, 12:27–32, 14:30–32, Figs. 1, 10, 22B (elements 207, 210)).

⁴⁶ See, e.g., 46Pet. 28 (citing Ex. 1202, 25:26–33, Fig. 22A (schedule memory 232); Ex. 1209 ¶ 106).

⁴⁷ See, e.g., 46Pet. 28–32 (citing Ex. 1202, 24:17–32, Fig. 21 (showing a remote controller with cursor keys and a SELECT key), Fig. 22a (element 212)).

⁴⁸ See, e.g., 46Pet. 32–33 (citing Ex. 1202, 12:15–16, 26:5–10, 27:1–13, 24:17–33, Fig. 22A; Ex. 1209 ¶¶ 117–119).

⁴⁹ See, e.g., 46Pet. 34–38.

⁵⁰ See, e.g., 46Pet. 28–32 (citing Ex. 1211, 10:12–14, 11:51–65).

plain teaching that its CPU 110 is responsive to “television tuning” commands from remote controller 116 to allow a user to select any one of the television programs. 46Pet. 45 (citing Ex. 1211, 7:51–57, 11:51–65, Fig. 3); Ex. 1209 ¶¶ 136–137). We agree with Petitioner’s reading of the plain teaching of Young ’121 in the cited passages. Based on the plain teachings of the references, we also agree with Petitioner and Mr. Wechselberger that the “resulting algorithm is the same as or equivalent to [the general algorithm disclosed in the challenged patent].” 46Pet. 45 (citing Ex. 1209 ¶ 152); *see* Ex. 1209 ¶ 152.

Petitioner contends, relying on Mr. Wechselberger’s testimony, that one of ordinary skill in the art would have “found it obvious to modify Young ’801’s algorithm to receive tuning commands from a remote control to allow users to select television programs and change channels, as taught by Young ’121.” 46Pet. 31–32; *see* 46Pet. 45 (citing Ex. 1209 ¶ 152; referring to 46 Pet. 31–32). Petitioner articulates a reason why one of ordinary skill in the art would have done so: “to allow users to use the menu guide disclosed in Young ’801 to change currently tuned channels in addition to selecting a channel for recording when the current time matches the scheduled time for the program.” 46Pet. 31–32 (citing Ex. 1209 ¶ 112). We find the one of ordinary skill in the art would understand the benefit of using a remote control to do so in view of Young ’121’s express teaching— “[i]t is another object of the invention to provide such a system and process in which the need to make manual channel selection is eliminated and all programs are selected by pointing to menu items.” 46Pet. 32 (quoting Ex. 1211, 3:20–24); Ex. 1211, 3:20–24. In addition, we agree that one of ordinary skill in the art would have turned to Young ’121 because

Young '121 was referenced in the background section of Young '801 as providing techniques for using “user selections from television schedule information are used for automatic control of a VCR.” Ex. 1202, 2:18–22; *see* 46Pet. 30 (citing Ex. 1202, 2:18–29); Ex. 1209 ¶ 113.

We find the modification of Young '801 to allow for Young '121's tuning to merely involve combining prior art elements according to known methods to yield predictable results, as Petitioner contends based on Mr. Wechselberger's testimony. 46Pet. 31–32 (citing Ex. 1209 ¶¶ 113–114). Our finding is based on the same reasoning discussed above with respect to Young '801 and Young '121 in Section II.F.2 (asserted ground of Young '801, Young '121, and Reiter).

Accordingly, we find Petitioner has provided a reason why one of ordinary skill in the art would have combined the references in the manner proposed and would have had a reasonable expectation of success.

(ii) Partial Overlay of Remillard

For the video display generator, Petitioner relies on Young '801's video display generator 224 and Remillard's overlaid television menus. 46Pet. 33–38. Specifically, Petitioner turns to Remillard for disclosing “overlying interaction menus on a portion of a television broadcast.” 46Pet. 37 (citing Ex. 1205, 2:63–3:1, 5:55–61, Fig. 3; *see* 46Pet. 26 (“Remillard teaches partially overlaying an interaction menu 80 on a portion of a television broadcast.” (citing Ex. 1205, 5:55–61)). We agree that Figure 3 of Remillard plainly shows a TV display (item 82) and an interaction menu (item 80). *See, e.g.*, Ex. 1205, Fig. 3 (shown above in Section II.E). In addition, as Petitioner contends, Remillard expressly describes “overlying the interaction menus on a portion of a conventional

television broadcast.” Ex. 1205, 5:58–59; *see* Ex. 1205, 2:63–65 (“[T]he genlock mechanism permits the controller to overlay a control menu or an interaction menu over all or a portion of a television screen, as desired.”); 46Pet. 37 (“Remillard discloses overlaying interaction menus on a portion of a television broadcast.”) (citing Ex. 1205, 2:63–3:1, 5:55–61). Based on Remillard’s express teachings and depiction in Figure 3, we also agree with Petitioner that one of ordinary skill in the art “would appreciate that . . . displaying the menu on a portion of a television broadcast allows the viewer to continue to view the broadcast while interacting with the menu.” 46Pet. 37–38; *see* Ex. 1205, 2:63–3:1, 5:55–61, Fig. 3). Our finding is bolstered by Mr. Wechselberger’s credible declaration testimony that one of ordinary skill in the art would understand the benefit of Remillard’s overlaying techniques with Young ’801’s schedule information—it “would have allowed the viewer to view the program schedule information without interrupting a currently viewed program.” Ex. 1209 ¶ 130; *see* 46Pet. 37–38 (citing Ex. 1209 ¶¶ 128–129). Mr. Wechselberger explains that

Remillard explicitly acknowledges that there are trade-offs between overlaying a menu over all of a television screen and a portion of the television screen. Ex. 1205, column 2, lines 63–65 (“The genlock mechanism permits the controller to overlay . . . an interaction menu over all or a portion of a television screen, as desired.”).

Ex. 1209 ¶ 128. Thus, Mr. Wechselberger’s citation to Remillard supports his opinion that one of ordinary skill in the art “would have appreciated that overlaying a menu over all of the television screen allows for the display of a larger menu or a menu with more options, whereas displaying the menu on a portion of a television broadcast allows the viewer to continue to view the

television broadcast while interacting with the menu.” Ex. 1209 ¶ 128; *see* Pet. 37–38 (quoting Ex. 1209 ¶ 128).

The existence of a commercially available video display generator card also bolsters Petitioner’s position. Specifically, Petitioner indicates the challenged patent that describes a video display generator in the form of “a commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec.” 46Pet. 38 (citing Ex. 1201, 8:3–12); 46Pet. 21 (identifying Ex. 1201, 8:3–48 as AAPA). According to Petitioner, “[t]his shows that the use of an overlay technique and an existing video display generator to perform overlay were known and the video display generator was commercially available.” 46Pet. 38 (citing Ex. 1209 ¶ 127). The cited portion of Mr. Wechselberger’s testimony supports Petitioner’s position. Ex. 1209 ¶ 127.

Petitioner further articulates a reason for modifying Young ’801 to allow the currently tuned program and program schedule information to be viewed at the same time as follows:

It would have been obvious to use the known overlaying technique disclosed in Remillard and AAPA to partially overlay an interactive menu, including interactively-selected portions of schedule information for a currently tuned channel and interactively-selected portions of schedule information programs on channels different from the currently tuned channel (both scenarios taught by Young ’801), over a display signal currently appearing on the tuned channel to allow a viewer to view the program information without interrupting the currently tuned and displayed program. (Ex. 1209, ¶ 130.) Such a modification merely includes use of a known technique (Remillard and AAPA) to improve similar devices and methods (Young ’801) in the same way. (Ex. 1209, ¶ 130.)

46Pet. 38–39 (citing Ex. 1209 ¶¶ 130). Petitioner provides another reason:

It would have been apparent that Young '801's program guide could be reduced in size to prevent it from obscuring most of the currently tuned and displayed program to prevent it from obscuring most of the currently-viewed program. (Ex. 1209, ¶ 133)

46Pet. 39–40 (quoting Ex. 1209 ¶¶ 132–133).

Regarding the video display generator, Petitioner also contends it “would have been obvious to implement Remillard’s video controller 108 using the AAPA Rocgen card to implement the functionality shown in Remillard. 46Pet. 40 (citing Ex. 1209 ¶¶ 140–143). Petitioner indicates that “the video display generator of the AAPA is the structure described in [the challenged patent] corresponding to the claimed video display generator and therefore meets any conceivable construction of video display generator.” 46Pet. 40 (citing Ex. 1209 ¶ 141).

We credit Mr. Wechselberger’s testimony on which Petitioner relies because his testimony provides sufficient explanation and identifies specific prior art passages that support his testimony. *See, e.g.*, Ex. 1209 ¶¶ 130 (citing Ex. 1205, 2:63–65), 132–133 (citing Ex. 1202, 4:15–18, 11:31–33, 12:14–17), 143 (explaining trends in the television industry; referring to ¶¶ 14–16 that cite prior art references for support). We also agree with Petitioner because Petitioner’s contentions rely on specific prior art passages that provide support.

For these reasons, we find that Petitioner’s combination of Young '801, Young '121, Remillard, and AAPA teaches or suggests the recited video display generator.

(iii) Additional Functions of Data Processing Means

Petitioner relies on the combination of Young '801, Young '121, Remillard, and the identified AAPA to address the additionally recited functions of the data processing means, as set forth in the independent claim 2. 46Pet. 41–45; 46Pet. 41 (identifying four functions as (1)–(4)).

Petitioner relies on teachings in Young '801, Remillard, and the AAPA for the requirement that the data processing means control the video display generator to display program schedule information partially overlaid on the “currently appearing” (which Petitioner contends is the currently tuned) display signal and the requirement that the program schedule information is stored in the memory. 46Pet. 41 (Petitioner’s items 1 and 3); 46Pet. 41–44. For these features, as discussed previously, Petitioner relies on “Young 801’s CPU 228 [that] controls its video display generator 224 and retrieves information from schedule memory 232 to generate interactive schedule screens,” as explained previously. 46Pet. 41–43 (citing Ex. 1202, 13:5–7, 13:28–30, 26:5–10, Fig. 2). Petitioner also relies on Remillard showing “the currently-tuned channel on the screen.” 46Pet. 43 (citing Ex. 1205, 5:55–61). Petitioner contends that it “would have been obvious to modify Young 801 to allow the currently-tuned program and program schedule information to be viewed at the same time” by using Remillard’s “known overlaying technique.” 46Pet. 38. For the reasons discussed above, we agree that Petitioner’s combination of Young '801 and Remillard would have taught or suggested the requisite overlaying and one of ordinary skill in the art would have had a reason to combine the references as proposed by Petitioner and would have had a reasonable expectation of success.

Petitioner contends that it would have been obvious for one of ordinary skill in the art “to implement Remillard’s video controller 108 using the AAPA Rocgen card to implement the functionality shown in Remillard and to modify the algorithm used in Young ’801 to implement these functions.” 46Pet. 40 (citing Ex. 1209 ¶ 148). For the reasons discussed above, we agree with Petitioner. We also find Mr. Wechselberger testimony credible that such a modification would have been “the mere substitution of one known element (Remillard’s video controller 108) with another (the AAPA Rocgen card) to obtain predictable results—namely, the ability to use computer components in Remillard’s system, in view of trends in the industry to incorporate computer components into television systems,” as discussed above in paragraph 148 of his declaration testimony. Ex. 1209 ¶ 148.

Petitioner again relies on Young ’801 disclosing techniques for the required “navigating the program listings using cursor keys on the remote control by both time and program.” 46Pet. 41 (Petitioner’s item 2); 46Pet. 44 (citing Ex. 1202, 3:14–17, 4:27–5:3, 8:28–9:29, 13:5–15:2, Figs. 2, 7; Ex. 1209 ¶ 150). We agree with Petitioner’s reading of Young ’801 that comports with a plain reading of the cited passages, for the reasons discussed previously.

For the requisite the data processing means is responsive to the television tuning commands to allow the user to select any of the listed programs (Petitioner’s item 4), Petitioner relies on Young ’121’s description that its CPU 110 is responsive to television tuning commands from the remote controller to select a program. 46Pet. 45 (citing Ex. 1211, 7:51–57, 11:51–61, 11:62–65, Fig. 3). We agree with Petitioner’s reading of

Young '121 that comports with a plain reading of the cited passages, as discussed previously.

For these reasons, we find that Petitioner's combination of Young '801, Young '121, Remillard, and AAPA teaches or suggests the recited data processing means.

(iv) Video Display Generator

Independent claim 2 recites “a video display generator adapted to receive video control commands from said data processing means and program schedule information from said memory means for displaying interactively-selected successive portions of said schedule information for a currently tuned channel in overlaying relationship with another display signal currently appearing on said channel in at least one mode of operation of said programming guide.” As noted previously in Section II.D, the recited video display generator denotes a class of analog hardware devices that overlay text information onto a video signal.

For the video display generator, Petitioner relies on Young '801's video display generator 224 and Reiter's overlay format of program schedule information. 45Pet. 38 (citing Ex. 1104, 6:29–38, Fig. 3 (element 155 “overlay format”); Ex. 1109 ¶ 120)); Ex. 1104, 6:33–38 (indicating under certain conditions “the viewer is supplied at 155 with a television overlay format” and “the viewer may continue to view the television program he is currently watching”).

We find Petitioner's combination of Young '801 and Reiter would have taught or suggested the received video display generator to one of ordinary skill in the art. As discussed previously, Young '801's Figure 22A plainly shows video display generator 224 receiving signals from CPU 228,

which in turn is shown receiving signals from schedule memory 232. As Young '801 explains, to process a "What's on TV" request, the schedule "listing stored in schedule memory 232 is retrieved, processed by CPU 228, and outputted to video display generator 224." Ex. 1002, 26:5–7; *see* Pet. 32 (quoting Ex. 1002, 26:5–10). Young '801's video switcher 226 (also shown in Figure 22A) "is enabled by CPU output 246 to select the video display generator 224 output whenever schedule data is to be presented to the TV/monitor 210." Ex. 1002, 26:7–10; *see* 44Pet. 32 (quoting Ex. 1002, 26:5–10).

Young '801 shows schedule information for a currently tuned channel, for example, in Figure 2. *See* 44Pet. 33 (showing annotated Fig. 2 to highlight currently tuned channel and program information for currently tuned channel). As Young '801 explains, "[w]hen a guide is first opened, as shown in Figure 2, both the cursor 32 and the current channel 56 are situated on the same row" of the schedule information grid. Ex. 1002, 13:28–30; *see* 44Pet. 33 (citing Ex. 1002, 13:5–7, 28–30, Fig. 2).

As explained earlier, Young '801 teaches or suggests, for example in Figures 6 and 7, showing a selected program highlighted when the user moves the cursor to highlight a program on a different channel or a program on at a different time, which we find for the reasons in Section II.F.1(vi) teaches or suggests displaying interactively-selected successive portions of said schedule information. Ex. 1002, 13:28–30 (describing initial placement of cursor), 9:7–29 (describing cursor movement), 24:17–31 (explaining remote control keys related to controlling electronic program guide), Fig. 1 (electronic program guide showing highlight of current channel 56); Fig. 21 (showing remote controller with up, down, left, right, page, and

“select/goto” keys, among others); *see also* Ex. 1002, 24:30–32 (noting the use of the keys has been explained or “is apparent from their labels”); 44Pet. 24, 28–29, 33–34, 42, 44.

(v) Conclusion

For these reasons, we find that Young ’801, Young ’121, Remillard, and the identified AAPA would have taught or suggested the limitations received by independent claim 2, as Petitioner contends. For the reasons discussed above, we also conclude that Petitioner has provided a reason why one of ordinary skill in the art would have combined the references in the manner proposed and would have had a reasonable expectation of success of doing so. Therefore, we determine that Petitioner has provided sufficient articulated reasoning with rational underpinning to support a conclusion that the subject matter of independent claim 2 would have been obvious over Young ’801, Young ’121, Remillard, and the identified AAPA.

Accordingly, we determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of independent claim 2 would have been obvious over Young ’801, Young ’121, Remillard, and the identified AAPA.

b. Claims 3, 4, 7, 10, 14, 16, 18–21, 28, 30, 33, 35–39, and 40

As with the 44Petition, for the other independent claims challenged in the Young ’801, Young ’121, Remillard, and AAPA ground (claims 3, 14, 16, 19, 20, 28, 30, 33, 39, 40), Petitioner indicates the claim limitations are very similar to a previously discussed claim (usually independent claim 2) and provides a chart addressing the similarities and differences for each claim. *See* 46Pet. 45–78. As with the 44Petition, Petitioner relies on

additional disclosures by Young '801 discussed above. *Compare* 44Pet. 49–53, 56–61, 62–66, 68–72, 75–81 (claims 3, 4, 14, 16, 19, 20, 28, 30, 33, 39, 40), *with* 46Pet. 45–49, 51–65, 67–73 (claims 3, 4, 14, 16, 19, 20, 28, 30, 33, 39, 40). We find Petitioner's contentions persuasive here for the same reasons discussed above.

For challenged dependent claims 7, 10, 18, 21, and 35–37 (as each depends from one of the independent claims challenged in this asserted ground), Petitioner relies on additional passages in Young '801 in its asserted combination of Young '801, Young '121, Remillard, and AAPA. Petitioner makes the same arguments as set forth in 44Petition, which we find persuasive for the reasons discussed above. *Compare* 44Pet. 55, 56, 61, 67, 72–74 (claims 7, 10, 18, 21, and 35–37), *with* 46Pet. 49–51, 55–56, 60, 65–67 (claims 7, 10, 18, 21, and 35–37).

*c. Conclusion Regarding Obviousness over
Young '801, Young '121, Remillard, and AAPA*

Petitioner addresses potential evidence of secondary considerations filed during prosecution of the application. 46Pet. 81–83. Patent Owner has not presented evidence of secondary considerations during the *inter partes* reviews. After reviewing the Declaration of Bruce Davis (Ex. 1206, 128–141) presented during prosecution of the application, we agree with Petitioner that the Declaration is insufficient to show non-obviousness for the reasons set forth in the Petition.

Accordingly, for these reasons and in light of the record, including considering Patent Owner's arguments summarized and addressed below, Petitioner demonstrates by a preponderance of the evidence that the subject matter of claims 2–4, 7, 10, 14, 16, 18–21, 28, 30, 33, 35–37, 39, and 40

would have been obvious over the combination of Young '801, Young '121, Remillard, and the identified AAPA, as forth by Petitioner. 46Pet. 23–73.

5. *Young '801, Young '121, Remillard, and Strubbe (IPR46)*

In the 46Petition, Petitioner also contends that claims 1, 6, 7, 10, 36, 37, and 38 of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Petitioner's combination of Young '801 (Ex. 1202), Young '121 (Ex. 1211), Remillard (Ex. 1204), identified AAPA (Ex. 1201, 8:3–48), and Strubbe (Ex. 1210). 46Pet. 73–81.

a. Independent Claim 1

For the independent claim 1 (the only independent claim challenged in this ground), Petitioner indicates the claim limitations are very similar to previously discussed independent claim 2 and provides a chart addressing the similarities and differences between the claims. 46Pet. 74–77.⁵¹ Except for relying on Strubbe as discussed below, Petitioner relies on additional passages in Young '801 and presents the same arguments that we found persuasive with regard to claim 1 in the 44Petition. *Compare* 44Pet. 45–49, with 46Pet. 74–77.

Regarding Petitioner's additional reliance on Strubbe for independent claim 1 (46 Pet. 76–77), Petitioner contends that Strubbe teaches “displaying content and informational messages in a partial overlaying relationship over

⁵¹ We note in passing that the 46Petition, to refer back to its claim two arguments identified as 2[F], refers to “the combination of Young '801 and Moro” not at issue in this *inter partes* review. 46Pet. 77. Petitioner's reference to item 2[F] unambiguously refers to its earlier arguments in the 46Petition (46Pet. 40–45). Thus, we view Petitioner's reference to “the combination of Young '801 and Moro” as an inadvertent mistake.

a display signal for a predetermined period of time.” 46Pet. 82 (citing Ex. 1110, 6:45–49, 8:21–27, 10:6–14). Petitioner, here, to relies on the same argument with regard to Young ’801 and Strubbe made with regard to independent claim 1 in the 45Petition. For the same reasons, we find Petitioner’s contentions persuasive, including Petitioner’s articulated sufficient reasoning with some rational underpinning to support the legal conclusion of obviousness.

b. Dependent Claims 6 and 38

Dependent claim 6 additionally recites “wherein said predetermined display period is a user-selectable variable time period chosen in response to a user control command.” Similarly, dependent claim 38 recites “wherein said program schedule information is displayed for a display period and wherein said display period is a user-selectable variable time period chosen in response to a user control command.”

In the combination of Young ’801, Young ’121, Remillard, AAPA, and Strubbe, Petitioner relies on Strubbe’s teaching of displaying a reminder message for a predetermined period of time, discussed above with respect to independent claim 1. *See* 46Pet. 78–79 (claim 6) (citing Ex. 1210, 6:45–49, 8:21–27, 10:6–14); 46Pet. 79–80 (referring to claim 6 arguments); *see also* 46Pet. 76–77 (regarding independent claim 1) (citing Ex. 1210, 6:45–49, 8:21–27, 10:6–14). Petitioner further contends that it would have been obvious to modify Young ’801 to display schedule information for a predetermined time period to provide information while limiting distractions. 46Pet. 79.

Petitioner makes the same arguments as made with regard to the Strubbe ground asserted in the 45Petition—Young ’801, Young ’121, Reiter,

and Strubbe. *Compare* 45Pet. 78–79 (claim 6) (citing Ex. 1210, 6:45–49, 8:21–27, 10:6–14); 45Pet. 85–86 (referring to claim 6 arguments), *with* 46Pet. For the reasons discussed previously, we find Petitioner’s arguments regarding dependent claims 6 and 38 persuasive.

c. Dependent Claims 7, 10, 36, and 37

Regarding dependent claims 7, 10, 36, and 37 and their dependency from independent claim 1, Petitioner indicates the additional limitations have been addressed in the 46Petitioner’s asserted ground of Young ’801, Young ’121, Remillard, and AAPA. 46Pet. 81.

We agree with Petitioner’s position that these claims also would have been obvious in view of Young ’801, Young ’121, Remillard, and AAPA for the reasons discussed above with regard to the asserted ground of Young ’801, Young ’121, Remillard, and AAPA and the previous discussion regarding independent claim 1.

*d. Conclusion Regarding Obviousness over
Young ’801, Young ’121, Remillard, AAPA, and Strubbe*

Accordingly, for these reasons and in light of the record, including considering Patent Owner’s arguments summarized and addressed below, Petitioner demonstrates by a preponderance of the evidence that the subject matter of claims 1, 6, 7, 10, 36, 37, and 38 would have been obvious over the combination of Young ’801, Young ’121, Reiter, and Strubbe, as forth by Petitioner. 45Pet. 79–87.

6. Patent Owner’s Arguments

Initially, Patent Owner provides an overview of the asserted references. PO Resp. 21–32 (Sections IV.A–IV.G). Patent Owner contends

in some of those sections that certain references were considered during the ITC Case or during prosecution and that Patent Owner overcame certain references. *See, e.g.*, PO Resp. 25 (discussing Young '801), 26 (discussing Young '121), 28 (discussing Moro), 30 (discussing Reiter), 27 (discussing Strubbe), 32–33 (discussing Remillard).

Our analysis above includes an analysis of the prosecution history. We do not agree with Patent Owner's characterization. In addition, Patent Owner's remarks fail to specify the requisite context and fail to shed light on how its remarks overcome or even address Petitioner's showing in the cases at hand. For example concerning Remillard, Patent Owner indicates

Remillard was previously considered and relied upon by the Examiner during prosecution of the '556 patent. Ex. 1006, 797. During prosecution, the applicants argued that Remillard “does not relate to nor disclose[s] an electronic programming guide for interactively displaying television schedule information to a user . . . nor does it appear to even contemplate such an application,” and the Examiner did not dispute this argument. *Id.*, 818-820.

PO Resp. 32–33. Patent Owner fails to address, however, that the Examiner concluded Remillard was not prior art to the then-pending application claims, which were later amended to include the television tuning limitation. *See* Ex. 1206, 126–131; Ex. 1206, 939, 959 (amending claim to add “including television tuning, guide-channel control, and guide time-control commands” to then-pending “user control means” term), 976–980; 46Inst. Dec. 23–24 (explaining in our Institution Decision that the Rule 1.131 Declaration on which the Examiner relied did not address tuning features recited in all the challenged claims).

In another example, Patent Owner indicated that Young '121 was asserted in the ITC Case, “where the ALJ found the '556 patent not invalid

over Young '121. See Ex. 1006, 815, 818; *see also* Ex. 2001, 160-164 (discussing combinations based on Young '121).” PO Resp. 26. Patent Owner, however, does not acknowledge or adequately address the fact that the ALJ’s ruling not address whether Young '121 teaches or suggests the challenged limitations. See Ex. 2001, 160–164.

In a similar vein, Patent Owner discusses what a particular reference allegedly does not disclose, but this discussion does not bear on Petitioner’s showing, because Petitioner does not rely on the features in the reference discussed. For example, Patent Owner’s argument that Young '801 does not disclose the recited television tuning limitation does not bear on Petitioner’s showing, because Petitioner does not rely on Young '801 for that feature. See, e.g., PO Resp. 25 (“Nor does Young '801 disclose the claimed ‘tuning commands’ that permit a user to select a program from an overlay. Petitioner admits it is not relying on Young '801 for disclosure of this claimed function.”).

To the extent Patent Owner raises an issue in Sections IV.A–IV.F of its Response that addresses Petitioner’s showing with respect to claimed elements, we address it below. After considering the record in its entirety, any issues not discussed below specifically do not present a sufficiently clear argument attempting to address Petitioner’s showing.

a. “displaying interactively-selected successive portions” and “displaying interactively-selected successive portions in a partial overlaying relationship”

Patent Owner contends Petitioner failed to demonstrate that any of the proposed combinations teach or suggest “displaying interactively-selected successive portions of schedule information” and “displaying interactively-selected successive portions in a partial overlaying relationship.” PO Resp.

33–34 (Section V.A discussing “interactively-selected successive portions of schedule information”), 35–38 (Section V.B discussing “displaying interactively-selected successive portions in a partial overlaying relationship”); *see also* PO Resp. (asserting Young ’801 does not disclose “displaying interactively-selected portions of program schedule information in an overlaying relationship with a currently tuned program” or “consecutively displaying sequential time periods or programs” in Section IV (Overview of Asserted References)). Patent Owner indicates these arguments apply to all claims and all grounds. PO Resp. 33, 35. As shown by our analysis of the independent claims above with respect to the asserted prior art, the independent claims use different language. We address the claim language argued by Patent Owner.

For the reasons discussed below, we do not agree with Patent Owner, whose arguments turn on an overly narrow claim construction. For example, Patent Owner argues “Young ’801’s grid guide does not disclose anything like the Browse mode of the ’556 patent, by which the user surfs through program listings by interactively selecting successive portions of schedule information and consecutively displaying sequential time periods as though surfing through channels.” PO Resp. 25 (citing Ex. 2006 ¶¶ 44–53). For the reasons discussed above in Section II.D (Claim Construction), however, the challenged claims do not require a specific Browse mode feature. Thus, we do not agree with Patent Owner’s arguments based on requiring a BROWSE mode-like feature in the prior art. *See, e.g.*, PO Resp. 34.

In addition, as explained previously, we disagree that the “interactively-selected” limitation requires selecting “successive portions of the schedule information for display.” PO Resp. 34. Rather, as discussed

above, the “interactively-selected” limitation encompasses interactively-selecting a program from a list of program (such as by moving a cursor to highlight a particular program).

As explained above, this reading of the claim language tracks the specification, which states “[i]n the All Listings mode, *a moveable highlighted cursor 185 is used to indicate the currently selected program to the user.* The user manipulates cursor movement using the direction arrow keys on the remote controller.” Ex. 1001, 14:42–44 (emphasis added). In Figure 18 of the ’556 patent, a moving cursor 185 displays a new highlighted portion as it moves up and down the grid, indicating the currently selected program by such a display. Ex. 1001, Fig. 18; Reply 12 (citing Ex. 1001, 14:1–67).

As noted above, the ’556 patent provides a “flexible program schedule system” that allows for “simultaneously viewing [with another signal] program schedule information for other channels and/or services on another portion of the screen.” Ex. 1001, 3:7–9 (e.g., a form of surfing), 2:59–61 (surfing need), 3:33–37 (“It is . . . an object of the present invention to provide a system that will allow the user to view a broadcast program while, at the same time, *interactively viewing program schedule information for other programs.*” (emphasis added)). Such viewing of “other channels and/or services” in conjunction with the highlighted portion, indicates displaying the highlighted selected portion among other non-selected portions.

Regarding the “partial overlaying relationship” requirement, Patent Owner contends that, “even if . . . moving a cursor from one displayed program listing to another simultaneously displayed program listing, the

proposed combinations do not disclose displaying interactively-selected successive portions in a partial overlaying relationship or simultaneous display with another display signal.” PO Resp. 35–36. According to Patent Owner, this is because none of Moro, Reiter, or Remillard discloses “support for a cursor-driven guide like that disclosed in Young ’801 in a partial overlay or simultaneous display with another display signal.” PO Resp. 35 (citing Ex. 2006 ¶¶ 88–89); *see* PO Resp. 36 (citing Ex. 2006 ¶¶ 88–89).

We do not agree with Patent Owner that Moro, Reiter, or Remillard must disclose a cursor-driving guide. As Patent Owner recognizes, Petitioner relies on Moro, Reiter and Remillard for “schedule information in partial overlaying relationship” or “simultaneous display” and on Young ’801 for the “interactively-selected” aspect. Thus, Petitioner’s combination relies on the collective teachings of Young ’801 and one of Moro, Reiter, and Remillard. “[T]he test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art.” *In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)).

Nor do we agree with Patent Owner that Petitioner is required to present evidence how the proposed combinations would support Young ’801’s “graphical arrangement of regular cells underlying irregular cells and the ‘innovative cursor’ of Young ’801 in an overlaying relationship or simultaneous display with a currently-tuned program.” PO Resp. 37. In essence, Patent Owner argues that Moro, Reiter, or Remillard must be bodily incorporated into the system of Young ’801. *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) (“It is well-established that a determination of obviousness based on teachings from multiple references does not require an

actual, physical substitution of elements.”).

Third, Petitioner maintains that Young 801’s page command satisfies the challenged claims even under Patent Owner’s arguments that imply a narrower the claim construction. *See* Reply 13–15, 24, 27–32. Additionally, Petitioner indicates that claims 16 and 30 each expressly recites, in pertinent part, “said navigation including deleting at least one program listing appearing in the overlay and adding at least another program listing in the overlay.” Pet. Reply 12. Petitioner explains

Patent Owner’s own expert, Dr. Bovik, confirmed that Young ’801’s “page” command causes a new successive page of program listings to be displayed each time it is pressed. This means that nearly all of the claims are unpatentable based on Young ’801’s page command, the same command that Patent Owner itself asserted in the ITC case corresponds to the claimed “navigation” though the guide. (Ex. 1023, 11–12; Ex. 1024 (pointing to “Page Up and Page Down” commands in the accused Comcast guide).)

Pet. Reply 15–16.

We agree with Petitioner that “said navigation including deleting at least one program listing appearing in the overlay and adding at least another program listing in the overlay” encompasses changing a whole page to obtain a listing for a different set of channels as Young 801’s page command provides. *See* Ex. 1002, 13:5–16, Figs. 1–3, 5–6; 44Pet. 60–61 (citing Ex. 1002, 13:5–16; Ex. 1009 ¶ 150); 45Pet. 58 (materially similar citations); 46Pet. 55 (materially similar citations).

We also agree with Petitioner that claims 16 and 30 each recites a narrower version of the “consecutively displayed” and “interactively-selected [successive] portions.” Pet. Reply 35–36 (arguing the page command also “necessarily meets the broader independent claims (i.e.,

claims 1–4, 14, 19, 20, 28, 33, 39, and 40) merely requiring ‘consecutively displayed’ and the like”); 45Pet. 58 (materially similar citations); 46Pet. 55 (materially similar citations); *see also* Pet. Reply 12–13.

Even under Patent Owner’s claim interpretation, replacing one page with another using consecutive page commands as Young ’801 teaches (as a partial overlay according to the teachings of Moro, Young ’121, and Remillard) constitutes “for displaying interactively-selected successive *portions of said schedule information* for a currently tuned channel in overlaying relationship with another program signal” and “each said portion . . . being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods for which program schedule information is stored in said memory means,” as claim 2 recites. Consecutive page commands correspond to “corresponding consecutive ones of said guide control commands” that produce a responsive display of a new page that constitutes “for successively navigating through listing information” for “programs.”

As Patent Owner recognizes, Young ’801’s consecutive page commands produce a new channel and program list. *See* Ex. 1002, 13:5–16, Figs. 1–3, 5–6; PO Resp. 22 (“Young ’801 discloses that the ‘grid 24’ (*e.g.*, as shown in Fig. 2) may be changed by ‘a page command,’ such command would display a new set of channels with multiple programs displayed on each channel. *See* Ex. 1002, 13:5–10, Fig. 2. A full-screen page with program listings for a single channel can also be displayed. Ex. 1002, 14:6–29).”). Toggling to and from different channels of a single channel page (Fig. 7) with successive times and a multiple channel listing with a subset of

those times satisfies “successively navigating through listing information for sequential time periods for which program schedule information is stored in said memory means.” See Ex. 1002, Fig. 7 (listing successive time periods and programs from 11:00 am through 7 pm on channel 2); Figs. 1, 6 (listing a subset of those successive time periods for multiple channels); Pet. Reply 37 (discussing channel 2 with limited time slots in Figure 1).

b. “consecutive display of successive portions
of schedule information”

Patent Owner argues that additional limitations in independent claims 1–4, 20, and 39 further demonstrate that the prior art does not disclose “changing what is shown in the partial overlay or simultaneous display to display program listings in succession, moving time period/program by time period/program in a time domain and/or channel domain, while the user continues to watch a different program, in response to the user interactively selecting each successive portion of the schedule information.” PO Resp. 38–39.

(i) “each successive one”

Regarding independent claim 2, Patent Owner contends that Petitioner ignores the term “each successive one” in the limitation “for each successive one of said television programs scheduled to appear on said currently tuned channel and being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods.” PO Resp. 40 (citing 44Pet. 41; 45Pet. 42; 46Pet. 41). According to Patent Owner, “Petitioner fails to show that the proposed combinations disclose changing what is displayed in the partial overlay by consecutively displaying

each successive one of sequential listings for programs scheduled to appear on a particular channel in response to consecutive guide control commands.” PO Resp. 40 (citing Ex. 2006 ¶¶ 94, 96–97).

Patent Owner argues that independent claim 2 requires “changing” what is displayed in the program listings and seems to suggest that such “changing” requires wholesale replacement of the displayed program listings.

We disagree. First, the ’556 patent does not limit “for displaying” to items not yet displayed on the grid. The plain language of the claim refers to a single program listing—“for each successive one of said television programs scheduled to appear.” Nor does Patent Owner identify any portion of the written description (and we are unaware of any) that requires new program listings be displayed. Second, the menu items in Young ’801 constitute items “for display” that the cursor subsequently displays as a selected item in a new light (i.e., highlighted).⁵² Third, as discussed above, independent claims 16 and 30 each require adding and deleting program listings, which is language not present in independent claim 2. This weighs against reading such limitations into independent claim 2.

⁵² As Patent Owner recognizes, Young ’801 provides additional 3D and other feedback related to the highlighted cursor display: “***If the cursor is moved left or right, the solid section will move accordingly, providing complete visual feedback.***” Thus, this modified 3D offset shadow cursor 32 satisfies the demands stated above: it spans the entire cell, yet clearly highlights the current underlying position. Movement of the cursor 32 will always be visible even for cells 26 that are much longer than the underlying cell.” PO Resp. 26–37 (quoting Ex. 1002, 9:7–29 (emphasis by Patent Owner)).

(ii) “by time period or program”

Patent Owner contends that, by reciting “guide control commands for successively navigating through listing information for sequential time periods or programs,” independent claims 1, 3, 4, 20, and 39 each require guide control commands for navigating both by channel and by time period. PO Resp. 41. Patent Owner further contends that “the plain language further requires changing what is displayed in the partial overlay or simultaneous display by time period or program.” PO Resp. 41.

We do not agree that the plain language of the claims require guide control commands for both time period and program navigation. The conjunction “or” typically connects alternatives. In addition, in the context of the claim clause, the most natural reading of “each said portion being displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is stored in said memory means” requires navigating by time periods *or* channels.

This is because the subject of the clause is “each said portion” and the action required is “displayed in response to corresponding consecutive ones of said guide control commands.” A natural reading is that “corresponding consecutive ones of guide control commands” refer to the same type of command—navigation by time period or navigation by channel. Requiring each said portion to be displayed in response to corresponding consecutive ones of two different guide control commands: both time and channel commands is an unnatural reading in the context of the surrounding claim language.

Patent Owner does not identify any portion of the written description (nor are we aware of any portion) that requires such an interpretation. Further, although Patent Owner relies on portions of Dr. Bovik’s declaration testimony, the cited testimony does not add further reasoning or evidence to support a conclusion that the guide control commands for both time and channel are required. Ex. 2006 ¶ 95; *see* PO Resp. 41 (citing Ex. 2006 ¶¶ 94–97).

Even if we were to agree with Patent Owner’s interpretation, as discussed above, Young ’801 on which Petitioner relies discloses both guide control commands for the requisite navigation by time and by channel.

(iii) “set of channels”

Patent Owner contends that Petitioner failed to address the requirement of independent claims 3 and 39 that “each successive one of said television programs scheduled to appear on said set of channels.” PO Resp. 41. We disagree.

As discussed above, Petitioner identified “scheduled to appear on said set of channels” as a difference in independent claim 3 and in independent claim 39 from Petitioner’s reference claim 2. *See, e.g.*, 44Pet. 50 (claim 3), 76 (claim 39). Relying on Figure 1 in Young ’801, Petitioner contends that “schedule information is shown for channels different from the currently tuned channel (**e.g., channel 4, 5, 6, 7, etc.**).” 44Pet. 77; 44Pet. 51 (materially similar citation).

c. “television tuning commands”

Patent Owner contends that Petitioner fails to establish that its combination of Young ’801 and Moro discloses “said television tuning

commands for allowing [a/said] user to select any one of said [programs/television programs/receivable signals] for which listing information is displayed [in said partially overlaid portion of said schedule information].” PO Resp. 42. Patent Owner contends that this argument applies to all challenged claims. PO Resp. 42.

Relying on its proposed construction of the term, Patent Owner contends that this limitation in claims 1–4, 14, 16, 19, 20, 28, 30, 33, 39, and 40 “requires an interaction with the information displayed in the partial overlay portion or simultaneous display to select a desired channel.” PO Resp. 42; *see* PO Resp. 42–44. For the reasons given above in Section II.D (Claim Construction), we do not agree with Patent Owner’s contention that this limitation “requires the user be able to interact with information in the overlay to select the desired program or other receivable signal.” Thus, we do not agree with Patent Owner’s arguments that rely on its overly narrow claim interpretation. PO Resp. 42–44 (citing Ex. 2006 ¶¶ 100–104).

Moreover, Moro describes using a remote controller to “switch to the fourth channel” as shown in the programming information displayed at the bottom of Moro’s Figure 2. This description expressly discloses using a remote controller to tune to the fourth channel listed in the program information at the bottom of Moro’s Figure 2. Thus, Moro teaches or suggests “television tuning commands for allowing a user to select any one of said [programs/television programs/receivable signals] for which listing information is displayed [in said partially overlaid portion of said schedule information].”

d. Use of Prosecution History

Both parties refer to the prosecution history of the challenged patent as supporting in some way their respective positions. Petitioner contends that the combination of Young '801, Strubbe, Young '121, and Moro renders claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 of the '556 patent unpatentable under 35 U.S.C. § 103(a). Petitioner contends “Moro was never cited or considered during prosecution” (44Pet. 21), and the “Petition presents Young '121 in a new light” relative to the prosecution history of the '556 patent (45Pet. 23). The Petition also provides a persuasive summary of the prosecution history showing, as a whole, the Petition presents arguments and evidence not considered by the Examiner during prosecution of the '556 patent. See 44Pet. 22–24 (citing Ex. 1006; 1009); 45Pet. 10–11, 20–22; 46Pet. 10–11, 19–21.

Petitioner contends that the “applicant admitted that [Young '801] disclosed allowing a user to select programs for recording including ‘navigating’ through a time versus channel grid display of schedule information.” 44Pet. 11 (citing Ex. 1006, 442–444). Petitioner also contends, based on an Examiner interview summary and a subsequent amendment, that the claims were allowed based on the television tuning limitation. 44Pet. 11 (citing Ex. 1006, 939 (May 7, 1996 interview summary), 940–979 (May 23, 1996 amendment and accompanying remarks). The Examiner, however, did not provide any reasons for allowance. Ex. 1006 (Part 6 of 9), 1824 (Notice of Allowance). Petitioner seems to be suggesting that the Examiner viewed Young '801 as disclosing all the limitations of the challenged claims other than the television tuning limitation.

On the other hand, Patent Owner contends that the Applicant explained multiple times during prosecution that the invention permits a user to interactively navigate through program listing information by time or channel on an overlay while continuing to view the current television program. *See, e.g.*, PO Resp. 10–11 (citing Ex. 1006, 688–689, 820, 977–978, 952–975). Patent Owner contends repeatedly that “Applicants overcame each of the Young ’801, Young ’121, Remillard, Young ’268, Reiter, and Strubbe references during prosecution over the Examiner’s initial objections, showing the Examiner substantively considered, and found the claims allowable over, the same disclosures from these references that Petitioner relies upon in these proceedings.” PO Resp. 15; PO Resp. 25 (indicating “[d]uring prosecution of the ’556 patent, Young ’801 was considered and initially relied upon by the Examiner, then ultimately overcome. *See* Ex. 1006, 309, 443–444.”)

To the extent that Patent Owner means to suggest by these that the asserted grounds—the reference combinations asserted by the Petitioner here—were considered by the Examiner and the issued claims were found allowable over the reference combinations asserted by Petitioner, we do not agree with such a characterization. *See, e.g.*, PO Resp. 25 (indicating the “Examiner considered combinations based on Young ’268, Reiter, and Strubbe); Ex. 2001, 156–168 (discussing combinations based on Young ’268.”).

To be clear, the Examiner never considered any of the reference combinations asserted by Petitioner. Moreover, Petitioner relies on the various references as disclosing what the Examiner found the various

references disclosed. In other words, Petitioner’s assertions reflect the Office’s position regarding the teaching of the asserted references.

e. Insufficient Motivation to Combine the References

Patent Owner contends that “Petitioner fails to meet its burden to demonstrate a motivation to combine the references” in all asserted grounds. PO Resp. 44–62 (Section VI). In general, Patent Owner contends that the “proposed combinations would reduce Young ’801’s functionality and render Young ’801 inoperable for disclosed functionalities added by Young to Young ’801 in the process of *improving* upon his own system disclosed in Young ’121.” PO Resp. 45 (emphasis by Patent Owner).

Petitioner maintains “each combination includes articulated reasoning with rational underpinnings for making the combination.” Pet. Reply 40–52.

(i) Redesign Young ’801

Patent Owner contends Petitioner attempts to “redesign . . . Young ’801’s full-screen grid guide [to] use[] the grid guide in a new way (reduced in size and in an overlay) contrary to Young’s requirement of ‘conveying the most amount of information to the user in an easily understood manner within the limitations of the television display.’” PO Resp. 46 (quoting Ex. 1002, 3:29–52). Specifically, Patent Owner characterizes as a redesign Petitioner’s combination that requires (i) overlaying Young ’801’s grid guide over a currently watched television program and (ii) adjusting the program guide in Young ’801 so that it is reduced in size, such as by removing some rows and/or columns. PO Resp. 46 (quoting Mr. Wechselberger’s declaration testimony) (citing

Ex. 1009 ¶¶ 117, 118, 124, 130; Ex. 1109 ¶¶ 121, 122, 124, 125, 133;
Ex. 1209 ¶¶ 130, 131, 133, 143; Ex. 2006 ¶¶ 108–109).

According to Patent Owner, reducing Young ’801’s guide by eliminating some rows and columns so that its guide appears as a partial-screen overlay runs counter to the desire to display the most amount of information to a user. PO Resp. 46. Patent Owner contends that Young 801’s overlays of program notes minimize concealment of other guide information, “*not* minimizing the information presented on Young’s full-screen guide to prevent obscuring of a video signal.” PO Resp. 47. Patent Owner further contends that Young ’801 teaches “minimizing the amount of the *full-screen grid guide obscured* by the display of the program note” and “minimize the concealment of the guide.” PO Resp. 48 (citing Ex. 1002, 3:29–32, 4:15–18, 12:14–19; Ex. 2006 ¶ 112). Patent Owner also argues that none of the other references suggests reducing a full-screen guide to a partial overlay over a television program. PO Resp. 50 (citing Ex. 2006 ¶ 114).

Petitioner acknowledges the combinations require modifying Young ’801 by overlaying a television program display with a program guide, which requires reducing the size of Young ’801’s grid guide to allow the grid guide to overlay a television program. Pet. Reply 33–34 (combination), 41 (reducing the size of the grid guide). Petitioner replies, however, that Patent Owner reads Young ’801 out of context of the full paragraph. Pet. Reply 41 (block quoting Ex. 1002, 3:20–35). According to Petitioner, Young ’801 “describes the desire to display the most amount of information possible in view of size and resolution limitsof the television display.” Reply 42 (quoting Ex. 1002, 3:20–35). Petitioner also points out

that Young '801 specifically describes reducing the visible grid information by obscuring it under an overlay of a program note. Pet. Reply 42 (“Importantly, Young '801 specifically shows and describes reducing the amount of the grid guide visible to users.”) (citing Ex. 1002, 12:16–17, Fig. 6). As such, Petitioner concludes reducing the grid size to accommodate a television screen does not run counter to Young '801. Pet. Reply 42.

As an initial matter, finding a teaching or suggesting in the references themselves to provide a motivation to combine, as Patent Owner seems to suggest, is not required. The Supreme Court in *KSR* reiterated that the question of obviousness is resolved through “expansive and flexible approach” and does not require finding “some motivation or suggestion to combine the prior art teachings” in the prior art. 550 U.S. at 407, 415.

Moreover, Young '801 expressly describes “program note 52 overlays and hides 3 or 4 listings of a guide.” Ex.1002, 12:16-17; Pet. Reply 42 (citing Ex.1002, 12:16–17). We do not agree with Patent Owner that this teaching is limited to reducing the amount of information visible in the grid guide only in the context of program notes. PO Resp. 49. Rather, this passage teaches overlying program schedule information and teaches reducing the amount of information visible in the grid guide. In light of this context, Young '801's object of the invention “to provide such a user interface in which supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information” cannot be understood as precluding reducing the size of the full-screen grid guide display. Ex. 1002, 4:15–18; *see also* Ex. 1002, 4:2–22 (describing five objects of the invention). Nor can Young '801's stated need that

“[i]mproved techniques are required for conveying the most amount of information to the user in an easily understood manner within the limitations of the television display” be understood as precluding reducing the size of the full-screen grid guide display. Ex. 1002, 3:29–32. Similarly, Young ’801’s feature of toggling on or off the program notes to “minimize concealment of the guide” does not preclude reducing the size of the program grid guide to allow other information to be visible. Ex. 1002, 12:14–19. Indeed, toggling off the program notes information seems to indicate that a program note has been displayed and obscured some program information at some earlier point.

Accordingly, Young ’801’s teaching of reducing the amount of information visible in the grid guide to show other program information supports a conclusion that reducing the amount of the grid guide visible to the viewer is not contrary to any requirement in Young ’801. Ex. 1002, 12:16–17; Pet. Reply 42.

In addition, both parties rely on declaration testimony of their respective experts. PO Resp. 46–50 (citing Ex. 2006 ¶¶ 108–114); Pet. Reply 41–42 (citing Ex. 1020, ¶¶ 9, 36–44). Dr. Bovik’s testimony contains no more reasoning than provided in Patent Owner’s Response. For the reasons discussed above, we disagree with Dr. Bovik’s conclusory assertions that are not consistent with the teachings of Young ’801.

We credit Mr. Wechselberger’s declaration testimony that “[j]ust because Young ’801 illustrates the grid guide as a full screen in some embodiments does not mean that [one of ordinary skill in the art] would not have realized that a smaller sized grid could be used in an overlay.” Ex. 1020 ¶ 9; Pet. Reply 42 (citing Ex. 1020 ¶ 9). Mr. Wechselberger

provides an explanation to support his conclusion: “For example, [one of ordinary skill in the art] would have known that most, if not all grid guides (like Young ’801’s grid guide) can be reduced in size by reducing the number of rows or columns or the size of the text (i.e., font size).” Ex. 1020 ¶ 9; Pet. Reply 42 (citing Ex. 1020 ¶ 9). We find Mr. Wechselberger’s testimony credible in view of the level of ordinary skill: a bachelor’s degree in electrical engineering, computer engineering, or computer science and three to five years relevant work experience.

For these reasons, we do not agree with Patent Owner’s characterization that Petitioner’s modification of Young ’801 amounts to a substantial re-design of Young ’801’s full-screen guide grid. Nor do we agree with Patent Owner that Petitioner fails to demonstrate that one of ordinary skill in the art would not have been motivated to redesign Young ’801 as Petitioner proposes for these reasons.

(ii) Elimination of Features

Patent Owner argues Petitioner’s proposed combinations remove an “important aspect of Young ’801”—the program note overlay. PO Resp. 50–54. According to Patent Owner, Young ’801 teaches using a select key on a remote to implement the overlay feature, but “when a user selects a program in the guide, Petitioner proposes to tune to the program as taught in Young ’121, rather than display an overlay with supplemental information about the selected program as taught in Young ’801.” PO Resp. 53–54.

In other words, apparently, Patent Owner contends the select key of Young ’801 cannot be used for both the tuner function and the overlay function. PO Resp. 50–54. Patent Owner characterizes using the select key as Young ’801 discloses in such a manner amounts to a “considerable

change” over the interface of Young ’121. PO Resp. 51. Patent Owner also contends the select feature of Young ’121, used to tune to the selected program in a schedule, “was changed in Young ’801.” PO Resp. 26 (citing Ex. 1011, 11:62–65).

Petitioner replies that the considerable changes Young ’801 references in relation to Young ’121 “relate to navigating through the cells of the grid,” a problem not addressed in Young ’121. Pet. Reply 43 (citing Ex. 1020 ¶ 13). As noted above, Patent Owner describes Young ’801’s system as including regular and underlying irregular cells and an “innovative cursor,” which supports Petitioner’s characterization here. PO Resp. 36–37 (citing Ex. 2006 ¶¶ 89–90).

We conclude that adding a tuning function to Young ’801, like the tuning function present in Young ’121, is not incompatible with the program note function in Young ’801. We agree with Petitioner that adding another “key labeled ‘tune’ to enter tuning commands would be a minor modification easily implemented by those skilled in the art at the time of the invention.” Pet. Reply 44 (citing Ex. 1020 ¶¶ 10, 16). The level of ordinary skill supports this conclusion. In addition, the disclosure of Young ’801 also supports this conclusion. Specifically, Young ’801 describes using two different keys to perform different commands after navigating to a cell with a cursor, including the “select” command to show a program note and the “record it” command to record a program. Ex. 1002, 13:28–14:5; *see* Pet. Reply 44 (citing Ex. 1002, 13:28–14:5; Ex. 1020 ¶¶ 10, 16). We credit Mr. Wechselberger declaration testimony that is supported by Young ’801’s teaching of using two keys for different functions.

For these reasons, we conclude that Petitioner has demonstrated that an artisan of ordinary skill would have modified Young '801 to implement overlay and tuning functionality using simple cursor controls in order to retain the functions for their intended purpose of providing information without obscuring programs.

(iii) Young '801's Video Switcher, Hindsight, and Remillard's Genlock

Patent Owner argues “[r]eplacing Young '801's video display generator 224 and video switcher 226 with Moro's character generator 18, Reiter's mixer 70, or Remillard's video controller 108 would fundamentally alter Young '801 in another material way, thus undermining Petitioner's purported motivation to combine these references as claimed.” PO Resp. 54 (citing 44Pet. 39; 45Pet. 40; 46Pet. 40, 43; Ex. 1009 ¶¶ 125, 155; Ex. 1109 ¶¶ 126, 135, 160; Ex. 1209 ¶¶ 140, 165; Ex. 2006 ¶¶ 126–127). Specifically, Patent Owner contends “Petitioner's proposed combinations would reduce Young '801's functionality to display a guide in full screen,” which applies to all claims and all grounds. PO Resp. 54.

Patent Owner explains that Young '801's system employs a video switcher that toggles between full-screen programming or guides. PO Resp. 54–55. According to Patent Owner, this toggling “satisfies the requirement identified by Young '801 ‘for conveying the most amount of information to the user in an easily understood manner within the limitations of the television display.’” PO Resp. 54–55 (citing Ex. 1002, 3:29–32; Ex. 2006 ¶ 127). The toggling also, according to Patent Owner, creates an “intuitive” feel resulting in “the program you're tuned to and no program information, or you get program information and no video.” PO Resp. 54–55 (quoting Ex. 2007, 37:11–14). For these reasons, Patent Owner contends that “the

proposed combinations would fundamentally change Young '801's 'intuitive user interface.'" PO Resp. 55.

We disagree with Patent Owner's contentions, which are not consistent with Young '801's teaching of reducing the amount of information visible in the grid guide to show other program information, as discussed previously. *See* Ex. 1002, 12:16–17; Pet. Reply 44–46. This teaching of Young '801 undermines Patent Owner's position because Young '801 does not teach only either full-screen program guide or a full-screen television program display, as discussed further below in connection with Figures 9 and 10 of Young '801 and other overlay teachings.

In related arguments, Patent Owner contends Petitioner relies on hindsight to employ the overlaying techniques disclosed and suggested in Moro, Reiter, and Remillard in a new way that involves interactive selection of successive portions with a cursor driven guide. PO Resp. 56–58. In another related argument that addresses IPR2017-01146 (involving the Remillard combination), Petitioner contends Remillard's system employs a genlock mechanism and a sync signal, and Young '801's system lacks a genlock mechanism and a sync signal. PO Resp. 58–60. Because of this difference, Patent Owner contends that one of ordinary skill in the art "would not have been motivated to add Remillard's overlaying technique, which requires genlock to operate, to Young '801's system, which lacks genlock. PO Resp. 58 (citing Ex. 2006 ¶¶ 130–134). As Patent Owner explains, the genlock mechanism "permits the controller to overlay a control menu or an interaction menu over all or a portion of a television screen" and, in turn, the genlock requires a sync signal to operate. PO Resp. 59 (quoting Ex. 1205, 2:63–65, Fig. 2; Ex. 2006 ¶¶ 131–132). The Patent Owner also

argues that Petitioner fails to describe how to combine the reference teachings. PO Resp. 60–62.

First, these arguments improperly address the references separately and improperly assume an obviousness challenge requires a physical incorporation of parts disclosed in the separate references. For the reasons explained below, Petitioner’s proposed combinations do not require a video switcher or a genlock device, and therefore, Patent Owner’s argument essentially becomes one of requiring a physical incorporation of parts disclosed in the separate references. See PO Resp. 46–47; see also Pet. Reply 40 (“The combination does not include Remillard’s video controller 108 that includes the genlock.”) (quoting 46Pet. 40). It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements. *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012); see Pet. Reply 47–48 (quoting *Mouttet*, 686 F.3d at 1333). Rather, in Petitioner’s Remillard combination, the overlay functionality is performed by the Rocgen card. Pet. Reply 49 (citing Ex. 1020 ¶ 49).

We agree with Petitioner that artisans of ordinary skill readily would have provided partial overlay functionality by minimizing the information to be displayed, either by using known Rocgen cards or by modifying Young ’801’s system based on Moro’s, Reiter’s, or Remillard’s teachings of a partial overlay. See 46Pet. 37 (Remillard teaches overlaying interaction menus on a portion of a television broadcast) (citing Ex. 1205, 2:63–3:1, 5:55–61), 40 (Remillard combination’s use of Rocgen card); 44Pet. 36–38 (Moro’s teaching of program information overlaying the currently tuned program); 45Pet. 26 (Reiter teaches “displaying the information in a partial

overlay format so that ‘the viewer may continue to view the television program he is currently watching.’”) (quoting Ex. 1104, 6:34–38; citing Ex. 1104, 3:13–26); Pet. Reply 49.

First, Young ’801 itself providing minimal information via Figures 9 and 10 that show a display of single program information and via Figure 6 showing partial overlay 52. Ex. 1002, Figs. 6, 9, 10; *see, e.g.*, 44Pet. 24 (annotating an overlaid program note in Figure 6 of Young ’801)). And, as discussed previously, Young ’801 teaches reducing the amount of information visible in the grid guide to show other program information. *See* Ex. 1002, 12:16–17; Pet. Reply 44–46. Given the various teachings of Young ’801, known overlay techniques suggested therein, and reasons for using known overlay techniques as taught by Moro, Reiter, and Remillard, one of ordinary skill in the art would have recognized that Young ’801 does not limit its teachings to two options available to the video switcher—displaying a full screen showing a television video program or a full screen showing program listings. *See* PO Resp. 6 (making the opposite argument).

With respect to Remillard, the Petition asserts “[i]t also would have been obvious to implement Remillard’s video controller 108 using the AAPA Rocgen card to implement the functionality shown in Remillard.” 46Pet. 40. In other words, Petitioner does not rely on the “genlock” system because the combination relies on admitted prior art involving the Rocgen card. *See* 46Pet. 40; Ex. 1220 ¶¶ 140–143; Pet. Reply 48–49. Petitioner also explains

Patent Owner suggests that a person of ordinary skill in the art at the time of the invention “would have had a bachelor’s degree in electrical or computer engineering, or computer science, or equivalent experience, and two to four years of experience relating to electronic content delivery, such as experience with

cable or satellite television systems, set-top boxes, multimedia systems, or electronic program guides.” (Resp.-44, 15.) An electrical engineer with such experience would have been able to incorporate the overlay teachings from the secondary references into Young ’801. . . . Figure 6 from Young ’801 . . . shows that Young ’801 already included a program guide and program notes in an overlaying relationship.

Pet. Reply 51 (citing Ex.1020 ¶¶ 8, 48, 51; Ex. 1021, 48:12–9:8). We credit Mr. Wechselberger testimony that one of ordinary skill in the art “would have understood that various information could have been presented in various layouts (e.g., grids, lists, narratives, etc.) within an overlay.”

Ex. 1020 ¶ 8. We find his testimony credible because it reflects the level of ordinary skill in the art and is consistent with Young ’801 disclosure that does not teach or suggest information layout for an overlay is limited to that shown in the figures.

In addition, as set forth above, Petitioner persuasively explains, in reliance on Moro, Reiter, and Remillard, that creating partial overlays constituted a well-known operation using well-known devices and methods, employed to allow users to obtain program information without obscuring the program currently being viewed.

Regarding alleged hindsight, Patent Owner contends

Petitioner broadly concludes, without citations to any reference, that “[i]t would have been obvious to use Moro’s known overlaying technique to overlay program schedule information, including selected portions of schedule information for a currently tuned channel and interactive-selected portions of schedule information for programs on channels different from the currently tuned channel (both scenarios taught by Young ’801), over a display signal currently appearing on the tuned channel to allow a viewer to view the program information without interrupting the currently tuned and displayed program as taught by Moro.” Pet.-44, 37–38. For the other grounds in

Pet.-45 and Pet.-56, Petitioner makes similar conclusory statements regarding the Reiter and Remillard combinations. Pet.-45, 38–39; Pet.-46, 38–39.

PO Resp. 56.

We agree with Petitioner that these arguments mischaracterize the Petitions. Reply 46–48. As outlined above, the Petitions each rely on cited teachings in the references. With respect to the 44Petition, Petitioner quotes Moro for its “explicit motivation,” stating “the viewer can continue to view the program while also viewing the program information for the other channels.” 44Pet 36–37 (quoting Ex.1003, 2:48–52; reproducing Ex. 1002, Fig. 2). Petitioner also quotes “Young ’801’s teaching that ‘supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information.’” 44Pet. 39 (quoting Ex. 1002, 4:15–18; citing Ex. 1009 ¶¶ 120–123).

At deposition pages cited by Patent Owner, Mr. Wechselberger explains that one could either modify or replace certain aspects of Young ’801 to obtain the overlay functionality: “I’ve basically said . . . a person of ordinary skill in the art at the time would understand that there are a number of different ways that what I’ve described -- what’s described as the current video plus an overlay can be done. . . . So, it’s not a different design—not a difficult design problem, but you just have to enhance Young ’801 so that you can get both the current video and the overlay at the same time.” Ex. 2007, 39:8–12, 17–20; *see* PO Resp. 37–38 (citing Ex. 2007, 39:5–12); Ex. 2007, 39:12–16 (also testifying about known integrated circuits and the Rocgen card).

Similar reasoning applies to the 45Petition and 46Petition. With respect to the 45Petition, Petitioner contends Reiter provides “explicit

motivation” to modify Young ’801, asserting “Reiter teaches displaying program schedule information in an overlay format so the viewer can continue to view a television program.” 45Pet. 38 (citing Ex. 1104, 6:29–38, Fig. 3, 155 (“overlay format”); Ex. 1109 ¶ 120). At the cited passage, Reiter explicitly states that with respect to “a television overlay format. . . . the viewer may continue to view the television program he is currently watching.” Ex. 1104, 6:35–38. Petitioner contends providing such an overlay to would “allow a viewer to view the program information without interrupting the currently tuned and displayed program, as taught by Reiter.” 45Pet. 39. Petitioner also contends “[i]t would have been apparent to [one of ordinary skill in the art] that Young ’801’s program guide could be reduced in size to prevent it from obscuring most of the currently tuned and displayed program.” 45Pet. 39–40 (citing Ex. 1109 ¶ 124; Ex. 1102, 4:15–18). At the cited portion of Young ’801, Young ’801 states “supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information.” Ex. 1102, 4:15–18. Based on the level of ordinary skill and Reiter’s teaching of “displaying information, such as program schedule information, in an overlay format so the viewer can continue to view a television program,” one of ordinary skill in the art would have understood Young ’801’s statement (Ex. 1102, 4:15–18) concerning obscuring minimal amount of useful other information to teach or suggest minimizing obscuring of the currently tuned and displayed video program by the program guide.

With respect to the 46Petition, Petitioner reproduces Figure 3 of Remillard and notes “Remillard discloses overlaying interaction menus on a portion of a television broadcast.” 46Pet. 37 (citing Ex. 1205, 2:63–3:1,

5:55–61 (“television broadcast”). Remillard’s Figure 3 depicts an “INTERACTION MENU” on the bottom of the television screen. 46Pet. 40 (depicting Ex. 1205, Fig. 3). At the cited portion, Remillard discloses that “[t]he preferred embodiment adds the interaction menu to a bottom portion of the screen and preempts or overlays the incoming programming in that portion of the screen displaying the interaction menu.” Ex. 1205, 2:63–3:1; *see* Ex. 1205, 5:55–61 (indicating certain features of the invention “allow the electronic device 20 to provide for the windowed display 80 of the menus (overlaying the interaction menus on a portion of a conventional television broadcast, for example)”).

Petitioner also relies on the statement in Young ’801 quoted above—“supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information.” 46Pet. 27 (citing Ex. 1202, 4:15–18). Petitioner contends “[one of ordinary skill in the art] would appreciate that overlaying a menu over the entire television screen allows for the display of a larger menu or a menu with more options, whereas displaying the menu on a portion of a television broadcast allows the viewer to continue to view the broadcast while interacting with the menu. 46Pet. 37–38 (citing Ex. 1209 ¶¶ 128–129).

Furthermore, we do not agree with Patent Owner that Petitioner’s position that one of ordinary skill in the art would have replaced or modified Young ’801’s video display generator 224 and video switcher with enumerated elements of other references as being a failure to establish how one of ordinary skill in the art would have combined Young ’801 with the other references. PO Resp. 60–62; *see* 44Pet. 39 (describing combining Young ’801 with Moro); 45Pet. 40 (describing combining Young ’801 with

Reiter); 46Pet. 43 (describing implementing Remillard’s video controller 108 using a Rocgen card in Young ’801’s CPU). As noted above, Patent Owner’s argument is essentially one of bodily incorporation—either modify or replace of Young ’801’s video display generator and switcher.

Moreover, Mr. Wechselberger opines that one of ordinary skill in the art would have had the skills and knowledge to carry out Petitioner’s combinations proposed in the 44Petition, 45Petition, and 46Petition *See, e.g.*, Ex. 1009 ¶ 104 (explaining managing and controlling user interfaces, tuners, program guides, and associated on-screen text displays involved firmware driven-processors that would be “trivial” to modify as required); 44Pet. 30 (citing Ex. 1009 ¶ 104); Ex. 1109 ¶ 110) (providing substantially similar reasoning to that in Ex. 1009 ¶ 104); 45Pet. 32 (citing Ex. 1109 ¶ 110); Ex. 1209 ¶ 114 (providing substantially similar reasoning to that in Ex. 1009 ¶ 104); 46Pet. 32 (citing Ex. 1209 ¶ 114).. This weighs against Patent Owner’s argument that Petitioner’s combination is fatally ambiguous.

We credit Mr. Wechselberger’s declaration testimony because it provides sufficient explanation in view of the level of technical disclosures provided by the challenged patent and prior art, and is consistent with the level of ordinary skill.

(iv) Conclusion

For the reasons discussed above, we do not agree with Patent Owner that Petitioner has provided insufficient motivation to combine the references in the 44Petition, 45Petition, and 46Petition. Rather, we determine, based on Petitioner’s showing in the 44Petition, 45Petition, and 46Petition, which is discussed above, to provide sufficient reasoning with rational underpinning to support the legal conclusion of obviousness

because, for example, one of ordinary skill in the art would have understood the benefits of a program guide partially overlaying the currently tuned video to allow the viewer to continue to view the currently tuned video.

Based on the level of ordinary skill, the disclosures of prior art references discussing the user interface displays on which Petitioner relies, and Mr. Wechselberger's credible testimony, we conclude that when the teachings of the references are combined as proposed by the Petitioner, the combinations would do no more than yield predictable results of partially overlaying program guide information over a currently tuned video program. *See KSR*, 550 U.S. at 416; *see, e.g.*, 44Pet. 30 ("It would have been obvious to modify Young '801 to allow for television tuning as taught by Moro, to allow users to use Young '801's guide to change currently tuned channels in addition to selecting a channel for recording. . . Such a modification merely involves combining prior art elements according to known methods to yield predictable results The known prior art elements are the navigable program listing in Young '801 and the tuning feature disclosed in Moro. The predictable results are allowing the viewer to immediately tune to a program included in the program listing [One of ordinary skill in the art] would have had the skills and knowledge to carry out the above-described combination.") (citing Ex. 1009 ¶¶ 101–104); 45Pet. 39 ("[M]odifying Young '801 to display program schedule information . . . in an overlaying relationship with a currently tuned and displayed program would have merely involved combining prior art elements according to known methods to yield predictable results The known prior art elements are the currently tuned program and program schedule information found in Young '801. The known method is Reiter's overlaying technique.

The predictable results are allowing the viewer to view the program schedule information without interrupting the currently-watched program.”) (citing Ex. 1109 ¶¶ 122–124); 46Pet. 39 (“[M]odifying Young ’801 to display program schedule information in an overlaying relationship with a currently tuned and display program would have merely involved combining prior art elements according to known methods to yield predictable results The known elements are the currently tuned program and program schedule information found in Young ’801. The known method is the overlaying technique disclosed in Remillard and AAPA. The predictable results are allowing the viewer to view the program schedule information without interrupting the currently tuned and displayed program.”) (citing Ex. 1209 ¶¶ 131–133); Ex. 1109 ¶¶ 122–124; Ex. 1209 ¶¶ 131–133.

f. Applicant Admitted Prior Art (“AAPA”)

Patent Owner contends Petitioner improperly relies on AAPA in the challenged patent specification, which according to Patent Owner states that the “‘present embodiment’ may use ‘a commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec.’” PO Resp. 62 (citing 44Pet. 26).

The challenged patent states “[t]he system components identified in connection with FIG. 1 can all be implemented in a preferred platform by, for example, an IBM personal computer equipped with a transmission link and a video graphics card, such as those manufactured by Roctec.” Ex. 1201, 8:40–42. It also states “a video display generator (VDG) 23 . . . in the present embodiment may be a commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec.” Ex. 1201, 8:9–12.

By way of summary, with further respect to the “system components” of Figure 1, the challenged patent states

[o]ther platforms, such as a cable converter box equipped with a microprocessor and memory, could also be used. *In any event, those of skill in the art will appreciate that the particular details of the hardware components and data storage are a function of the particular implementation of the system, and are not the subject of the present invention.*

Ex. 1001, 8:42–47 (emphasis added).

Patent Owner contends the Petition may only rely “on the basis of prior art consisting of patents or printed publications.” Resp. 54 (quoting 35 U.S.C. § 311(b); citing 37 C.F.R. § 42.104(b)(4)). Patent Owner also argues

the only “admission” that may be taken from the ’556 patent is the fact that a VGA-type graphics card, such as the Rocgen card by Roctec, was commercially-available at the time of invention. But Petitioner has failed to demonstrate that the specification admits that it was known or obvious to use this particular product in the context of the invention.

PO Resp. 63. Patent Owner also contends “Petitioner does not cite to a single document allegedly describing the teachings, structures, functions, or operations of the asserted AAPA” and instead “relies exclusively on the testimony of its expert.” PO Resp. 64 (citing Ex. 1209 ¶ 99). Patent Owner also contends Petitioner relies on “an undated, unauthenticated Rocgen user manual (Ex. 1214) untethered to the alleged admissions in the ’556 patent.” PO Resp. 64–66. Patent Owner also highlights portions of Mr. Wechselberger’s deposition testimony to support Patent Owner’s position that “the link between what is disclosed in the patent specification and the cited user manual is ambiguous.” PO Resp. 66 (citing Ex. 2007, 55:6–10, 55:14–19). Mr. Wechselberger acknowledged that “there is no

model number [of the Rocgen card] provided in [the challenged patent];
whereas, the user manual has a model number . . . [s]o to the extent that
RocGen appeared in different models, . . . it's hard to tell . . . what model it's
referring to.” Ex. 2007, 55:14–19. Mr. Wechselberger, however,
immediately indicated:

What I can affirm—confirm is that the functionality described in
column 8 [of the challenged patent] that's attributable to the
RocGen card exists in the RG3000 user manual.

Ex. 2007, 55:20–22.

Moreover, contrary to Patent Owner's arguments, reviewing an *inter partes* review decision by the Board, the U.S. Court of Appeals for the Federal Circuit has stated that statements in the specification are “probative on how one with ordinary skill in the art at the time of filing of the involved patent would have read and understood the disclosure of the prior art.” *Paice v. Ford Motor*, 881 F.3d 894, 901 (Fed. Cir. 2018) (citing *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1362 (Fed. Cir. 2007) (“Admissions in the specification regarding the prior art are binding on the patentee for purposes of a later inquiry into obviousness.”); *In re Baxter Travenol Labs*, 952 F.2d 388, 390 (Fed. Cir. 1991) (holding extrinsic evidence, including *admissions*, may be used to explain what a reference discloses in a reexamination proceeding).⁵³

⁵³ See also *In re Nomiya*, 509 F.2d 566, 571 n.5 (CCPA 1975) (It is a “basic proposition that a statement by an applicant, whether in the application or in other papers submitted during prosecution, that certain matter is ‘prior art’ to him, is an admission that that matter is prior art for all purposes.”) (emphasis added); see also *Constant v. Advanced Micro-Devices Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988) (“A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation

Regarding the alleged admission, Petitioner replies as follows:

[t]he description of the Rocgen card in column 8 of the '556 Patent and the structure of the video display generator in Figure 1 provide sufficient detail for one skilled in the art to appreciate that the commercially available card can be used to generate a video overlay. (Ex-1420, ¶50.) Patent Owner does not even allege that the description of the Rocgen card in the '556 Patent would not be sufficient for one skilled in the art to appreciate that the commercially available card can be used to generate an overlay.

Pet. Reply 51–52. As Petitioner persuasively argues, the '556 patent “admits that the claimed system can be implemented with known parts and the implementation details are ‘not the subject of the present invention.’” Pet. Reply 52 (quoting Ex. 1001, 8:37–48).

The record supports Petitioner. The inventors of the challenged patent specify that the invention may be practiced with a commercially available Rocgen card, and do not describe modifying the card or other known hardware in order to implement partial overlay functionality. Ex. 1001, 8:11–12 (describing the “video display generator (VIDEO DISPLAY GENERATOR) 23, which in the present embodiment may be a

and obviousness.”); *Riverwood Int’l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 1354 (Fed. Cir. 2003) (“Valid prior art may be created by the admissions of the parties. . . . [A] statement by an applicant during prosecution identifying certain matter not the work of the inventor as ‘prior art’ is an admission that the matter is prior art.”) (citations omitted); *Tokyo Keiso Co., Ltd. v. SMC Corp.*, 307 Fed. Appx. 446, 451 (Fed. Cir. 2009) (quoting *Riverwood* and *Constant* for same proposition) (non-published); *In re Reuning*, 276 Fed. Appx. 983, 986 (Fed. Cir. 2008) (“Having acknowledged that certain claimed elements are taught by the prior art, Reuning cannot now defeat an obviousness rejection by asserting that the cited references fail to teach or suggest these elements.”) (non-published).

commercially-available VGA-type graphics card, such as a Rocgen card, manufactured by Rotech”), 8:37–42 (“The system components identified in connection with FIG. 1 can all be implemented in a preferred platform by, for example, an IBM personal computer equipped with a transmission link and a video graphics card, such as those manufactured by Rotech.”).

Furthermore, Petitioner does not rely on the Rocgen manual but relies on the description of the Rocgen card in column eight of the challenged patent. *See* PO Resp. 54–56; *see also* Pet. Reply 52 (“Patent Owner argues (Resp.-44, 64) that ‘Petitioner does not cite to a single document allegedly describing the teachings, structures, functions, or operations of the asserted AAPA.’ But Petitioner cited to the [challenged patent] document when describing the Rocgen card (Pet.-46, 38).”). Moreover, although Mr. Wechselberger confirmed his understanding by citing to the Rocgen manual, his testimony also includes the recent history of a known class of on-screen display devices (OSDs), including “standard off-the-shelf design components in the 1970s as a result of their widespread use in teletext, videotext, closed captioning and video game applications, for example, which in most instances employed a television as the display device.” Ex. 1209 ¶¶ 34, 36; *see* Ex. 1209, ¶¶ 16–17, 36, 139; Pet. Reply 54 (citing Ex. 1209 ¶ 36; Ex. 1020 ¶ 49). These devices later evolved into integrated circuits including the Rocgen card that also correspond to the admissions about known hardware in the challenged patent, regardless of the manual. *See* Ex. 1209 ¶ 34). Mr. Wechselberger notes that in the ITC Case, Patent Owner contended that the corresponding structure for the video display generator is a “video graphics card.” Ex. 1209 ¶ 36 (citing Ex. 1213, 28). Mr. Wechselberger also outlines the functions mentioned in column 8 of the

challenged patent as functions performed by the admitted Rocgen device.
Ex. 1209 ¶ 36.

In addition, the parties agree that the skill level here involves at least a bachelor's degree in computer science, computer engineering, electrical engineering, and 3–5 years of experience or familiarity with software development in the 1990–1993 time-frame, or the equivalent thereof, and some experience within the television distribution industry (broadcast, cable, or satellite), including television signal processing in consumer appliances. *See, e.g.*, 46Pet. 17 (citing Ex. 1209 ¶ 30); PO Resp. 15–16 (citing Ex. 2006 ¶¶ 1–19); Tr. 75:5–17. Such a person would have been aware of commercially available hardware and how they operate to provide their intended overlay functionality.

In summary, the statements in the challenged patent admit of commercially available video display generator cards, and constitute evidence that ordinarily skilled artisans would have known to use a commercially available card and other hardware as Patent Owner admitted in order to provide similar overlay functionality that at least the secondary references further suggest—i.e., one of the purposes for selling the card. *See* Ex. 1209 ¶¶ 34–36 (discussing disclosure in patent to an ordinarily skilled artisan and citing other patents with the known hardware).

G. Motion to Exclude

In each of the three *inter partes* reviews, Patent Owner moves to exclude paragraphs 8, 24, 27–30, 32 and 38 of Mr. Wechselberger's second Declaration (44Exhibit 1020, 45Exhibit 1120, and 46Exhibit 1220) “untimely and unfairly prejudicial” because those paragraphs are directed to

“expert testimony that exceeds the permissible scope of reply.”⁵⁴ Mot. Exc. 1, 2. 44Paper 26 (“Mot. Exc.”). Patent Owner also moves to exclude 44Exhibit 1022 (and corresponding exhibits in the other two proceedings— 45Exhibit 1122, 46 Exhibit 1222) cited by Mr. Wechselberger in paragraphs 24 and 29 of his second declaration, as likewise “untimely and unfairly prejudicial.” Mot. Exc. 1. Petitioner opposes.⁵⁵ 44Paper 28 (“Opp. Mot. Exc.”). Patent Owner replies.⁵⁶ 44Paper 29 (“Rep. Opp. Mot. Exc.”).

After considering the record and arguments, we deny Patent Owner’s Motion to Exclude.

Petitioner’s showing of obviousness does not require the additional evidence provided and cited in Mr. Wechselberger’s second declaration that addresses Patent Owner’s narrow interpretation of the consecutively displayed and successive portions features recited in various forms in the challenged claims. As explained above, Petitioner directly referenced the page mode, at least with respect to claim 16 and 30, which recites a narrow version of the claim features encompassed within the scope of and referenced as consecutively displayed and successive portions in broader challenged claims, for example, claims 1 and 2. *See, e.g.*, 44Pet. 60–61 (citing Ex. 13:5–16), 70 (“Young ’801 allows the user to ‘page’ through program listings, which replaces one page of listings with another, thereby

⁵⁴ With authorization, Patent Owner filed the same motion in each proceeding. Paper 26 in each proceeding.

⁵⁵ With authorization, Petitioner filed the same opposition in each proceeding. Paper 28 in each proceeding.

⁵⁶ With authorization, Patent Owner filed the same reply in each proceeding. Paper 29 in each proceeding.

causing at least one program listing appearing in the overlay to be deleted and another program listing to be added.”) (citing Ex. 13:5–16).

In addition, the Petitions do not limit the showing to cursor movement within a guide, generally explaining that cursor movement to the right satisfies claim limitations and citing portions of Young ’801 that discuss page mode. *See, e.g.*, 44Pet. 35 (discussing cursor movement), 60–61 (discussing page mode), 44 (discussing cursor movement) (citing Ex. 1002, 3:14–19); *see also* Ex. 1002, 3:14–19 (discussing cursor movement to the right as causing “an abrupt jump to a cell situated several hours from the current page.”). The Petition and the Reply do not change course. *See Ericsson Inc. v. Intellectual Ventures I LLC*, 901 F.3d 1374, 1381 (Fed. Cir. 2018) (reply argument not improper when it expands on the same argument made in the petition). Rather, the Reply and Mr. Wechselberger’s second declaration, which relies on Exhibit 1022, responds to argument made by Patent Owner in its Response attempting to interpret the consecutively displayed and successive portions in a narrow fashion and responds to other arguments Patent Owner made about modifying Young ’801. *See* Opp. Mot. Exc. 5–6, 8–12. Patent Owner’s Response arguments contradict or do not coalesce with arguments made by Patent Owner in the ITC Case with respect to these cursor movement display features. Petitioner reasonably would not have anticipated the Response arguments. *See* Opp. Mot. Exc. 1–2.

One of ordinary skill in the art reading Young ’801 reasonably would not have interpreted Young ’801’s system as restricted to a single page limited to time slots ranging from 11:00 am to 12:30 pm as depicted in Figure 6 of Young ’801. This restricted reading of Young ’801 constrains

the use of the guide to 1½ hours, something the Petitions do not do, contrary to Patent Owner’s arguments that the Reply shifts to new theories. *See* Rep. Opp. Mot. Exc. 2–5. To elaborate and to undermine Patent Owner’s arguments and Dr. Bovik’s testimony, Mr. Wechselberger responds with a citation documenting well-known cursor navigation aspects of the same concept involved in spreadsheets (Exhibit 1022) and elaborates about minimal program guide layout or format changes that go hand-in-hand with the Petitions’ assertions of guide size reduction. *See* Opp. Mot. Exc. 9 (discussing Ex. 2006 ¶¶ 108–115; Ex. 1020 ¶¶ 36, 37), 11 (noting Dr. Bovik stated in his deposition “a user would have been ‘confined to the visible screen’”) (citing Ex. 1021, 56:16–23, 108:25–109:8, 116:17–117:2; Ex. 2006 ¶¶ 51–52).

Rather, as noted, the three Petitions cite to portions of Young ’801 that describe the page mode, directly rely on the page mode for a narrow related limitation, and generally advance the theory of moving a cursor to the right to obtain consecutively displayed and successive portions of schedule information, citing portions that describe new pages. Patent Owner chose not to avail itself of the opportunity to depose Dr. Wechselberger about his second declaration and thereafter file observations from that deposition or seek authorization to file a sur-reply. In view of these circumstances, we deny Patent Owner’s Motion to Exclude.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 1–4, 6, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, and 35–40 would have been obvious over Petitioner’s combination of Young ’801 and Moro (IPR2017-01144).

Regarding IPR2017-01145, we also determine that (i) the subject matter of claims 2–4, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, 35–37, 39, and 40 would have been obvious over Petitioner’s combination of Young ’801, Young ’121, and Reiter, and (ii) the subject matter of claims 1, 6, 7, 10, and 36–38 would have been obvious over Petitioner’s combination of Young ’801, Young ’121, Reiter, and Strubbe (IPR2017-01145).

Regarding IPR2017-01146, we also determine that (i) the subject matter of claims 2–4, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, 35–37, 39, and 40 would have been obvious over Petitioner’s combination of Young ’801, Young ’121, Remillard, and AAPA⁵⁷ and (ii) the subject matter of claims 1, 6, 7, 10, and 36–38 would have been obvious over Petitioner’s combination of Young ’801, Young ’121, Remillard, AAPA, and Strubbe (IPR2017-01146).

IV. ORDER

Accordingly, it is

ORDERED that claims 1–4, 6 (as depending from claim 1), 7 (as depending from claim 1), 10 (as depending from claims 1–4), 14, 16, 18 (as depending from claims 14 and 16), 19–21, 28, 30, 33, 35 (as depending from claims 14, 16, and 18), 36 (as depending from claims 1–4 and 20), 37 (as depending from claims 1–4 and 20), 38 (as depending from claims 2–4, 14,

⁵⁷ As noted previously, Petitioner contends that the challenged patent’s description of commercially available components used to implement the video display generator and overlay technique described in the ’556 patent (Ex. 1201, 8:3–48) constitutes Applicant Admitted Prior Art (“AAPA”) that can be relied on for obviousness determinations. 46Pet. 21 (citing MPEP § 2129).

IPR2017-01144, IPR2017-01145, IPR2017-01146
Patent 6,418,556 B1

16, and 20), 39 and 40 of U.S. Patent No. 6,418,556 B1 are held
unpatentable;

FURTHER ORDERED that pursuant to 35 U.S.C. § 318(b), upon
expiration of the time for appeal of this decision, or the termination of any
such appeal, a certificate shall issue cancelling claims 1–4, 6 (as depending
from claim 1), 7 (as depending from claim 1), 10 (as depending from claims
1–4), 14, 16, 18 (as depending from claims 14 and 16), 19–21, 28, 30, 33, 35
(as depending from claims 14, 16, and 18), 36 (as depending from claims 1–
4 and 20), 37 (as depending from claims 1–4 and 20), 38 (as depending from
claims 2–4, 14, 16, and 20), 39 and 40 of U.S. Patent No. 6,418,556 B1;

FURTHER ORDERED Patent Owner’s Motions to Exclude are
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.

IPR2017-01144, IPR2017-01145, IPR2017-01146
Patent 6,418,556 B1

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