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Paper 41
Entered: November 6, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

ROVI GUIDES, INC.,
Patent Owner.

Case IPR2017-01147
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

I. INTRODUCTION

In this *inter partes* review instituted pursuant to 35 U.S.C. § 314, Comcast Cable Communications, LLC ("Petitioner") challenges the patentability of claims 11–13, 22, 24, 26, and 27 ("the challenged claims") of U.S. Patent No. 6,418,556 B1 ("the challenged patent" or "the '556 patent"), owned by Rovi Guides, Inc. ("Patent Owner"). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. This Decision is issued concurrently with Final Written Decisions in IPR2017-01144, IPR2017-01145, and IPR2017-01146, each of which challenges the patentability of claims 1–4, 6, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, and 35–40 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 11–13, 22, 24, 26, and 27 of the '556 patent are unpatentable.

A. Procedural History

Petitioner filed a petition requesting *inter partes* review of the challenged claims. Paper 2 ("Pet." or "Petition"). Patent Owner filed a Preliminary Response. Paper 6 ("Prelim. Resp." or "Preliminary 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. Paper 8 ("Institution Decision" or "Inst. Dec.").

Subsequent to the Institution Decision, Patent Owner filed a Response (Paper 18; "PO Resp."), and Petitioner filed a Reply (Paper 22; "Pet. Reply"). A consolidated hearing for this proceeding and IPR2017-01144, IPR2017-01145, and IPR2017-01146 was held on July 12, 2018.[1] *See* Paper 40 ("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* Paper 33 ("Claim Construction Order"); Paper 34 ("Patent Owner's Sur-Reply" or "PO Sur-Reply); Paper 36 ("Petitioner's Response to Patent Owner's Sur-Reply" or "Pet. Resp."); Paper 38 ("Patent Owner's Opposition to Petitioner's Response to Patent Owner's Sur-Reply" or "PO Opp.").

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* Pet. 1–2; IPR, 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

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[1] Patent Owner objects to several of Petitioner's demonstrative slides as impermissibly presenting new arguments. Paper 32. We have not relied on the objected-to slides in this decision and dismiss those objections as moot.

Investigation No. 337-TA-1001, styled "*In the Matter of Certain Digital Video Receivers and Hardware and Software Components Thereof*" ("ITC Case"). *See* Pet. 1–2. The parties also identify pending applications that claim the benefit of the filing date of the application that issued as the challenged patent. *See* Pet. 3–4; Paper 3, 3–7.

In addition to IPR2017 01144, IPR2017 01145, and IPR2017 01146 (each of which challenges claims 1–4, 6, 7, 10, 14, 16, 18, 19–21, 28, 30, 33, and 35–40) and this *inter partes* review (IPR2017-01147), Petitioner filed four petitions challenging different claims in the '556 patent for which *inter partes* review has been instituted—IPR2017-01148, IPR2017-01149, IPR2017-01150, and IPR2017-01151. *See* Pet. 2–3.

C. The Challenged 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. 1301, (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.

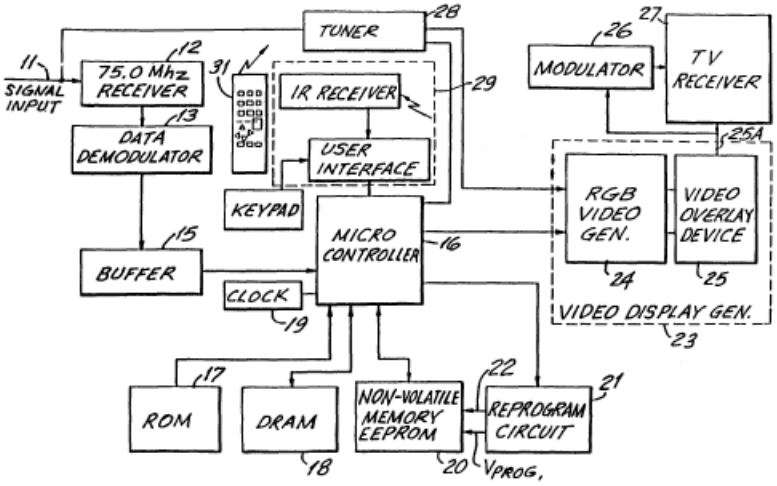


FIG. 1

Figure 1 depicts, among other components, "microcontroller 16" and "video display generator 23." Microcontroller 16 "takes the program schedule information stored in the DRAM[2] 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 microprocessor 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.

[2] Ex. 1301, 7:5–6 (indicating DRAM refers to "dynamic random access memory").

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,[3] 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:

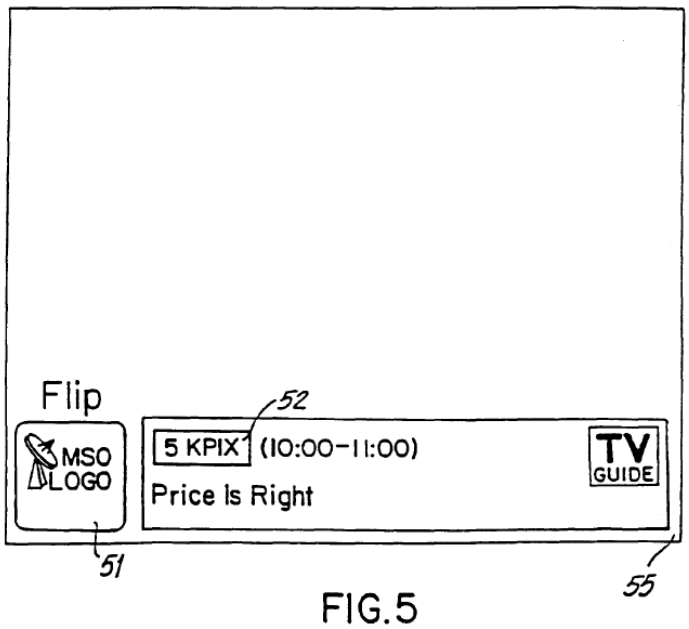


FIG.5

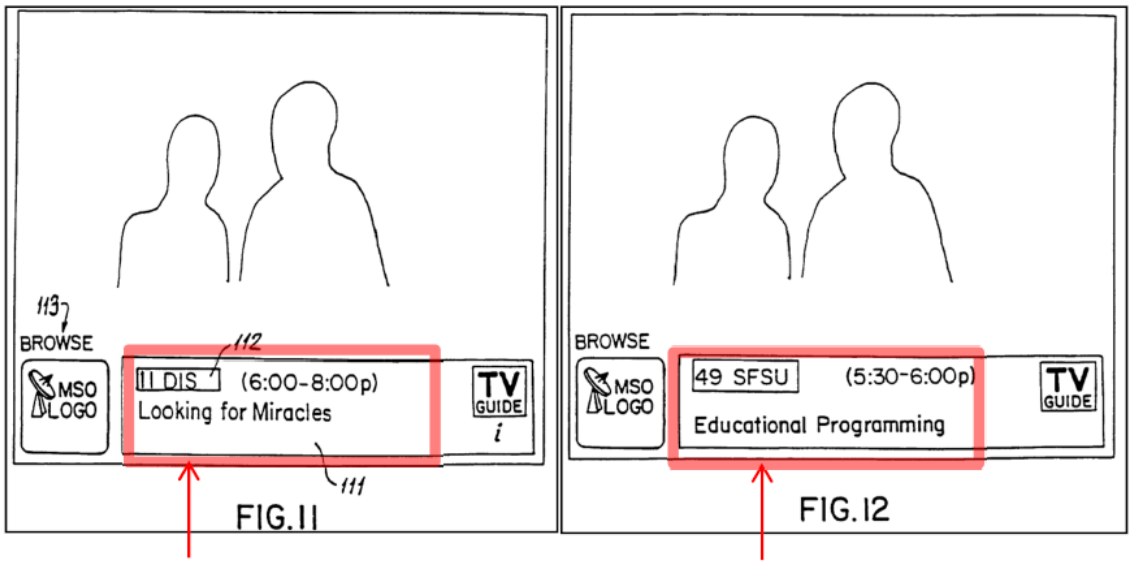
As indicated by Figure 5 above, each time a user changes (i.e., "flips") channels using remote control device 31, the system provides graphic program information 51 "superimposed in overlaying relationship with a

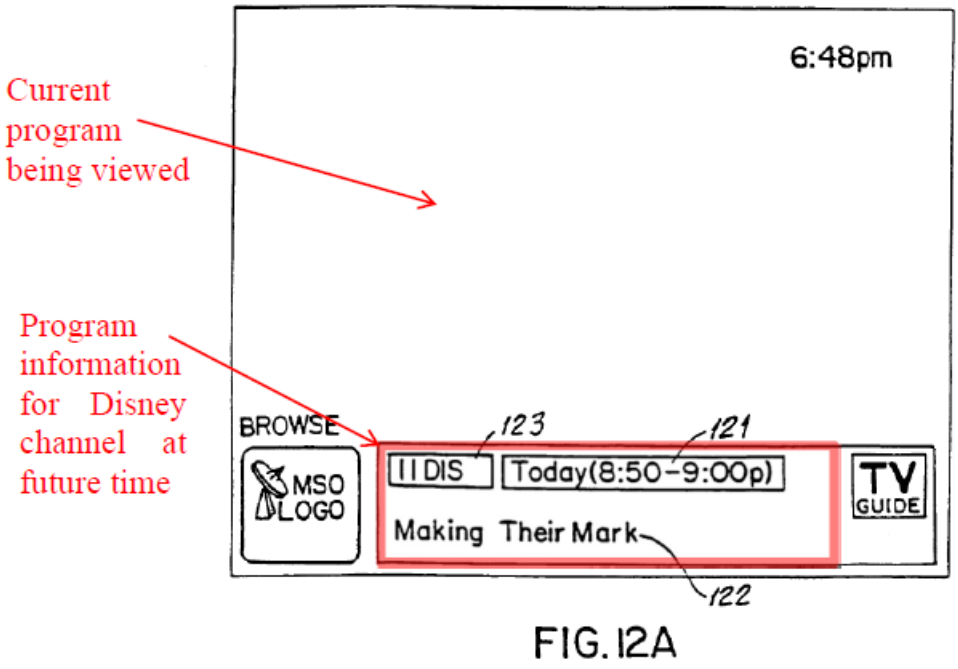
[3] Ex. 1301, 7:2–3 (indicating ROM refers to "read only memory").

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:–54 (describing a user pressing arrow keys on a remote controller to view program schedule information that appears in sequential time periods); Prelim. Resp. 6 (describing Ex. 1301, 11:44–54).

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





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* Pet. 9–10; Ex. 1301, 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. 1301, 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." Ex. 1301, 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." Ex. 1301, 8:49–54.

The '556 patent generally refers to "other modes" in conjunction with a "highlighted program" associated with a cursor. Ex. 1301, 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." Ex. 1301, 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." Ex. 1301, 14:42–44, 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. Ex. 1301, 15:4146 (emphasis added).

2. Illustrative Claims

Petitioner challenges claims 11–13, 22, 24, 26, and 27, of which claims 11, 12, 22, and 24 are independent. Each of the challenged claims set forth in dependent form (claims 13, 26, and 27) 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. 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 26 is in multiple dependent claim form and depends from, in the alternative, one of independent claims 22, 23, 24, or 25. Ex. 1301, 32:59–62. Petitioner's notation identifies claim "26/(22, 24)" as a challenged claim. Pet. 5 (Petitioner "petitions for inter partes review of claims 11–13, 22, 24, 26/(22,24), and 27/(11, 12, 22, 24)"). We understand Petitioner's notation "26/(22, 24)" to indicate a challenge of claim 26 depending from independent claim 22 and a challenge of claim 26 depending from claim 24. We further understand that notation—26/(22,24)—indicates that claim 26 is not being challenged based on its dependency from claim 23 or from claim 25. In this Final Written Decision, we adopt Petitioner's notation for consistency.

Claim 13 is written in multiple dependent form to depend from claim 11 or claim 12. Ex. 1301, 27:37–40. Petitioner, however, has not identified either of those claims parenthetically in its asserted grounds. *See, e.g.*, Pet.

13 (identifying claims 11–13 as being challenged). In the context of Petitioner's notation, we understand Petitioner to be challenging all claims from which claim 13 depends. In other words, we understand Petitioner to challenge claim 13 as it depends from claim 11 and challenges claim 13 as it depends from claim 12. Independent claim 11 illustrates the subject matter of the challenged claims:

> 11. A process 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:
>
> storing in a memory television program schedule information for a set of television programs scheduled to appear on said plurality of television channels;
>
> providing user control means for issuing user control commands, including television tuning and guide time-control commands, and for transmitting signals in response thereto;
>
> receiving by a data processor said user control commands;
>
> controlling a video display generator with the data processor 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 tuned channel in at least one mode of operation said process; and
>
> configuring said data processor to control said video display generator with video control commands in response to said user control commands to display each said portion of program schedule information, in partial overlaying relationship with said currently appearing display signal, for each successive one of said television programs scheduled to appear on said channel, and consecutively displaying each said portion 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, and also configuring said data processor to be 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 overlayed portion of said schedule information.

Ex. 1301, 26:29–65.

3. Prosecution History

The application that issued as the '556 patent on July 9, 2002 was filed on September 9, 1993. Ex. 1301, [22], [45]. As filed, the application did not claim the "tuning feature" recited in the challenged claims. *Compare* Ex. 1306, 75 (application claims 1–4*), with* Ex. 1301, 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. 1301, 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. 1306, 304, 308–309. According to the Examiner, Young '801[4]

> discloses an user interface television schedule system (see figure 22a, 22b) showing an user control means 212; a data processor 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. 1306, 309; *see* Pet. 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

[4] Young et al., WO 92/04801 (published Mar. 19, 1992) (Ex. 1302).

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. 1306, 416 (identifying August 11, 1994 as Office action to which the Applicant's response is directed), 2–3 (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. 1306, 3; Prelim. Resp. 8–9 (citing Ex. 1306, 3–4); *see* Pet. 19 (citing Ex. 1306, 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. 1306, 939 (Examiner Interview Summary Record of May 7, 1996[5]), 976 (Applicant's written response noting interview of May 7, 1996), 979 (Applicant's written response noting amendment regarding television tuning commands to expedite allowance); *see* Ex. 1306, 9–980 (Applicant's response to Office action dated March 6, 1996); Prelim. Resp. 9 n.4; *see also* Prelim. Resp. 9 (citing Ex. 1306, 939, 978–979). Although the Examiner again rejected the

[5] 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. 1306 (Part 3 of 9), 939 (Examiner Interview Summary Record); Ex. 1306 (Part 6 of 9), 1833–1900 (Rule 312 Amendment mapping application claims to issued claims); Ex. 1306 (Part 9 of 9), 2899 (Index of Claims showing application claim 42 issued as patent claim 2).

pending claims over newly cited references (Ex. 1306, 1026), the patent issued with claims including a tuning feature. *See* Ex. 1301, 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 overlayed 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[6] on the following particular grounds:

References	Claims Challenged
Young '801[7] and Moro[8]	11–13, 22, 24, 26/(22, 24), and 27/(11, 12, 22, 24)
Young '801, Young '121,[9] and Reiter[10]	11–13, 22, 24, and 26/(22, 24)
Young '801, Young '121, Reiter, and Strubbe[11]	27/(11, 12, 22, 24)

[6] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. § 103, effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA version of § 103 in this decision.
[7] Young et al., WO 92/04801 (published Mar. 19, 1992) (Ex. 1302; "Young '801").
[8] Moro E.P. Pat. Pub. No. 0444496 (published Sept. 4, 1991) (Ex. 1303; "Moro").
[9] Young, U.S. Pat. No. 4,706,121 (issued Nov. 10, 1987) (Ex. 1311; "Young '121").
[10] Reiter, U.S. Pat. No. 4,751,578 (published June 14, 1988) (Ex. 1304; "Reiter").
[11] Strubbe et al., U.S. Pat. No. 5,047,867 (issued Sept. 10, 1991) (Ex. 1310; "Strubbe").

References	Claims Challenged
Young '801, Young '121, Remillard[12], AAPA[13]	11–13, 22, 24, and 26/(22, 24)
Young '801, Young '121, Remillard, AAPA, Strubbe	27/(11, 12, 22, 24)

Inst. Dec. 50.

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*

[12] Remillard, U.S. Pat. No. 5,404,393 (issued Apr. 4, 1995, filed Sept. 28, 1992) (Ex. 1305; "Remillard").

[13] 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. 1301, 8:3–48) constitutes Applicant Admitted Prior Art ("AAPA") that can be relied on for obviousness determinations. Pet. 22 (citing MPEP § 2129).

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. 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 in this *inter partes* review. Petitioner, however, addressed alleged evidence of nonobviousness that was submitted during prosecution. *See* Pet. 86–88.

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.

Pet. 16 (citing Ex. 1309 ¶ 30); *See* Inst. Dec. 17 (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. 2306 ¶¶ 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. [14] Pet. Reply 1–4.

We weigh the particular testimony regarding each particular issue on which Dr. Bovik or Mr. Anthony J. Wechselberger opines based on the 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, 2142 (2016) (upholding the use of broadest reasonable construction standard in *inter partes* review); *see also*

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

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* Inst. Dec. 14–15. Neither party has contested our determinations in a manner that requires further analysis. *See* PO Resp. 20 (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"); Pet. Reply 4–11 (providing claim constructions for other terms discussed further below). The parties also do not point us to arguments or evidence that necessitates 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 and other institution decisions involving the '556 patent addressing the following claim terms. Inst. Dec. 14–15 (relying on analysis set forth in the institution decision in IPR2017-01144).

Term	Construction
"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. 1301, 8:60–9:6; Figs. 1, 3)
"a video display generator . . . for displaying" and "a program schedule display generator . . . for displaying"	denotes a class of analog hardware devices that overlay text information onto a video signal; not means-plus-function limitation

2. "at least one mode of operation of said programming guide"

Independent claims 11 and 12 each recite "controlling a video display generator with the data processor for displaying [some schedule information] in overlaying relationship with another display signal currently appearing on said tuned channel *in at least one mode of operation* [*of*] *said process*." Ex. 1301, 26:41–47 (emphasis added). 27:11–18 (emphasis added) (missing "of" in "at least one mode of operation [of] said process). The specification describes several modes, including the Browse, Menu, and Flip modes, with the Browse mode having a television tuner function. *See* Ex. 1301, 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. 1301, 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. 1301, 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 patent specification indicates the claims require support from combined features from different modes of operation.

On this record, including consideration of the ITC Case and the prosecution history, for the reasons above and further below with regard to Browse mode, 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. In other words, as explained further below in the next section, nothing restricts the challenged claims to the Browse mode.[15]

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. Inst. Dec. 15–16.

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[15] 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. 23:5–6), and argued that Patent Owner characterized the Browse mode broadly during prosecution (Tr. 6:13–7). Patent Owner also characterized its claims more broadly in the ITC Case, as discussed further below. *See* Ex. 2301, 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"). 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. 2301, 72 n.33); Ex. 2301, 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. 20401, 100–01), we arrive at a different conclusion based on a different record, a different claim construction standard, and refined arguments, all considered with the ITC Case as a backdrop. 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. 2301, 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.'" *See* Ex. 2301, 72).

3. "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 overlayed portion of said schedule information"

Independent claim 11 recites "configuring said data processor to be 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 overlayed portion of said schedule information." Ex. 1301, 26:60–65 ("television tuning limitation"). Each of the other challenged independent claims recites a similar limitation. Ex. 1301, 27:32–37 (claim 12), 31:18–24 (claim 22), 32:18–23 (claim 24); PO Resp. 16 (indicating this television tuning command term is recited by all challenged claims).

Petitioner contends that means "[c]ommands allowing a user to select a listed television program and that cause a tuner to tune to the selected television program." Pet. 16 (citing Ex. 1301, 12:1–8, Ex. 1309 ¶ 39).

On the other hand, 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. 16 (citing Ex. 2306 ¶¶ 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. 2306 ¶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. 1301, 12:49–13:10, 11:37–43; 12:1–7, 12:22–27, 12:49–59, Figs.12, 14; Ex. 2306 ¶¶ 37–42).

In reply, Petitioner maintains that the "plain language does not require interaction." Pet. Reply 4.

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 overlayed 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 term itself is clear: "allowing a user to select any one of said television programs for which listing information is displayed." Because of this clarity, we find that no express construction is required.

4. "displaying interactively-selected successive portions of said schedule information . . . in overlaying relationship"

Independent claim 11 recites "displaying interactively-selected successive portions of said schedule information . . . in overlaying relationship with" a displayed program ("the interactively selected limitation"). Ex. 1301, 26:43–47. Independent claim 11 requires "schedule information for a currently tuned channel," whereas independent claim 12 requires "schedule information for a set of channels, including ones different from a currently tuned channel." Ex. 1301, 26:43–47 (claim 11), 27:13–15 (claim 12). Independent claims 22 and 24 each requires "schedule

information comprising listing information for at least one program different from said display signal." Ex. 1301, 31:9–11 (claim 22), 32:7–9.

Independent claim 11 also recites "consecutively displaying each said portion in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods" (the "consecutively displayed" limitation). Ex. 1301, 26:55–58. Independent claim 12 recites a similar limitation but adds programs to sequential time periods, as do independent claims 22 and 24. Ex. 1301, 27:27–30 (claim 12 reciting "navigating through listing information for sequential time periods *or programs*"), 31:17 (claim 22), 32:14 (claim 24).

Petitioner contends "[u]nder BRI, 'successive portions' can refer to portions that are either successive in time (*see* Ex-1301, FIGs. 11–12A) or spatially successive (*see* FIGs. 18 and 25; *see also* Ex-1301, 14:1–27, explaining cursor movement)." Pet. Reply 5. Similarly, Petitioner contends "under BRI, 'consecutively displayed' can include either consecutive in time, or spatially consecutive." Pet. Reply 8.

In other words, Petitioner contends that 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" (that is, commanding the cursor to move to interactively-select successive portions), with "displaying each said portion in response to corresponding consecutive ones of said guide

control commands for successively navigating through listing information for sequential time periods or programs" (that is, displaying the successive portions of a grid as highlighted provides successive navigation for time periods or programs). *See* Pet. Reply 5–10.

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. 1301, 13:15)—in the "All Listings mode" (Ex. 1301, 14:42) or in the "'Category Listing' mode" (Ex. 1301, 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. 1301, 15:8–13).

Patent Owner does not provide a construction for these related claim elements, but raises arguments that challenge Petitioner's position. *See* PO Resp. 16–20 (Claim Construction section); Pet. Reply 4 (citing PO Resp. 32–33), 7 (citing PO Resp. 37–39). 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. 33 (citing Ex. 2306 ¶¶ 82–83). 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 4. 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 7 (citing PO Resp. 37–39; Ex. 2306 ¶¶ 83–85, 93–94).

Patent Owner's position rests on the argument that the challenged claims require the disclosed Browse mode. *See* PO Resp. 33 ("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 8 (stating "under BRI, the claims do not recite this mode," "[e]xcept for [unchallenged] independent claim 19" (which recites a "for displaying program schedule information in a browse mode" (Ex. 1301, 29:67–30:1)). 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 12 (citing Ex. 1301, 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. 1301, 3:4–9 (emphases added). During the Oral Hearing, Patent Owner's counsel described this quoted passage as "just a generic characterization," without stating the passage limits the claimed invention to the Browse mode. Tr. 44:1–5, 49:9–50:7. Patent Owner's counsel explained that only the Flip and Browse modes 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). Tr. 44:6–7; *see* Tr. 44:15–45:10; Ex. 1301, 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. 1301, 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. 1301, 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 challenged claims 22 and 24 that each requires displaying "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. 1301, 3:4–9 (emphasis added), 31:9–11 (claim 22), 32:7–9 (claim 24). In similar fashion, claims 11 and 12 each broadly recites "displaying interactively-selected successive *portions* of said schedule information." Ex. 1301, 26:43–45 (claim 11), 27:12–13 (claim 12). The plain language of these claims 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. 1301, 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. 1301, 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.[16] 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. 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 8), as part of the "All Listings mode" (which appears to be a configuration related to or within the "Menu mode" (*see* Ex. 1301, 13:15–14:)), 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. 1301, 14:42–45 (emphasis added). In other words, in this All Listings mode, the moveable cursor "indicate[s] the currently selected program to the user" (Ex. 1302, 14:43–44), 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. 1301, 13:28–29. Nevertheless, as discussed above,

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[16] 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.").

the specification generally describes "a particular need for a flexible 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. 1301, 3:4–9 (emphasis added). Features of the Menu Mode when 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 generally 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. 10–15), Patent Owner notes it argued during prosecution that "the Reiter and Strubbe combination did not disclose the claims 'directed to the Browse mode in combination" with the reminder functionality. *See* PO Resp. 14 (quoting Ex. 1306, 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. 33.

The cited prosecution history argument (PO Resp. 14 (citing Ex. 1306, 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. 1306, 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. 1306, 979. This argument does not refer to the Browse mode. Ex. 1306, 979.

Moreover, 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. 1306, 939. Furthermore, it lists only three claims, claims 42, 72, and 73, as the "[c]laims discussed." Ex. 1306, 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. 1306, 961 (referring to "Sub. M6" implying a later amendment)).[17]

[17] The Examiner issued a Response to Rule 312 Communication, referring to an amendment of November 29, 2001 filed by Applicant. *See* Ex. 1306, 1829. Applicant filed that amendment pursuant to 37 C.F.R. § 1.312. Ex 1306, 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. 1306, 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. 1306, 1824–29. On July 30, 2001, the

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. 1306, 661–62, 1845–46. In contrast, only claim 24 of the challenged claims include this or a similar limitation.[18] As Petitioner persuasively argues, because claim 24 expressly recites the adding and deleting limitations, this dictates against imputing any specifically argued Browse mode limitations into all of the challenged claims. *See* Pet. Reply 12–13.

Also, "in response to the Office Action dated March 6, 1996" (Ex. 1306, 9) and "the personal interview held on May 7, 1996)" (*id.* at 976), Patent Owner deleted "one at a time" from the phrase "displayed [one at a time]" in original claim 72 (now claim 16). Ex. 1306, 960–62. Patent Owner referred to "[t]he 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

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record indicates Patent Owner did not present arguments for patentability, but presented a paper stating it amended the inventorship. *See* Ex. 1306, 1817–23.

[18] Claim 24 recites "said navigation including deleting *at least one* program listing appearing in the overlay and adding *at least another* program listing in the overlay." Ex. 1301, 32:16–18 (emphasis added).

missing any content of the program being simultaneously viewed." Ex. 1306, 977.

Patent Owner also added "at least" to the phrase "adding at least another program listing in the overlay" to claim 72. Ex. 1306, 960–62. 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 a 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. 33 (citing Ex. 2306 ¶¶ 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. 1301, 3:4–9) 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. 1301, Fig. 12a.

Moreover, as Petitioner argues, unchallenged claim 19 specifically recites the "browse mode of operation" (Ex. 1301, 30:1–2), showing that all

of the challenged claims do not require that mode. *See* Pet. Reply 8 n.3. In other words, none of the challenged claims recite the Browse mode or implicitly 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 fail to show how the identified prosecution history rises to the level of the exacting standard of disclaimer of claim scope to limit the challenged claims to the disclosed, but unclaimed, Browse mode. In summarizing its position during prosecution, Patent Owner stated "the 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. 1306, 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. 1306, 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. 1306, 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 claim 24, which further recites the deleting and adding limitations discussed above).

In sum, based on the plain language of the claims, the specification, and the prosecution history, 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 schedule information as a partial overlay.[19] 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.

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[19] During the Oral Hearing, Patent Owner's counsel appeared to characterize the claims as including several modes. *See* Tr. 49:5–9 ("[W]e're saying there's at least one mode that operates this way, so at least one mode is the browse mode. You might have other modes that do other things. It's a comprising claim.").

5. The ITC Case Infringement Allegations

Petitioner contends Patent Owner's infringement allegations during the ITC Case support its claim construction positions. Pet. Reply 5–7, 8–10. In the Institution Decision, 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* Inst. Dec. 15–16. 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. 41:7–8[20]), 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* Paper 33 ("Claim Construction Order"). Accordingly, Patent Owner filed a Sur-Reply (Paper 34; "PO Sur-Reply")), Petitioner filed a Response to the Sur-Reply (Paper 36; "Pet. Resp. Sur-Reply")), and Patent Owner filed an Opposition (Paper 38; "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

[20] Patent Owner's counsel answering "Yes, it does" to the question "[D]oes this argument depend on us reading the browser limitation in the claims?" Tr. 41:7–8.

> 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 (citing Ex. 2001[21], 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, 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.,

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[21] Patent Owner cites to Exhibit 2001, an exhibit in the IPR2017-01144. The same paper (ITC Case Initial Determination) was filed as Exhibit 2301 in this proceeding.

> 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,[22] 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 overlayed 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

[22] Petitioner cites to Ex. 1028, an exhibit filed in IPR2017-01144. The same paper (Witness Statement of Dr. Delp) was filed as Exhibit 1328 in this proceeding.

Ex. 1028, 2). The cited evidence does not support Patent Owner's construction. 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 claim 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.[23]

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.

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[23] Both parties appear to have switched positions to a certain extent relative to their positions in the ITC Case. *See, e.g.*, Ex. 2401, 68–73, 100. Nevertheless, the record here supports Petitioner's claim construction for the reasons explained herein. The ITC Case involved a narrower claim construction standard than the standard employed here.

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* Pet. 20 (asserting Young '801 and Moro are prior art); Pet. 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* Inst. Dec. 26–29. 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. Inst. Dec. 26–29, 50.

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. 1302, 1:4–9. Young '801 discloses program schedule information for a currently tuned channel and other channels. *See* Ex. 1302, 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. 1302, 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. 1302, 11:30–12:26, 13:28–14:5.

Figure 2 of Young '801 is set forth below:

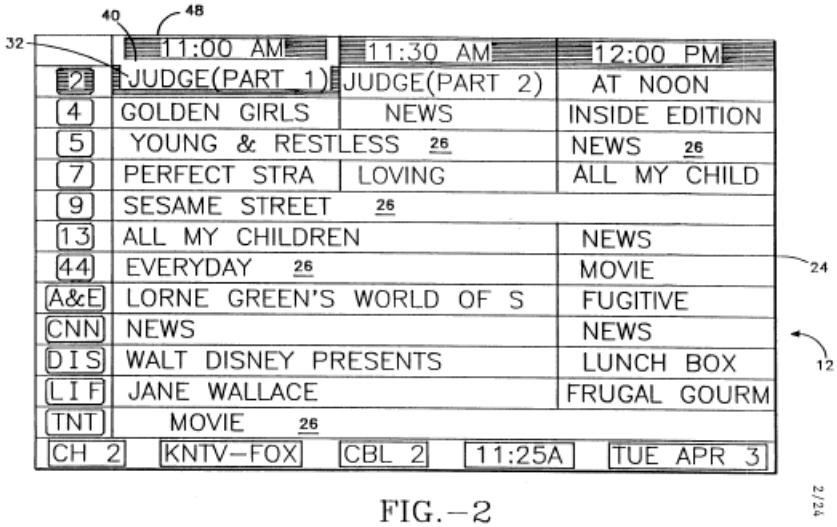


FIG.–2

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.

As shown above, upon first opening the guide, the cursor 32 appears situated on the current program of the currently-tuned channel. Ex. 1302, 13:28–30. The grid highlights the currently-tuned channel. Ex. 1302, 13:5–7, Fig. 1.

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

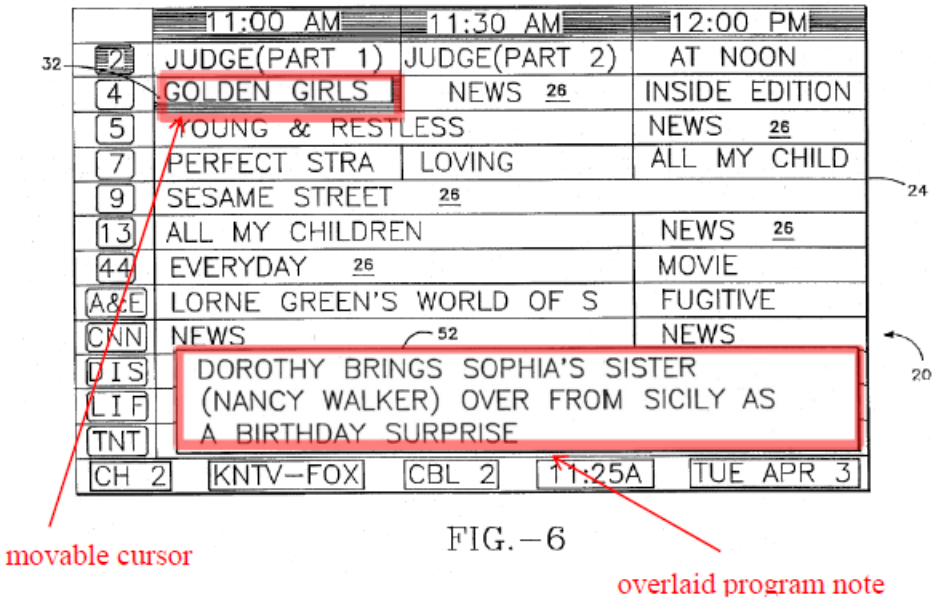


FIG.–6

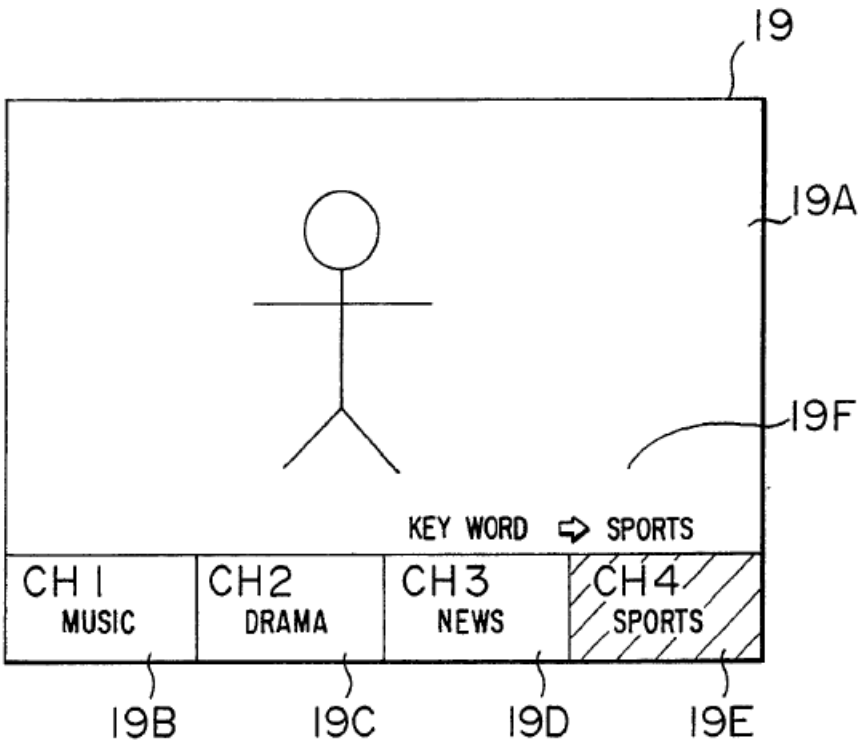
Figure 6 depicts "a television schedule grid screen 20 with a program note overlay 52." Ex. 1302, 11:30–31, Fig. 6. "Program notes for a selected program are overlaid over the grid guide upon [user] request." Ex. 1302, 12:14–16.

In addition, Young '801 depicts in an arrow in Figure 1 that Young '801 calls "grid continuity icon 38." Ex. 1302, Fig. 1. The grid continuity icon indicates that the displayed cell is continued on the next screen. Ex. 1302, 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. 1303, 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:

FIG. 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:–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 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. 1303, (56); *see generally* Ex. 1306. 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. 1308, 75; *see* Pet. 23 (citing Ex. 1308, 5–7, 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. 1311, 9:48–50; 15:19–16:41, 20:39, 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.

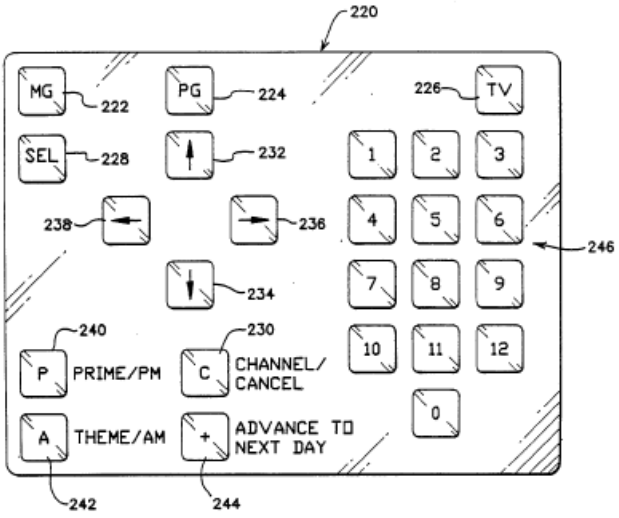


FIG. 5

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. 1304, 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

Remillard discloses overlaying interaction menus on a portion of a television broadcast using a remote control device. Ex. 1305, Abstract, 2:63–3:3, 5:55–61 ("television broadcast"). Figure 3 of Remillard is set forth below.

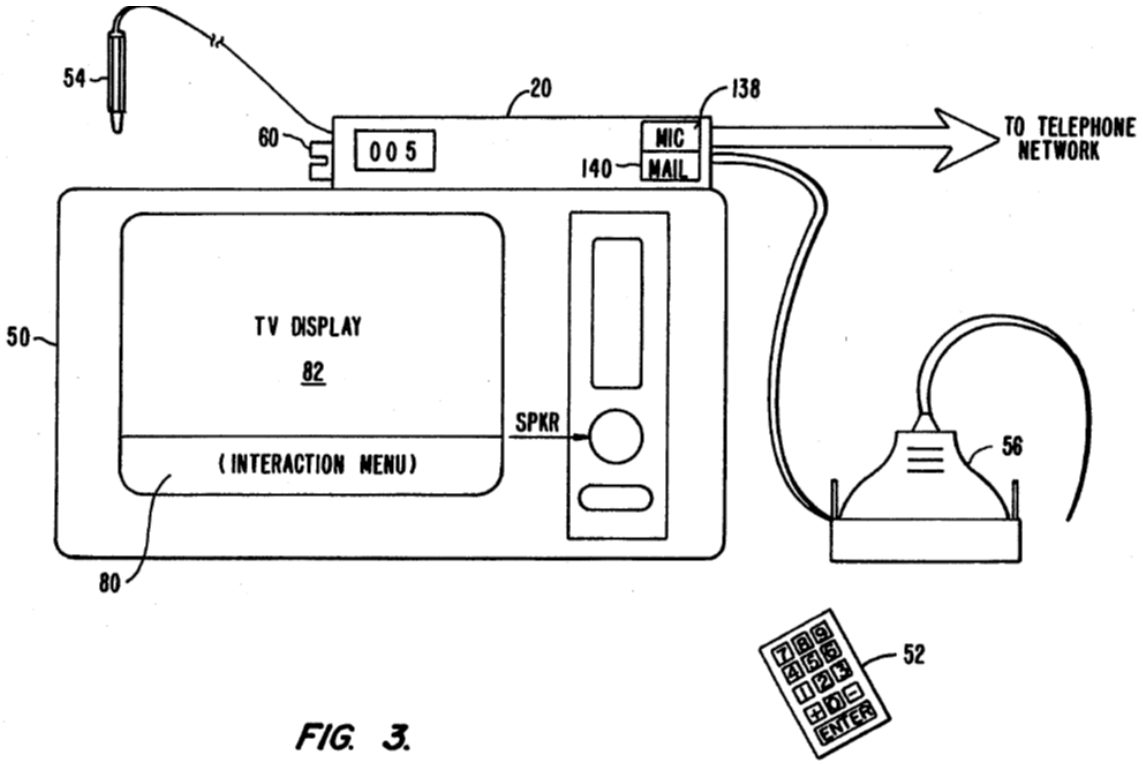


FIG. 3.

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. 1305, 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. 1305, 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. 1310, 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. 1310, 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. 1310, 6:–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 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:

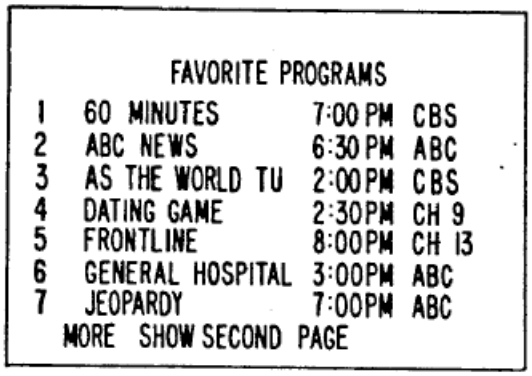


FIG. 6a

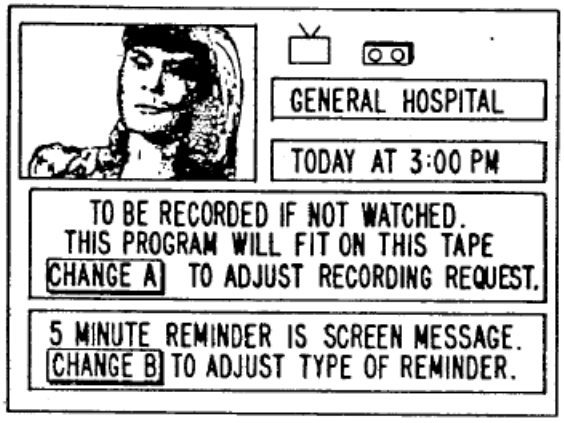


FIG. 6b

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 over Young '801 and Other References

Petitioner contends that claims 11–13, 22, 24, 26, and 27[24] of the challenged patent are unpatentable under 35 U.S.C. § 103(a) based on Young '801 in combination with various references. Each of Petitioner's asserted grounds rely on Young '801 for most of the limitations in the independent claims. *See* Pet. 25 ("Young '801 discloses all the limitations of the independent claims, except for displaying program schedule information in an overlaying relationship with a currently tuned program, allowing a user to view program information for other channels without changing the currently-tuned channel, which is taught by Moro."); Pet. 58 ("Young '801 discloses all the limitations of the independent claims, except for displaying program schedule information in an overlaying relationship with a currently tuned program, which is taught by Reiter, and tuning from a program guide, which is taught by Young '121."); Pet. 72 ("Young '801 discloses all the limitations of the independent claims, except for displaying program schedule information in an overlaying relationship with a currently

[24] Specifically, concerning the multiple dependent claim limitations, Petitioner challenges 11–13, 22, 24, 26/(22, 24), and 27/(11, 12, 22, 24).

tuned program, which is taught by Remillard and AAPA, and tuning from the guide, taught by Young '121.").

For example with regard to independent claim 11, according to Petitioner, Young '801 "discloses an interactive program guide including program schedule information that allows a user to navigate (vertically and horizontally) through the guide using a movable cursor to select programs for recording," as shown in Young '801's Figure 6. *See, e.g.*, Pet. 26. Petitioner further relies on Young '801's remote controller 212 with cursor control keys 156 (shown in Figure 21) for providing user control commands. *See, e.g.*, Pet. 19, 30–31 (discussing Figure 21). Additionally, Petitioner relies on Young '801's CPU 228 in the television schedule system as disclosing the data processor configured to perform various recited functions, as required by claim 11. *See, e.g.*, Pet. 43 (citing Ex. 1302, 26:5–7); *see also* Ex. 1302, 7:34–35 (describing Figure 22 as a block diagram of a television schedule system). Petitioner also relies on other components of Young 801's television schedule system, such as schedule memory 232. *See, e.g.*, Pet. 43 (citing Ex. 1302, 26:5–7).

In general, Petitioner does not rely on Young '801 for displaying the interactive program guide in an overlaying relationship with a program. *See, e.g.*, Pet. 37. According to Petitioner, Young '801 disadvantageously requires "a viewer who wishes to view the program schedule information to interrupt viewing a program to view the guide." *See, e.g.*, Pet. 36–37 (citing Ex. 1309 ¶ 124). Rather, Petitioner relies on Young '801 in combination with other references for conveying to one of ordinary skill in the art the overlaying relationships required by the claims. *See, e.g.*, Pet. 32–33 (citing Young '801 and Moro for the controlling limitation recited in independent

claim 11); Pet. 64–65 (citing Young '801 and Reiter for the controlling limitation recited in independent claim 11); Pet. 76 (citing Young '801 and Remillard for the controlling limitation recited in independent claim 11).

Nor does Petitioner rely on Young '801 as disclosing the tuning limitation—"also configuring said data processor to be 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 overlayed portion of said schedule information." Ex. 1301, 26:60–65 (claim 11); Pet. 46 (citing Young '801 and Moro for the tuning limitation recited in independent claim 11); Pet. 64–65 (citing Young '801, Reiter, and Young '121 for the tuning limitation recited in independent claim 11); Pet. 82 (citing Young '121 for the tuning limitation recited in independent claim 11).

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 claims 11–13, 22, 24, 26/(22, 24), and 27/(11, 12, 22, 24) of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Petitioner's combination of Young '801 (Ex. 1302) and Moro (Ex. 1303). Pet. 12–13, 25–58. Petitioner contends that its asserted combination of Young '801 and Moro was not considered during prosecution because Moro was not considered during prosecution. Pet. 23.

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* Pet. 11–12 (citing Ex. 1309 ¶¶ 48–66), *see also* Ex. 1309 ¶¶ 48–66 (Mr. Wechselberger discussing prosecution history). We find Petitioner's summary persuasive because it comports with our understanding of the prosecution history. *See* Ex. 1306, 416–418 (Applicant discussing disclosures of Young), 939 (Examiner Interview Summary Record), 940–980 (amending application claims to recite television tuning commands).

a. Independent Claim 11

Independent claim 11 is a process that involves limitations related to four elements: (i) a memory 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 processor configured to receive the signals transmitted from user control means, to control the video display generator, and to be responsive to television tuning commands.

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

We begin by presenting an overview of Petitioner's combination of Young '801 and Moro to provide context for the detailed analysis that follows. Regarding independent claim 11, Petitioner contends that Young '801 would have taught or suggested most of the claim limitations recited in independent claim 11, as discussed previously. *See* Pet. 25. Petitioner relies on Moro as teaching "an overlaying technique to overlay information over a

program" and the requisite "tuning" function. Pet. 25; *see id.* at n.5 (Petitioner contending that Young '801 discloses the recited tuning feature but indicating expressly that Petitioner relies on Moro "and does not rely on Young '801 for this feature."); Ex. 1301, 26:60–65 (claim 11 reciting "also configuring said data processor to be 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 overlayed portion of said schedule information").

Specifically, Petitioner relies on the combination of Young '801's interactive program guide (shown in Figure 6) and Moro's overlaying program information for non-tuned channels over a currently tuned and displayed program (shown in Figure 2). *See, e.g.*, Pet. 26–27. Young '801's Figure 6 and Moro's Figure 2 (both of which have been previously presented) are reprinted below.

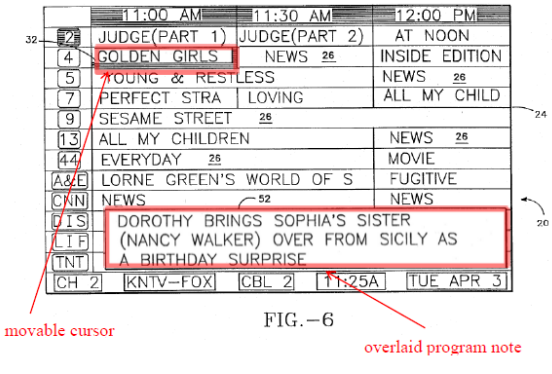
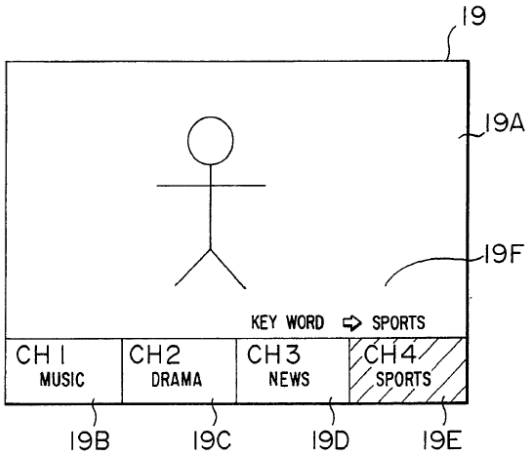


FIG.–6

FIG. 2



Petitioner also relies on Moro for allowing a viewer to tune to one of the other channels for which program information is shown on the display. Pet. 28 (citing Ex. 1303, 5:37–41). Petitioner additionally relies on Young '801's remote controller and Moro's remote control device that is used to switch to a channel as collectively disclosing the recited user control means. Pet. 30 (citing Ex. 1302, 24:17–33), 31–32 (citing 1303, 5:37–41).

Regarding the other elements used by the claimed process, 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 signals from remote controller. *See* Pet. 29 (explaining Young '801's schedule memory 232 reads on the recited memory means), 30–32 (explaining Young '801's remote controller 212 reads on the recited user control means), 33 (explaining Young '801's CPU 228 reads on the recited data processor), 33–39 (explaining Young 801's video display generator 224 and Moro's character generator section 18 reads on the recited video display generator).

For the display, tuning command, and guide control command limitations,[25] 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* Pet. 25–28, 29–37, 43–46.

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[25] Independent claim 11 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 "configuring said data processor to be 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 overlayed portion of said schedule information."

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. 1302, 3:14–17, 4:27–5:3, 13:5–15:2, 13:28–30, 24:17–33, 26:5–10, Figs. 2, 6, 21; *see* Pet. 30–42. Petitioner additionally relies on Moro's disclosure of displaying program information in a "'partially overlaying relationship' with a currently broadcast (tuned and displayed) program." Pet. 44. 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. 1303, Abstract, 2:48–52, 3:55–58, 5:6–9, 5:31–41, Fig. 2; Pet. 32.

Young '801's Figure 6 (television program schedule by time and channel with overlaying program note) and Moro's Figure 2 (program information overlaying current video), (each figure has been previously presented), are reprinted below.

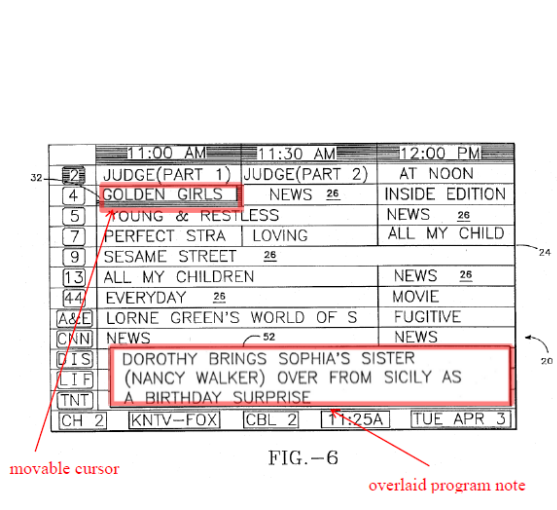
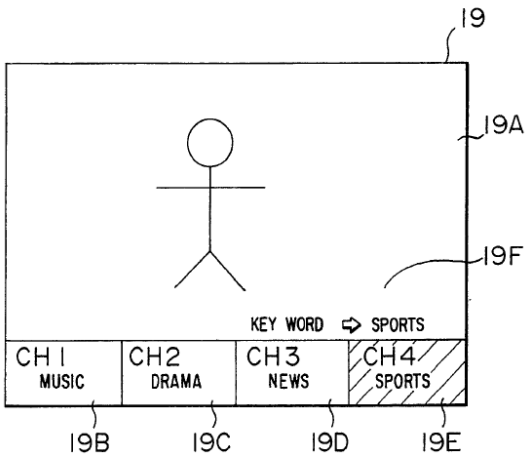


FIG.–6

FIG. 2



In general, Petitioner relies on Young '801's disclosure (such as by Figure 6) 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) Process for Use with a Television Receiver Preamble

Independent claim 11 recites "[a] process 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." Ex. 1301, 26:29–33 (preamble of claim 11). The parties do not dispute that Young '801 teaches the television receiver 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. 29 (citing Ex. 1302, 1:4–9, 4:15–18, 12:27–32, 14:30–32, Figs. 1, 10, 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. 1302, 12:27–32, 14:30–32, Figs. 1, 10, 22B (elements 207, 210); Ex. 1309 ¶¶ 109–112). Our findings are based on the following plain 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. 1301, 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* Ex. 1302, Fig. 6. Figure 22B of Young '801 shows some hardware used in Young '801's system and appears below.

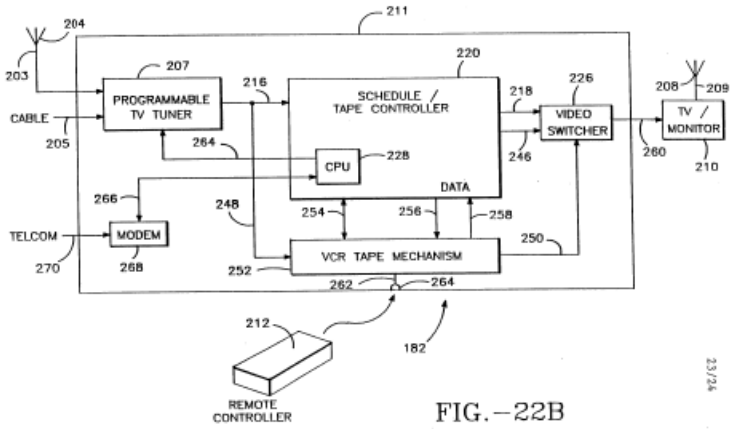


FIG.–22B

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. 1301, 26:29–32) for the process for use with a television receiver to which independent claim 11 is directed.

(iii) Storing in a Memory

Independent claim 11 recites "storing in a memory television program schedule information for a set of television programs scheduled to appear on said plurality of television channels." Ex. 1301, 26:34–36.

Petitioner relies on Young '801's description of memory 232 storing television program schedule information. Pet. 29–30. We agree with Petitioner's analysis. Young '801's TV tuner 202 receives program schedule information in a VBI (vertical blanking interval). Ex. 1302, 25:26–33, Fig. 22A (schedule memory 232); Pet. 29–30 (citing Ex. 1302, 25:26–

33, Fig. 22A (schedule memory 232); Ex. 1309 ¶ 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. 1302, 25:26–34, 26:5–10.

Based on these unambiguous teachings of Young '801, we find Young '801 teaches the required storing in a memory. This finding is consistent with the Examiner's findings during prosecution of the challenged patent, as discussed previously in Sections I.C. *See* Ex. 1306 (Part 3), 939 (indicating the disclosure of Young '801[26] and application claim 42, which issued as patent claim 2, was discussed); Ex. 1306 (Part 3), 951 (application claim 42 reciting substantially the same memory means as independent claim 2[27]).

(iv) User Control Means

Independent claim 11 further recites "providing user control means for issuing user control commands, including television tuning and guide time-control commands, and for transmitting signals in response thereto."

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[26] 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. 1306 (Part 3), 853 (identifying Young (5,479,268)), 854 (applying Young '268 to application claim 42); *see, e.g.*, Pet. 31 (representing that Young '268 and Young '801 have the same disclosure); *see generally* PO Resp.

[27] 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.

Ex. 1301, 26:37–40. As noted previously in Section II.D, the recited user control means denotes a remote controller with conventional guide and selection control.

Petitioner contends that Young '801's remote controller 212 and Moro's remote controller 21 read on the recited user control means. Pet. 30–32. Young '801 unambiguously discloses remote controller 212 that transmits signals. Ex. 1302, 24:17–32, Fig. 21 (showing a remote controller with cursor keys and a SELECT key), Fig. 22a (element 212); *see also* Ex. 1302, 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. 1303, Fig. 1, 3:7–14 (describing Fig. 1); Pet. 31 (citing Ex. 1303, 5:16–17, 5:37–41, Fig. 1 (elements 17, 20, 21); Ex. 1309 ¶ 109).

For the types of user control commands recited in independent claim 11—"television tuning and guide time-control commands"—Petitioner relies on a combination of Young '801 and Moro. Pet. 30–32 (citing Ex. 1302, 24:17–32, Fig. 21 (showing a remote controller with cursor keys and a SELECT key), Fig. 22a (element 212); Ex. 1303, 5:37–41; Ex. 1309 ¶¶ 114–116).

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. 1302, 24:17–32, Fig. 21 (showing a remote controller with cursor keys and a SELECT key), Fig. 22a (element 212); Ex. 1303, 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* Ex. 1302, 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* Ex. 1302, 24:17–33, Fig. 21; Pet. 28 (citing Ex. 1302, 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* Ex. 1302, 24:17–33, Fig. 21; Pet. 28 (citing Ex. 1302, 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. Pet. 32 (citing Ex. 1309 ¶¶ 118–120). 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 from the guide for recording." Pet. 32 (citing Ex. 1309 ¶ 118).

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." Pet. 32 (citing Ex. 1309 ¶¶ 119–120). 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." Pet. 32; *see*

Ex. 1309 ¶¶ 119–120. 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." Pet. 32 (quoting Ex. 1303, 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 . . . .")).

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. 1303, 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. Pet. 32 (citing Ex. 1303, 5). We credit Mr. Wechselberger's testimony in this regard because it comports with specific passages of Moro Ex. 1303, 5:37–41). *See* Ex. 1309 ¶ 117 (citing Ex. 1303, 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. 1309 ¶¶ 30, 120. Mr. Wechselberger explains that Young '801's CPU 228 and microcomputer 17 both are "firm-ware 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. 1309 ¶ 120.
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. 1309 ¶ 120.

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

(v) "controlling a video display generator" and "receiving by a *data processor"*

Independent claim 11 recites "receiving by a data processor said user control commands" and "controlling a video display generator with the data processor 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 tuned channel in at least one mode of operation said process." Ex. 1301, 26:41–47.

Petitioner reads the video display generator (and its displaying functions) partially on Young '801's VDG 224, which receives commands from CPU 228 (data processor). *See* Pet. 33–36 (regarding Young '801), 36–39 (regarding Moro). Petitioner employs teachings of Moro's overlay to modify or replace Young 801's VDG. *See* Pet. 33–36 (citing Ex. 1303, 2:48–52, 3:55–58, 5:31–35, 6:3–7, Fig. 2); Ex. 1309 ¶¶ 128–130). As to the hardware and algorithmic structure for part of the recited "data processor," Petitioner relies on modifying Young '801's CPU 228 ("data processor") with Moro's overlay technique. *See* Pet. 42–46. As to receiving the transmitted user control commands with the data processor, Petitioner cites Young '801's video display generator 224 ("video display generator") and remote controller 212 that generate a grid/guide 24 with interactive program listings for display. Pet. 33 (citing Ex. 1302, Fig. 22A); Ex. 1302, Fig. 22A (showing CPU 228 connected to IFR receiver 264).

Young '801's CPU 228 receives signals from remote controller 212 through IFR receiver 264, as shown in Figure 22A and discussed above. Ex. 1302, 27:1–13, Fig. 24; *see* Pet. 33 (citing Ex. 1302, 27:1–13, Fig. 24; Ex. 1309 ¶ 121). Young '801 also describes tuner selection as a control command in the context of processing user commands from the remote controller. Ex. 1302, 24:17–33; *see* Pet. 30 (citing Ex. 1302, 27:1–13, Fig. 21). Young '801 also describes controlling the displayed program grid 24 by commands. Ex. 1302, 12:15–16 ("SELECT command"), 12:33–13:9 (Channel up/down and page commands).

Based on a plain reading of Young '801, we find that Young '801's CPU 228 reads on the recited data processor "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. *See* Pet. 30 (citing Ex. 1302, 24:17–33, Fig. 22A), 33–34 (citing Ex. 1302, 13:28–30, 24:17–25:15, 26:5–10, 27:1–13, Figs. 2, 6).

Independent claim 11 further recites that the "controlling a video display generator with the data processor 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 tuned channel in at least one mode of operation said process." Ex. 1301, 26:42–47.

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. 1302, 26:5–10; *see* Pet. 33 (quoting Ex. 1302, 26:5–10). Young '801 then describes video switcher 226 as "select[ing] the video display generator 224 output whenever schedule data is to be presented to the TV/monitor 210." Ex. 1302, 26:8–10; *see* Pet. 33 (quoting Ex. 1302, 26:5–10). Based on these unambiguous passages, we find that Young '801 teaches or suggests "controlling a video display generator," as recited in independent claim 11. Ex. 1301, 26:5–10; Pet. 33 (quoting Ex. 1302, 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. 1301, 26:46. As noted above in Section II.D, we explained that this term requires at least one configuration of the data processor 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 limitations[28] of the video display generator and the data processor. 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* Pet. 25. 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. 1302, 11:30–12:26, 13:28–14:5, Figs. 1–3, 6; *see* Pet. 25, 33–37. 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. 1302, 12:14–16.

[28] Independent claim 11 recites "controlling a video display generator with the data processor 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 tuned channel in at least one mode of operation said process." Ex. 1301, 26:42–47.

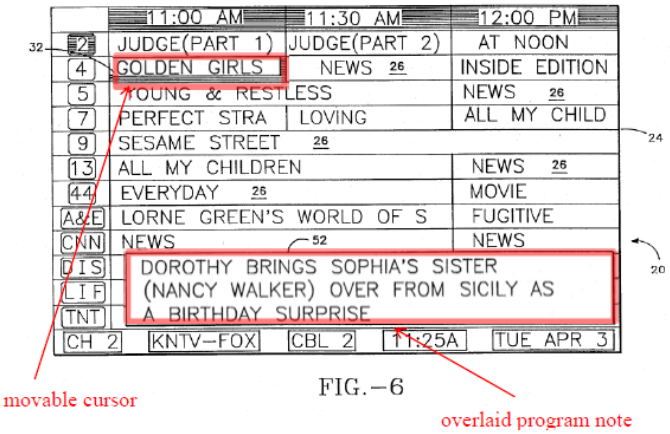


FIG.–6

Pet. 36. Young '801's Figure 6 depicts "a television schedule grid screen 20 with a program note overlay 52." Ex. 1302, 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. 1302, 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. 1302, 24:30–32 (noting the use of the keys has been explained or "is apparent from their labels"); Pet. 30. Young '801 describes how the grid page 24 can be changed by using the page key on the remote control. Ex. 1302, 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. 1302, 12:33–13:4 (describing use of the Tuner Up/Down channel command); *see* Pet. 30 (quoting Ex. 1302,

24:17–33); Pet. Reply 16 (citing Ex. 1302, 13:5–16; Ex. 1321, 105:17–106:6). This includes navigation by time and/or channel. (Ex. 1302, 3:14–17, 4:27–5:3, 13:5–15:2, FIG. 7."); *see also* Pet. 46 (citing Ex. 1302, 14:6–13 (navigating by time periods for a particular channel), Figs. 2, 7; Ex. 1309 ¶ 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. 1302, 3:14–19; *see* Pet. 45 ("Young '801 discloses a display method for highlighting program listings as a user navigates the listings using cursor keys on the remote control. (Ex. 1302, 8:28–9:29.) This includes navigation by time and/or channel. (Ex. 1302, 3:14–17, 4:27–5:3, 13:5–15:2, and FIG. 7.")).

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. Pet. 35, 36 ("Young '801 thus teaches displaying interactively-selected successive portions of the schedule information for a currently tuned channel."). In other words, commanding the cursor to move selects a successive portion and highlighting it shows that a particular program has been interactively selected so that 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 processor 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." Pet. 42. 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.). Pet. 35.

In addition, Petitioner further relies on these features to teach or suggest the data processor 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." Pet. 45 ("Young '801 discloses a display method for highlighting program listings as a user navigates the listings using cursor keys on the remote control. (Ex. 1302, 8:28–9:29.) This includes navigation by time and/or channel. (Ex. 1302, 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. Pet. 46 (citing Ex. 1302, Fig. 7, 14:6–13).

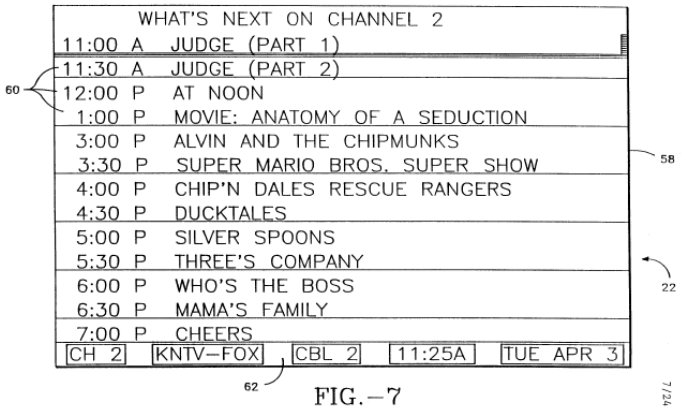


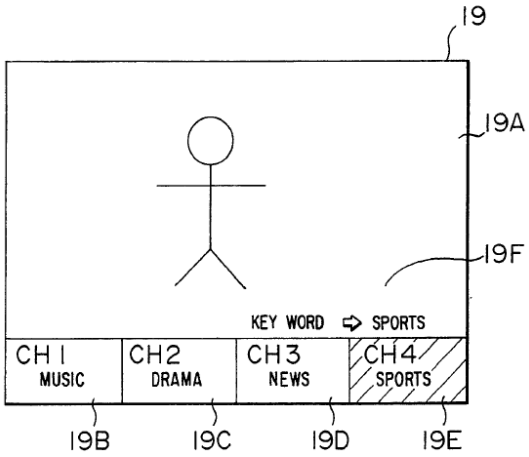
FIG.–7

Figure 7 shows a program list 58 for a single channel by time that can be accessed from the program grid 24. Ex. 1302, 14:6–13, Fig. 7; *see* Pet. 46 (citing Ex. 1302, 14:6–13 (navigating by time periods for a particular channel), Fig. 7).

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 schedule information to interrupt viewing a program to view the guide." Pet. 26.

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. Pet. 44; *see* Pet. 27, 37–39. 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. 1303, Abstract, 2:40–53, 5:36–41. A reproduction of Moro's Figure 2 follows:

FIG. 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:–5:9; *see also* Ex. 1303, 3:55–58 (Moro indicating "the character generator section 18 generates a character signal under the control of the microcomputer 17 and superposes the particular character signal on the PAL signal selected at the switch 16. The PAL signal, upon production from the character generator section 18, is supplied to the monitor 19 for image reproduction."); Pet. 38 (quoting Ex. 1303, 3:55–58), Pet. 41 (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.") (citing Ex. 1303, 3:55–58, Fig. 1).

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 the program information for the other channels." Pet. 39. According to Petitioner, this teaching also "provides an explicit motivation to modify Young '801." Pet. 39 (citing Ex. 1303, 6:3–7); *see also* Pet. 37–38 (citing Ex. 1303, 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 allow the currently tuned program and program schedule information to be viewed at the same time in view of Moro. (Ex. 1309, ¶ 128.) It would have been obvious 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. 1309 ¶ 128.) Such a modification merely involves use of a known technique (Moro) to improve similar devices and methods (Young '801) in the same way. (Ex. 1309 ¶ 128).

Pet. 39–40 (citing Ex. 1309 ¶ 128). 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. 1309 ¶ 135) 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." (Ex. 1302, 4:15–18.)

Pet. 40–41 (quoting Ex. 1302, 4:15–18; citing Ex. 1309 ¶ 135).

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." Pet. 41 (citing Ex. 1309 ¶¶ 131–134[29]). 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. 1309 ¶ 132; *see* Ex. 1309 ¶¶ 122–123 (discussing and quoting Ex. 1306, 939, 946–980, 1031). Mr. Wechselberger further explains "[t]oward the end of prosecution," Applicant amended claims to include a "tuning limitation" in

[29] The cited portions (paragraphs 131 to 134) of the declaration do not refer to prosecution history. Paragraphs 121 to 123, however, refer to relevant prosecution history.

order to overcome the Examiner's rejections. Ex. 1309 ¶ 123 (citing Ex. 1306, 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." Ex. 1309 ¶ 133 (quoting Applicant, Ex. 1306, 1031). 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 at the time of the alleged invention.

Pet. 42 (citing Ex. 1309 ¶¶ 140–141); Ex. 1309 ¶ 141 (discussing 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 challenged patent cites a known commercially available video graphics card as an embodiment of a VDG. Ex. 1301, 8:8–12, 39–42; Ex. 1309 ¶¶ 141 (discussing admissions in the challenged patent regarding known hardware components) (citing Ex. 1301, 8:46–47).

Petitioner relies on the combination of Young '801 and Moro to address the data processor function of "control[ling] 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 item 1);[30] storing the requisite program scheduling information in memory (identified by Petitioner as item 3); and the data processor being "responsive to the television tuning commands to allow the user to select

[30] For clarity, we use Petitioner's clause numbering. *See, e.g.*, Pet. 43.

any of the listed programs" (identified by Petitioner as item 4). *See* Pet. 42–46 (addressing limitation "11[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 currently tuned channel and is displayed for 'successively navigating' through those listings using the guide control commands" (identified by Petitioner as item 2), Petitioner relies on Young '801. *See* Pet. 43, 45–46.

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. 1303, 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 . . . ."); Pet. 30 (quoting Ex. 1303, 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. Ex. 1309 ¶ 120 (explaining the "trivial" nature to make firmware changes to accomplish the modification); Pet. 32 (citing Ex. 1309 ¶¶ 119–120). 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. 1309 ¶ 120. 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. Pet. 33–35. We agree that Young '801's cursor movement highlights portions of schedule information that have 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. 1302, Fig. 6; *see* Pet. 34. Young '801 also describes how a user can select by time or by channel. Ex. 1302, 24:17–33, Figs. 2, 6, 21. Figures 2 and 6 shows three time-slots for which information is displayed. Ex. 1302, 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. Pet. 37–38 (citing Ex. 1303, 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. 1303, Abstract, 2:40–53, 5:36–41; *see* Pet. Ex. 1303, 37–38 (citing Ex.1303, 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 "controlling a video display generator with the data processor 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 tuned channel in at least one mode of operation said process" and "configuring said data processor to control said video display generator with video control commands in response to said user control commands to display each said portion of program schedule information, in partial overlaying relationship with said currently appearing display signal, for each successive one of said television programs scheduled to appear on said channel, and consecutively displaying each said portion 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, and also configuring said data processor to be 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 overlayed portion of said schedule information," as recited in claim 11.

(vii) Conclusion Regarding Independent Claim 11

For the reasons discussed above, we agree with Petitioner's arguments set forth in the Petition (Pet. 28–46). 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 11 would have been obvious over the combination of Young '801 and Moro.

b. Independent Claim 12

Petitioner makes a similar showing for independent claim 12. Petitioner points out independent claim 12 is "very similar" to independent claim 11 and provides a chart addressing the similarities and differences. Pet. 46; *see* Pet. 46–50.

(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. 47. Petitioner relies on its arguments regarding "television tuning and guide time-control commands" for claim 11. Pet. 47 (referring to element 11[C]).

As discussed above with regard to independent claim 11, Young '801 recites channel-control commands that allow a user to move through the grid guide by channel in addition to time. *See* Ex. 1302, 24:17–33, Fig. 21; *see, e.g.*, Pet. 30–31 (discussing Ex. 24:17–33), 28 (citing Ex. 1302, 24:17–33, Fig. 21). In addition, Petitioner's persuasive reasoning with rational underpinning discussed above applies with equal force with regard to the subject matter of "guide channel-control commands."

(ii) Set of Channels (Rather than Currently Tuned Channel)

Another difference from claim 11 is that independent claim 12 does not require that the program schedule information be "for a set currently tuned channel." Rather, independent claim 12 recites displaying the requisite schedule information "*for a set of channels, including ones*

different from a currently tuned channel, in overlaying relationship with another display signal currently appearing on said tuned channel." Ex. 1301, 13:5–8, Fig. 1; *see* Pet. 47–48.

We agree with Petitioner that Young '801 plainly discloses in Figure 1 and the corresponding description that the cursor highlights the current channel when the program guide is first opened (Ex. 1302, Fig. 1, 13:5–8). Pet. 48 (citing Ex. 1302, 13:5–8, Fig. 1). We also agree with Petitioner that Young '801's guide grid in Figure 1 displays program information for the currently tuned channel and other channels (i.e., channels 4, 5, 7). *See* Ex. 1302, 24:17–33, Fig. 21; Pet. 28 (citing Ex. 1302, 24:17–33, Fig. 21). The depicted multiple channels teach or suggest a set of channels. *See* Pet. 48, 49 (referring to the recited "said set of channels"). We find Petitioner's showing to be sufficient in this regard.

Independent claim 12 also requires display of "each successive one of said television programs scheduled to appear on *said set of channels*" partially overlaying the current video program. Ex. 1301, 27:24–27. We agree with Petitioner's contentions that its arguments regarding overlaying schedule information also apply to claim 12's requirement of "said set of channels." Pet. 49–50 (noting clause 12[F] is nearly identical to clause 11[F] and referring to its arguments regarding 12[E]). Petitioner's arguments regarding the displayed overlay in claim 11 rely on Young '801's depiction of schedule information for multiple channels. We agree with Petitioner that schedule information found in Young '801 also reads on the "said set of channels," which derives its antecedent basis from the "set of channels" discussed above. Accordingly, we find Petitioner's showing to be sufficient in this regard.

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

Independent claim 12 recites navigating "through listing information for sequential time periods *or programs*," whereas independent claim 11 recites "navigating through listing information for sequential time periods." We agree with Petitioner that claim 12 in reciting "sequential time periods or programs" is broader than claim 11, and therefore, Petitioner's arguments made with respect to claim 11 are sufficient to teaches or suggests this broader limitation.

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

(iv) Conclusion Regarding Independent Claim 12

For the reasons discussed above, we agree with Petitioner's arguments set forth in the Petition (Pet. 28–46). 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 11 would have been obvious over the combination of Young '801 and Moro.

c. Dependent Claims 13 and 26

Dependent claim 13 further recites "wherein said another display signal is chosen from the group consisting of a television program, promotional video clip or an advertisement." Ex. 1301, 27:37–40 (claim 13), 32:59–62 (claim 26). Thus, in reciting "chosen from the group consisting of" three alternatives, these claims require only one of the alternatives.

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. Pet. 51 (referring to its discussing regarding claim 11; citing Ex. 1309 ¶¶ 148–149), 55 (claim 26).

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 13.

d. Independent Claim 22

Petitioner makes a similar showing for independent claim 22. Petitioner points out independent claim 22 is "very similar" to independent claim 11 and provides a chart addressing the similarities and differences. Pet. 51; *see* Pet. 51–54.

Petitioner indicates that the preamble recites "a video display" instead of claim 11's "television receiver." We agree with Petitioner that Young '801's display schedule information on a device with a television tuner and a monitor also reads on the requisite "video display." Pet. 51–52, 29 (discussing preamble of independent claim 11). We also agree with Petitioner that "a video display" is broader than "a television." Pet. 51. Petitioner's showing with regard to independent claim 11, therefore, is sufficient here.

Independent claim 22, like independent claim 12, recites "guide channel-control" as a user control command. Like arguments presented for independent claim 12, Petitioner relies on its arguments discussed above with respect to independent claim 11. Pet. 52–53 (referring to arguments regarding clauses 11[C, D]). For the reasons discussed above with respect to

independent claims 11 and 12, we find Petitioner's contentions here to be sufficient.

Independent claim 22 also recites "controlling a program schedule display generator" instead of "controlling a video display generator," as recited in independent claim 11. Petitioner contends, relying on Mr. Wechselberger declaration testimony, that the challenged patent uses "a program schedule display generator" interchangeablely with "a video display generator." Pet. 53 (citing Ex. 1309 ¶ 150).

The limitations for "controlling a program schedule display generator" are substantially similar to those for "controlling a video display generator," recited in independent claim 11. A difference is that claim 22 requires presentation of different schedule information—schedule information for at least one program different from the display signal. Other than in the claims, the specification of the challenged patent does not refer to a program schedule display generator.

For these reasons, we agree with Petitioner that Young '801's teachings applied to the recited video display generator (including teaching presentation of the requisite different program information) also apply to the recited program schedule display generator. Pet. 53–54. For the reasons discussed above with respect to independent claim 11, we also agree that Moro teaches or suggests the recited "partial overlay." Pet. 54.

We also agree that the combination of Young '801 and Moro discussed above with respect to the user control means and the consecutively displayed teaching or suggesting "controlling video display generator . . . in response to said user control commands," recited in independent claim 11, also teaches or suggests "user-activated" commands recited in independent

claim 22. Pet. 54. For example, independent claim 22 recites "in response to consecutive user-activated ones of said guide control commands." Petitioner's combination of Young '801 and Moro plainly teaches a user of a remote control entering the requisite guide control commands. It naturally follows that such user action meets the limitation of "user-activated" guide control commands.

As discussed above with regard to claim 12's limitation regarding reciting "sequential time periods or programs," we agree with Petitioner that independent claim 22, which likewise recites "successively navigating through listing information for sequential time periods or programs," is broader that "successively navigation through . . . sequential time periods" alone. Pet. 54. For these reasons, we find Petitioner's showing to be sufficient in this regard.

In sum, we agree with Petitioner's arguments set forth in the Petition as supported by record evidence. (Pet. 53–54). 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 22 would have been obvious over the combination of Young '801 and Moro.

e. Independent Claim 24

Petitioner makes a similar showing for independent claim 24. Petitioner points out independent claim 12 is "very similar" to independent claim 22 and provides a chart addressing the similarities and differences. Pet. 55. Petitioner identifies "said navigation including deleting one program listing appearing in the overlay and adding another program listing in the overlay," recited in independent claim 22, as the difference.

Petitioner contends that Young '801's program guide "allows the user to 'page' through program listings, which replaces one page of listings with another, thereby causing at least one program listing appearing in the overlay to be deleted and another program listing to be added." Pet. 55 (citing Ex. 1302, 13:5-16; Ex. 1309 ¶ 151). We agree with Petitioner that the page control of Young '801 teaches or suggests the requisite deleting and adding for the reasons explained by Petitioner.

For these reasons, we agree with Petitioner's arguments set forth in the Petition, including those made with respect to independent claims 11, 12, and 22 on which Petitioner relies. Pet. 55. 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 24 would have been obvious over the combination of Young '801 and Moro.

f. Dependent Claim 27

Dependent claim 27 additionally recites "further comprising the step of displaying said program schedule information for a display period and wherein said display period is a user-selectable variable time period chosen in response to a user control command." Ex. 1301, 32:63–67.

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 schedule information (items 19B–19E of Figure 2) "may be adapted to disappear automatically a predetermined time after starting." Pet. 56 (quoting Ex. 1303, 5:21–26); *see* Pet. 56–57 (citing Ex. 1302, 15:8–15, Fig. 11; Ex. 1303, 5:21–26; Ex. 1309 ¶¶ 158–160). Petitioner contends one of ordinary skill in the art "would have

appreciated that displaying program schedule information or other content for a predetermined time period, as shown in Moro, would provide the information while limit distractions and input requirements of the user." Pet. 56 (citing Ex. 1309 ¶¶ 158–160). We agree with Petitioner because removing program information would limit distractions for the viewer because the program information would no longer be a visible distraction.

For the display period being "a user-selectable variable time period time," Petitioner contends it would have been obvious to do so because "many predetermined values could be adjustable or user-configurable, thereby providing a customized and improved user experience." Pet. 57 (citing MPEP § 2144.04 ("making adjustable"); Ex. 1309 ¶ 158). We credit Mr. Wechselberger's declaration testimony in this regard, on which Petitioner relies, because Mr. Wechselberger supports his testimony with plain descriptions in Young '801 of a customizable display. Ex. 1309 ¶ 158 (citing Ex. 1302, 23:1–24:16); Ex. 1302, 23:1–5 (discussing customizing the displayed channel list to eliminate undesired channels); Pet. 57 (citing Ex. 1309 ¶ 158). Young '801's teaching of customizing displayed to "eliminate undesired channels" provides express motivation for making the Petitioner's combination of Young '801 and Moro, including a user-selectable variable time period. *See* Ex. 1302, 23:1–5.

We also agree that, in view of the level of ordinary skill (Section II.B), modifying the combination of Young '801 and Moro to make the program schedule information disappear after a user-selectable variable time period after starting display merely involves combining prior art elements by known methods resulting in predictable, as Petitioner contends (Pet. 57).

For these reasons, we agree with Petitioner's arguments set forth in the Petition (Pet. 56–57) and, therefore, find that Petitioner has demonstrated a preponderance of the evidence that the subject matter of dependent claim 27, as depending from independent claims 11, 12, 22, and 24, would have been obvious over Petitioner's combination of Young '801 and Moro. We also find, as explained above, that Petitioner has articulated sufficient reasoning with some rational underpinning regarding why one of ordinary skill in the art would have made the combination and would have had a reasonable expectation of success in doing so.

g. Conclusion Regarding Obviousness over Young '801 and Moro

In conclusion, based on the foregoing discussion and a review of the record (including Patent Owner's arguments discussed below), we agree with Petitioner's detailed and sufficient showing with respect to the obviousness of the challenged claims in this asserted ground. *See* Pet. 25–57. Accordingly, for the reasons discussed above, we determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claims 11–13, 22, 24, 26, and 27 would have been obvious over Young '801 and Moro.

2. Young '801, Young '121, and Reiter

Petitioner contends that claims 11–13, 22, 24, and 26/(22, 24) of the challenged patent are unpatentable under 35 U.S.C. § 103(a) based on Petitioner's combination of Young '801 (Ex. 1302), Young '121 (Ex. 1311), and Reiter (Ex. 1304). Pet. 58–70. Petitioner acknowledges Young '121 was considered by the Examiner, but contends the Petition presents

Young '121 in "a new light and a new combination" relative to the prosecution history of the challenged patent. Pet. 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"). Pet. 58. For these features, Petitioner additionally relies on Reiter for displaying program schedule information in an overlay relationship with a currently tuned program and Young '121 for the television tuning commands. Pet. 58.

a. Independent Claim 11

In the same manner as in the asserted ground of Young '801 and Moro, Petitioner relies on Young '801 for the recited preamble (Petitioner's clause 11[A]), storing in memory (identified by Petitioner as clause 11[B]), and receiving by a data processor (identified by Petitioner as clause 11[D]). Pet. 59, *see* Pet. A-1–A-2 (Petitioner's designations for claim 11 clauses). We agree with the Petitioner for the reasons discussed previously with regard to the asserted ground of Young '801 and Moro.

(i) Providing User Control Means

For "providing user control means for issuing user control commands, including television tuning and guide time-control commands, and for transmitting signals in response thereto," as recited in independent claim 11, Petitioner relies on a combination of Young '801 and Young '121. Pet. 59–61 (discussing limitation identified by Petitioner as clause 11[C]).

Petitioner relies on Young '801's remote controller as the recited "user control means" as in the asserted ground of Young '801 and Moro. Pet. 59 ("Young '801 provides a remote controller ("user control means") for issuing the recited user control commands and transmitting signals in response thereto as described in section VIII.A.1 above."). We agree with the Petitioner for the reasons discussed previously.

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." Pet. 60 (citing Ex. 1311, 10:12–14, 11:51–65). We agree that, based on a plain reading of the cited passages, that Young '121 teaches the tuning command. Ex. 1311, 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 persuasive reasons 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. Pet. 60–61 (citing Ex. 1309 ¶¶ 170–172; Ex. 1311, 3:21–24).

First, Petitioner 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. Pet. 61 (citing Ex. 1311, 3:20–24); Ex. 1311, 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."). Based on this unambiguous disclosure, one of ordinary skill in the art would have understood the benefit of eliminating manual channel selection in favor of menu selection, such as by tuning to a television program by selecting from displayed schedule information. This finding is consistent by Mr. Wechselberger's testimony, that "it 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 tuning to a channel previously selected for recording when the current time matches the scheduled time for the program." Ex. 1309 ¶ 170; *see* Pet. 60–61 (citing Ex. 1109 ¶¶ 170–172). We also agree with Petitioner that one of ordinary skill in the art "would have looked to Young '121 because it was referenced in the background of Young '801." Pet. 59 (citing Ex. 1302, 2:18–29), 61; Ex. 1302, 2:18–22 (referencing "[c]ommonly assigned U.S. Patent 4,706, 121").

Second, regarding a reasonable expectation of success, Petitioner further contends (again relying on Mr. Wechselberger's testimony) that "[s]uch a modification merely involves combining prior art elements according to known methods to yield predictable results." Pet. 61 (citing Ex. 1309 ¶¶ 171–172). Petitioner identifies 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." Pet. 61; *see* Ex. 1309 ¶ 170.

Additionally, we credit 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." Ex. 1309 ¶ 172 (explaining the "trivial" nature to make firmware changes to accomplish the modification); Pet. 61 (citing Ex. 1309 ¶ 172). We credit Mr. Wechselberger's testimony because it provides sufficient explanation directly related to technology (i.e., CPUs) of Young '801 and Young '121 that supports his testimony. Ex. 1309 ¶ 172.

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.

(ii) Controlling a Video Display Generator with the Data Processor

Independent claim 11 also recites "controlling a video display generator with the data processor 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 tuned channel in at least one mode of operation said process."

For the video display generator and data processing controlling the video display generator using the recited process, Petitioner relies on Young '801's video display generator 224 (video display generator) and CPU 228 (data processor), as discussed above with respect to the Young '801 and Moro asserted ground. Pet. 61 (referring to Young '801 and Moro ground).

Petitioner additionally relies on Reiter description of mixer 70 that combines video signals with program schedule information for display on a television and Reiter's disclosure of "a television overlay format" that allows a viewer to view the television program he is currently watching. Pet. 62 (cites Ex. 1304, 4:57–5:36, 6:29–38; Fig. 2, Fig. 3, 155 ("overlay format"); Ex. 1309 ¶¶ 178, 179). Based on these explicitdescriptions 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.

We find that modifying Young '801 to allow the currently tuned program of Reiter and program schedule information of Young '801 to be viewed at the same time, as Petitioner proposes, teaches or suggests "controlling a video display generator with the data processor 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 tuned channel in at least one mode of operation said process." Pet. 62–63. We also agree with Petitioner that Reiter provides explicit motivation to modify Young '801 in that way—one of ordinary skill in the art would have made the modification to enable viewing the television program he is currently watching while the program schedule information is displayed. Ex. 1304, 6:29–38, Fig. 3, 155 ("overlay format"); Pet. 62 (citing Ex. 1304, 6:29–38; Ex. 1309 ¶ 179). Regarding the required reasonable expectation of success, Petitioner's contention, relying on Mr. Wechselberger's testimony, that "[s]uch a modification merely includes use of a known technique (Reiter) to improve similar devices and methods (Young '801) in the same way." Pet. 63 (citing Ex. 1309 ¶ 179).

We credit Mr. Wechselberger's testimony, albeit brief, as supported by teachings of Reiter and Young '801, which evince known techniques involving displaying television schedule information. *See* Pet. 58 (contending "Reiter discloses displaying television schedule information") (citing Ex. 1304 5:16–36); Ex. 1304 5:16–36 (describing "displaying television schedule information").

We further agree that "[i]t 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." Pet. 64 (citing Ex. 1309 ¶ 124). As discussed above, this conclusion is based on the disclosure in Young '801 that one object of the user interface invention is to present "supplemental schedule information . . . in overlays that obscure a minimum amount of useful other information." Ex. 1302, 4:15–18; Pet. 64 (citing Ex. 1302, 4:15–18).

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." Pet. 64. 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." Ex. 1304, 5:2–15, Fig. 2; Pet. 64 (citing Ex. 1304, 5:2–15, Fig. 2; Ex. 1309 ¶ 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 an ability to overlay text on a video signal to implement the function of "overlaying" in the combination of Young '801 and Reiter [in view of trends] in the television industry to incorporate computer components into

> televisions, and the knowledge of [one of ordinary skill in the art] regarding how to implement such functions.

Pet. 64–65 (citing Ex. 1309 ¶ 186); Ex. 1309 ¶ 186; *see* Ex. 1309 ¶¶ 14–16 (citing Exs. 1307, 1312, 1315). We find credible Mr. Wechselberger's testimony that is consistent with the teachings of prior art references and that provides credible explanation. *See* Ex. 1309 ¶ 14 (citing Exs. 1307, 1312, 1315), ¶ 16 (explaining new features and services supported by consumer appliances, including set-top boxes). In addition, the challenged patent cites a known commercially available video graphics card that is an embodiment of a video display generator. Ex. 1301, 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.

For these reasons (in addition to the reasons discussed regarding Young '801's teaching of controlling a video display generator with the data processor), we find Petitioner's combination of Young '801 and Reiter teaches or suggests the recited controlling a video display generator with the data processor. 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.

(iii) Configuring Said Data Processor To Control Said Video Display Generator

Independent claim 11 recites "configuring said data processor to control said video display generator with video control commands in response to said user control commands to display each said portion of

program schedule information, in partial overlaying relationship with said currently appearing display signal, for each successive one of said television programs scheduled to appear on said channel, and consecutively displaying each said portion 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, and also configuring said data processor to be 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 overlayed portion of said schedule information." As for the asserted ground of Young '801 and Moro, Petitioner argues this clause requires four functions and makes similar arguments regarding Young '801 as for the asserted ground of Young '801 and Moro. Pet. 65; *compare* Pet. 66–67, *with* Pet. 43–46.

In its combination of Young '801, Young '121, and Reiter, Petitioner relies on Young '801 description that its "CPU 228 controls its video display generator 224 and retrieves information from schedule memory 232 to generate interactive schedule screens" for the recited storing (identified by Petitioner as item 3). Pet. 66 (citing Ex. 1302, 26:5–7). For the data processor function of "control[ling] 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 item 1and the data processor being "responsive to the television tuning commands to allow the user to select any of the listed programs" (identified by Petitioner as item 4), Petitioner relies on Young '801's guide, Reiter's overlay function and mixer 70 (i.e., video display generator), and Young '121's television

tuning disclosure. Petitioner also relies on Young '801 for disclosing techniques for the required "navigating the program listings using cursor keys on the remote control by both time and program." Pet. 67 (Petitioner's item 2) (citing Ex. 1302, 3:14–17, 4:27–5:3, 8:28–9:29, 13:5–15:2, Figs. 2, 7; Ex. 1309 ¶ 190).

We agree with Petitioner's reading of Young '801, Young '121, and Reiter, all of which comports with the plain reading of the cited passages for the reasons discussed previously. Petitioner sets forth substantially similar reasons why ordinary skill in the art would have modified the references as Petitioner proposes as discussed previously.

For the reasons discussed above, we also agree that Petitioner has provided sufficient the reason one of ordinary skill in the art would have modified the references as Petitioner proposes and that one of ordinary skill in the art would have had a reasonable expectation of success.

For these reasons, we find Petitioner has made a sufficient showing that the data processor configured as required by independent claim 11would have been obvious over Young '801, Young '121, and Reiter.

(iv) Conclusion

For these reasons, we find that Young '801, Young '121, and Reiter would have taught or suggested the limitations recited in independent claim 11, as Petitioner contends. We also determine that Petitioner has provided sufficient articulated reasoning with rational underpinning to support a conclusion that the subject matter of independent claim 11 would have been obvious over Young '801, Young '121, and Reiter.

b. Independent Claim 12

Petitioner points out independent claim 12 is "very similar" to independent claim 11 and relies its previous arguments that Young '801 teaches or suggests the differences, which were made in connection with Young '801 and Moro. Pet. 68. For the same reasons discussed previously regarding the subject matter of independent claim 11 would have been obvious over Young '801, Young '121, and Reiter and discussed previously regarding the subject matter of independent claim 12 would have been obvious over Young '801 and Moro (relying on Young '801), Petitioner has made a sufficient showing that the subject matter of independent claim 12 would have been obvious over the combination of Young '801, Young '121, and Reiter.

c. Dependent Claims 13 and 26

As discussed above, the additional limitation recited in dependent claim 13 is met when the display signal is a television program. Young '801 discloses a television program and a program guide, and Reiter provides express motivation for combining Reiter's overlay with Young '801's program guide, as Petitioner contends. Pet. 68 (claim 13), 69–70 (claim 26) (indicating "Reiter teaches displaying the information in an overlay format so the viewer can continue to view a television program" as motivating one of ordinary skill in the art to combine Young '801's program guide with Reiter's overlay) (citing Ex. 1304, 6:29–38).

For the reasons explained previously with respect to independent claim 11, we agree that Petitioner's combination of Young '801, Young '121, and Reiter teaches or suggests that the display signal is a television program, which reads on claim 13. Thus, we find Petitioner has

made a sufficient showing that the subject matter of claims 13 and 26 would have been obvious over the combination of Young '801, Young '121, and Reiter.

d. Independent Claims 22 and 24

Petitioner contends that independent claim 22 is "very similar" to independent claim 11 and, in turn, independent claim 24 is "very similar" to independent claim 22. Pet. 68. Petitioner relies on its previous arguments, which were made in connection with Young '801 and Moro, that Young '801 teaches or suggests the differences. Pet. 68–70.

For the same reasons discussed previously regarding the subject matter of independent claim 11 that would have been obvious over Young '801, Young '121, and Reiter and discussed previously regarding the subject matter of independent claims 22 and 24 that would have been obvious over Young '801 and Moro (relying on Young '801), Petitioner has made a sufficient showing that the subject matter of independent claims 22 and 24 would have been obvious over the combination of Young '801, Young '121, and Reiter.

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

In conclusion, based on the foregoing discussion and a review of the record (including Patent Owner's arguments), we agree with Petitioner's detailed and sufficient showing with respect to the obviousness of the challenged claims in this asserted ground. *See* Pet. 58–70. 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 11–13, 22, 24, and 26 would have been obvious over the combination of Young '801, Young '121, and Reiter, as forth by Petitioner. Pet. 58–70.

3. Young '801, Young '121, Reiter, and Strubbe

Petitioner also contends that claim 27, as it depends from 11, 12, 22, or 24, is unpatentable under 35 U.S.C. § 103(a) based on Petitioner's combination of Young '801 (Ex. 1302), Young '121 (Ex. 1311), Reiter (Ex. 1304), and Strubbe (Ex. 1310). Pet. 70–72. For the reasons discussed above, the subject matter of independent claims 11, 12, 22, and 24 would have been obvious over Petitioner's combination Young '801, Young '121, and Reiter.

Dependent claim 27 additionally recites "further comprising the step of displaying said program schedule information for a display period and wherein said display period is a user-selectable variable time period chosen in response to a user control command." Ex. 1301, 32:63–67.

For these features, Petitioner relies on a combination of Young '801's programming guide for displaying television schedule information and Strubbe's teaching of "displaying content and informational messages in a partial overlaying relationship over a display signal for a predetermined period of time." Pet. 70 (citing Ex. 1310, 6:45–49, 8:21–24, 10:6–14).

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. 1310, 6:–49; *see also* Ex. 1310, 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. 1310, 6:–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 are displayed.

Petitioner contends that "displaying messages or other information for a predetermined time period, as shown in Strubbe, would provide the information while limiting distractions" to the user and that it would have been obvious to modify Young '801 to do so. Pet. 71 (citing Ex. 1309 ¶ 203). We agree that removing information after a predetermined time would limit distractions for the viewer because the program information would no longer be a visible distraction. We also agree that this feature would be a reason why one of ordinary skill in the art would have made the proposed combination involving Strubbe. *See* Pet. 71 ("It would have been obvious to modify Young '801 to display schedule information for a predetermined time period to provide the information while limiting distractions, as taught by Strubbe.") (citing Ex. 1309 ¶ 124).

For the display period being "a user-selectable variable time period time," Petitioner contends "[i]t would further have been obvious to make the predetermined time period adjustable to allow the user to configure, using a command, the predetermined time ("chosen in response to a user control command") for displaying the program listings." Pet. 71. For support, Petitioner asserts "[i]t was known that many predetermined values could be adjustable or user-configurable, thereby providing a customized and improved user experience." Pet. 71 (citing MPEP § 2144.04 ("making adjustable"); Ex. 1309 ¶ 204). Similarly to our finding regarding claim 27

would have been obvious over Young '801 and Moro in this regard, we credit Mr. Wechselberger's declaration testimony that

> [i]t was widely-known in the art that many predetermined values could be adjustable or user-configurable, such as programming favorite channels as disclosed by Young '801 . . . setting parental lock codes or setting device clocks to display 12 hour vs. 24 hour time, thereby providing a customized and improved user experience.

Ex. 1309 ¶ 204 (discussing customizing the displayed channel list to eliminate undesired channels); Ex. 1302, 23:1–24:16 (discussing customizing the displayed channel list to eliminate undesired channels); Pet. 71 (citing Ex. 1309 ¶ 204). We credit Mr. Wechselberger's testimony in this regard because Mr. Wechselberger supports his testimony with plain descriptions in Young '801 of a customizable display. Ex. 1309 ¶ 204 (discussing customizing the displayed channel list to eliminate undesired channels); Ex. 1302, 23:1–5 (discussing customizing the displayed channel list to eliminate undesired channels); *see also* Pet. 57 (citing Ex. 1309 ¶ 158); Ex. 1309 ¶ 158 (correctly citing Ex. 1302, 23:1–5 as discussing customizing the displayed channel list to eliminate undesired channels). Young '801's teaching of customizing displayed to "eliminate undesired channels" provides express motivation for making the Petitioner's combination involving Strubbe, including a user-selectable variable time period. *See* Ex. 1302, 23:1–5.

We also agree that, in view of the level of ordinary skill (Section II.B), modifying the combination of Young '801, Young '121, and Reiter "to make the program schedule information disappear after a user-selectable variable time period after starting display merely involves combining prior art elements according to known methods to yield predictable results," as

Petitioner contends (Pet. 71). *See also* Pet. 71–72 ("The known prior art elements are program schedule information, making the program schedule information disappear at a predetermined time after starting display and allowing the user to configure the predetermined time for displaying the program listings. The predictable results are program schedule information that disappears after the time for display selected by a user.").

For these reasons, we agree with Petitioner's arguments set forth in the Petition (Pet. 70–72) and, therefore, find that Petitioner has demonstrated a preponderance of the evidence that the subject matter of dependent claim 27, as depending from independent claims 11, 12, 22, and 24, would have been obvious over Petitioner's combination of Young '801, Young '121, and Reiter. We also find, as explained above, that Petitioner has articulated sufficient reasoning with some rational underpinning regarding why one of ordinary skill in the art would have made the combination and would have had a reasonable expectation of success in doing so.

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 claim 27 would have been obvious over the combination of Young '801, Young '121, Reiter, and Strubbe, as forth by Petitioner. Pet. 70–72.

4. Young '801, Young '121, Remillard, and AAPA

Petitioner contends that claims 11–13, 22, 24, and 26/(22, 24) of the challenged patent are unpatentable under 35 U.S.C. § 103(a) based on Petitioner's combination of Young '801 (Ex. 1302), Young '121 (Ex. 1311),

Remillard (Ex. 1305), and identified AAPA (Ex. 1301, 8:3–48). Pet. 72–84. Petitioner acknowledges Remillard was considered by the Examiner but contends that "Remillard is presented in a new light" relative to the prosecution history of the challenged patent. Pet. 24. Remillard was not considered after the application claims were amended to recite a tuning function. Pet. 24. Nor was Remillard considered in combination with Young '801. Pet. 24.

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* Pet. 72–74.

a. Independent Claim 11

In the same manner as in the asserted ground of Young '801 and Moro (Petition Section VIII.A.1).[31] Petitioner relies on Young '801 for the recited preamble (Petitioner's clause 11[A]), storing in memory (identified by Petitioner as clause 11[B]), and receiving by a data processor (identified by Petitioner as clause 11[D]). Pet. 74, *see* Pet. A-1–A-2 (Petitioner's designations for claim 11 clauses). We agree with the Petitioner for the

[31] Petition Section VIII.A.1 (contending the subject matter of independent claim 11 would have been obvious over Young '801 and Moro). Pet. 28 (Table of Contents).

reasons discussed previously with regard to the asserted ground of Young '801 and Moro.

(i) Providing User Control Means

For "providing user control means for issuing user control commands, including television tuning and guide time-control commands, and for transmitting signals in response thereto," as recited in independent claim 11, Petitioner relies on a combination of Young '801 and Young '121 in the same manner as in other asserted grounds previously discussed. Pet. 75 (discussing limitation identified by Petitioner as clause 11[C]). Specifically, Petitioner relies on Young '801's description of a remote controller for choosing the recited guide time-control commands and transmitting signals in response thereto in the same manner as in the asserted ground of Young '801 and Moro (Petition Section VIII.A.1). Petitioner relies on Young '121 in the same manner as discussed in the asserted ground of Young '801, Young '121, and Reiter (Petition Section VIII.B.1).[32] Pet. 75. Petitioner contends one of ordinary skill in the art "would have found it obvious to modify Young '801 to allow for tuning, as taught by Young '121, for the reasons" set forth with regard to the combination of Young '801, Young '121, and Reiter (Petition Section VIII.B.1). We agree with Petitioner for the reasons discussed previously with regard to the asserted ground of Young '801 and Moro and the asserted ground of Young '801, Young '121, and Reiter.

[32] Petition Section VIII.B.1 (contending the subject matter of independent claim 11 would have been obvious over Young '801, Young '121, and Reiter). Pet. 28 (Table of Contents).

(ii) Controlling a Video Display Generator with the Data Processor

For "controlling a video display generator with the data processor" as required by independent claim 11 (identified by Petitioner as clause 11[E]), Petitioner relies on Young '801's description of "a video display generator and controlling the video display generator with a data processor using the recited process" set forth with respect to the asserted ground of Young '801 and Moro (Petition Section VIII.A.1). Pet. 75.

Additionally, Petitioner relies on Remillard's description of an overlaying interaction menu on a portion of a television broadcast. Pet. 76 (citing Ex. 1305, 2:63-3:1, 5:55-61 ("television broadcast"), Fig. 3). For convenience, Remillard's Figure 3 again is reproduced below.

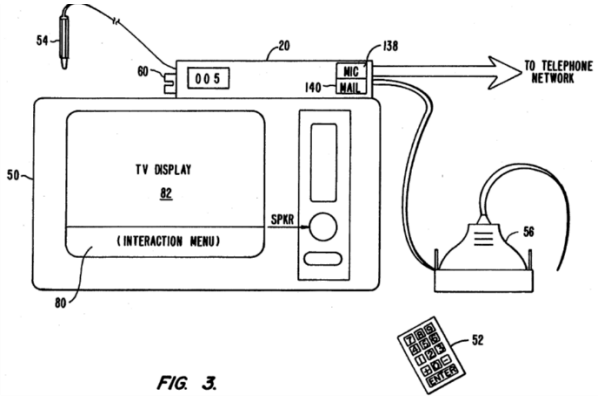


FIG. 3.

We agree that Figure 3 of Remillard plainly shows a TV display (item 82) and an interaction menu (item 80). *See, e.g.*, Ex. 1305, Fig. 3 (shown above in Section II.E.5). In addition, as Petitioner contends, Remillard expressly describes "overlaying interaction menus on a portion of a television broadcast." Ex. 1305, 5:58–59; *see* Ex. 1305, 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."); Pet. 76 ("Remillard discloses overlaying interaction menus on a portion of a television broadcast.") (citing Ex. 1305, 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 have appreciated that . . . displaying the menu or a portion of a television broadcast allows the viewer to continue to view the broadcast while interacting with the menu." Pet. 76; *see* Ex. 1305, 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. 1309 ¶ 224; *see* Pet. 76 (citing Ex. 1309 ¶¶ 222–223). 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. 1305, 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. 1309 ¶ 222. 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. 1309 ¶ 222; *see* Pet. 76 (citing Ex. 1309 ¶ 222).

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." Pet. 77 (citing Ex. 1301, 8:11–12); Pet. 22 (identifying Ex. 1301, 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 even commercially available." Pet. 77 (citing Ex. 1309 ¶¶ 215–217). The cited portion of Mr. Wechselberger's testimony supports Petitioner's position. Ex. 1309 ¶¶ 216–217.

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 (including genlock) 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 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. (Ex. 1309, ¶ 224.) 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. 1309, ¶ 224.)

Pet. 77–78 (citing Ex. 1309 ¶ 224). 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. 1309, ¶ 227)

Pet. 78 (citing Ex. 1309 ¶ 227).

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. Pet. 79 (citing Ex. 1309 ¶ 229). Petitioner indicates that "[t]he video display generator of the AAPA corresponds to the 'video display generator' of this claim.'" Pet. 79 (citing Ex. 1309 ¶ 231).

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. 1309 ¶ 229 (citing Ex. 1305, 6:67–7:2), ¶ 230 (explaining trends in the television industry; referring to paragraphs 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 "controlling a video display generator with the data processor," as recited in independent claim 11. We also find, for the reasons discussed above, that Petitioner provides sufficient reasoning why one of ordinary skill in the art would have been motivated to make the combination. In view of the prior art disclosures and the level of ordinary skill (Section II.B), we also agree with Petitioner that its combination of Young '801, Remillard, and AAPA combines prior art elements according to known methods to yield predictable results. *See* Pet. 78 (contending that "[t]he known prior art 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.").

Accordingly, we find that "controlling a video display generator with the data processor," as required by independent claim 11 (identified by Petitioner as clause 11[E]), would have been obvious over Young '801, Young '121, Remillard, and AAPA.

(iii) Configuring Said Data Processor To Control Said Video Display Generator

Regarding the required "configuring said data processor to control said video display generator," Petitioner contends that this clause requires four functions and makes similar arguments regarding Young '801 as for the asserted ground of Young '801 and Moro. Pet. 79; *compare* Pet. 79–82, *with* Pet. 43–46.

In its combination of Young '801, Young '121, Remillard, and AAPA, Petitioner relies on Young '801 description that its "CPU 228 controls its video display generator 224 and retrieves information from schedule memory 232 to generate interactive schedule screens" for the recited storing (identified by Petitioner as item 3). Pet. 80 (citing Ex. 1302, 26:5–7). For the reasons discussed previously, we agree that Young '801 describes the requisite schedule information features (identified by Petitioner as function items 1 and 3) except for the required overlaying. Pet. 80–81. As discussed above, we agree that Remillard describes using "a video controller 108 including genlock that allows an interaction menu to be overlaid on a portion of a conventional broadcast," as Petitioner contends. Pet. 81.

For the required program schedule information function (identified by Petitioner as item 2), Petitioner relies on Young '801 as explained previously. Pet. 81. For the reasons discussed above, we agree with Petitioner that Young '801 describes "successively navigating the program listings using cursor keys on the remote control by both time and program." Pet. 81 (citing Ex. 1302, 3:14–17, 4:27–5:3, 8:28–9:29, 13:5–15:2, Fig. 7; Ex. 1309 ¶ 236).

For the required the data processor being "responsive to the television tuning commands to allow the user to select any of the listed programs" (identified by Petitioner as item 4), Petitioner relies on its arguments set forth above regarding the user control means (identified by Petitioner as clause 11[C]) and the controlling the video display generator limitation (identified by Petitioner as clause 11[D]) in this asserted ground of Young '801, Young '121, Remillard, and AAPA. Pet. 82. Petitioner further relies on Young '121's television tuning. Pet. 82. For the reasons discussed above with respect to this feature and Young '121 in the combination of Young '801, Young '121, and Reiter, we agree.

Accordingly, we agree that the required "configuring" limitation (identified by Petitioner as clause 11[F]) is met by Petitioner's combination of Young '801, Young '121, Remillard, and AAPA.

(iv) Conclusion

For these reasons, we find that Young '801, Young '121, Remillard, and the identified AAPA would have taught or suggested the limitations recited in independent claim 11, as Petitioner contends. We also determine that Petitioner has provided sufficient articulated reasoning with rational underpinning to support a conclusion that the subject matter of independent

claim 11 would have been obvious over Young '801, Young '121, Remillard, and the identified AAPA.

b. Independent Claim 12

Petitioner points out independent claim 12 is "very similar" to independent claim 11 and relies its previous arguments that Young '801 teaches or suggests the differences, which were made in connection with Young '801 and Moro. Pet. 82. For the same reasons discussed previously regarding the subject matter of independent claim 11 would have been obvious over Young '801, Young '121, Remillard, and the identified AAPA and the reasons discussed previously regarding the subject matter of independent claim 12 would have been obvious over Young '801 and Moro (relying on Young '801), Petitioner has made a sufficient showing that the subject matter of independent claim 12 would have been obvious over the combination of Young '801, Young '121, Remillard, and the identified AAPA.

c. Dependent Claims 13 and 26

As discussed above, the additional limitation recited in dependent claim 13 and dependent claim 26 is met when the display signal is a television program. For the reasons discussed above with regard to the obviousness of claim 11 over Young '801, Young '121, Remillard, and AAPA, we agree with Petitioner that Young '801 describes a television program and a program guide and Remillard describes an interactive menu overlaying a currently viewed television program discloses. *See, e.g.*, Ex. 1302, Fig. 1; Ex. 1305, Fig. 2, 5:55–61; *see also* Pet. 82 (claim 13), 83–84 (claim 26) (relying on Young '801's Fig. 1 for program information and

Remillard's Fig. 2 for an interactive menu overlaying a currently viewed television program; citing Ex 1305, 5:55–61; Ex. 1309 ¶ 243). For the reasons explained previously with respect to independent claim 11, we agree that Petitioner's combination of Young '801, Young '121, and Reiter teaches or suggests that the display signal is a television program, which reads on claims 13 and 26.

Also for the reasons discussed above with respect to the obviousness of claim 11 over Young '801, Young '121, Remillard, and AAPA, we agree that Petitioner has provided sufficient with rational underpinning to support a conclusion that the subject matter of claims 13 and 26 would have been obvious over Young '801, Young '121, Remillard, and the identified AAPA. For example, one of ordinary skill in the art would have realized that Remillard would have allowed the viewer to view the program schedule information without interrupting a currently viewed program as motivating one of ordinary skill in the art to combine Young '801's program guide with Remillard's overlay.

Accordingly, we find Petitioner has made a sufficient showing that the subject matter of claims 13 and 26 would have been obvious over the combination of Young '801, Young '121, Remillard, and the identified AAPA.

d. Independent Claims 22 and 24

Petitioner contends that independent claim 22 is "very similar" to independent claim 11 and, in turn, independent claim 24 is "very similar" to independent claim 22. Pet. 82–83. Petitioner relies its previous arguments, which were made in connection with Young '801 and Moro, that Young '801 teaches or suggests the differences. Pet. 83.

For the same reasons discussed previously regarding the subject matter of independent claim 11 would have been obvious over Young '801, Young '121, Remillard, and the AAPA and discussed previously regarding the subject matter of independent claims 22 and 24 would have been obvious over Young '801 and Moro (relying on Young '801), Petitioner has made a sufficient showing that the subject matter of independent claims 22 and 24 would have been obvious over the combination of Young '801, Young '121, Remillard, and the identified AAPA.

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

In conclusion, based on the foregoing discussion and a review of the record (including Patent Owner's arguments), we agree with Petitioner's detailed and sufficient showing with respect to the obviousness of the challenged claims in this asserted ground. *See* Pet. 72–84. 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 11–13, 22, 24, and 26 would have been obvious over the combination of Young '801, Young '121, Remillard, and the identified AAPA, as forth by Petitioner. Pet. 72–84.

5. Young '801, Young '121, Remillard, AAPA and Strubbe

Petitioner also contends that claim 27 (as it depends from 11, 12, 22, or 24) is unpatentable under 35 U.S.C. § 103(a) based on Petitioner's combination of Young '801 (Ex. 1302), Young '121 (Ex. 1311), Remillard

(Ex. 1305), identified AAPA (Ex. 1301, 8:3–48), and Strubbe (Ex. 1310). Pet. 84–86.

Dependent claim 27 additionally recites "further comprising the step of displaying said program schedule information for a display period and wherein said display period is a user-selectable variable time period chosen in response to a user control command." Ex. 1301, 32:63–67.

For these features, Petitioner relies on a combination of Young '801's programming guide for displaying television schedule information and modifying Young '801 based "to display schedule information for a predetermined time period to provide the information while limiting distractions, as taught by Strubbe." Pet. 84–85. As discussed above with respect the obviousness of claim 27 over Young '801, Young '121, and Reiter, we agree with Petitioner's characterization of Strubbe's teaching. *See* Ex. 1310, 6:47–49 (indicating that the picture-in-picture window "may then show the opening, for example, 10 seconds of the program" at an appointed time); *see also* Ex. 1310, 8:21–27, 10:6–14.

Petitioner contends that "displaying messages or other information for a predetermined time period, as shown in Strubbe, would provide the information while limiting distractions" to the user and that it would have been obvious to modify Young '801 to do so. Pet. 85 (citing Ex. 1309 ¶ 248). We agree for the reasons discussed above with respect the obviousness of claim 27 over Young '801, Young '121, and Reiter. As for the reasons discussed in the other asserted ground relying on Strubbe, we agree that "[i]t would further have been obvious to make the predetermined time period adjustable to allow the user to configure, using a command, the predetermined time ("chosen in response to a user control command") for

displaying the program listings." Pet. 85 (citing MPEP § 2144.04 ("making adjustable"); Ex. 1309 ¶¶ 249–250).

We also agree that, in view of the level of ordinary skill (Section II.B), modifying the combination of Young '801, Young '121, Remillard, and the AAPA "to make the program schedule information disappear after a user-selectable variable time period after starting display merely involves combining prior art elements according to known methods to yield predictable results," as Petitioner contends (Pet. 85). *See also* Pet. 85–86 ("The known prior art elements are program schedule information, making the program schedule information disappear [at] a predetermined time after starting display and allowing the user to configure the predetermined time for displaying the program listings. The predictable results are program schedule information that disappears after the time for display selected by a user.").

For these reasons, we agree with Petitioner's arguments set forth in the Petition (Pet. 84–86) and, therefore, find that Petitioner has demonstrated a preponderance of the evidence that the subject matter of dependent claim 27, as depending from independent claims 11, 12, 22, and 24, would have been obvious over Petitioner's combination of Young '801, Young '121, Remillard, and the identified AAPA. We also find, as explained above, that Petitioner has articulated sufficient reasoning with some rational underpinning regarding why one of ordinary skill in the art would have made the combination and would have had a reasonable expectation of success in doing so.

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 claim 27 would have been obvious over the combination of Young '801, Young '121, Remillard, the identified AAPA, and Strubbe, as forth by Petitioner. Pet. 84–86.

6. Prosecution Evidence

Petitioner addresses potential evidence of secondary considerations filed during prosecution of the application. Pet. 86–88. Patent Owner has not presented evidence of secondary considerations during the *inter partes* reviews. After reviewing the Declaration of Bruce Davis (Ex. 1306, 1027–1038) 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 (Pet. 86–88).

Petitioner also addresses alleged evidence of prior reduction to practice. Pet. 89–90. We agree that there is no evidence that the invention as claimed—specifically, the television tuning limitations—was actually reduced to practice before Remillard's filing date of September 28, 1992. Accordingly, we agree with Petitioner that Remillard constitutes prior art. *See* Inst. Dec. 26–29 (discussing prosecution evidence related to whether Remillard constituted prior art). Patent Owner contested the prior art status of Remillard before institution, but has not renewed its challenge during the trial. Inst. Dec. 26–29; *see generally* PO Resp.

7. Patent Owner's Arguments

Initially, Patent Owner provides an overview of the asserted references. PO Resp. 20–32 (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* PO Resp. 24 (discussing Young '801), 25 (discussing Young '121), 27 (discussing Moro), 29 (discussing Reiter), 25 (discussing Strubbe), 31–32 (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. 1306, 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. Ex. 1306, 818-820.

PO Resp. 31–32 (ellipsis in PO Resp.). 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. 1306, 126–131, 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; Inst. Dec. 26–29 (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." PO Resp. 25 (citing Ex. 1306, 815, 818; Ex. 2301, 160–

164). Patent Owner, however, does not acknowledge or adequately address the fact that the ALJ's ruling did not address whether Young '121 teaches or suggests the challenged limitations. *See* Ex. 2301, 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. *See* PO Resp. 23–24 ("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 specifically not discussed below do not present a sufficiently clear or persuasive argument.

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. 32–33 (Section V.A discussing "interactively-selected successive portions of schedule information"), 34–37 (Section V.B discussing "displaying interactively-selected successive portions in a partial overlaying relationship"); *see also* PO Resp. 20–24 (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. ii, 32, 34. 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. 23–24 (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* PO Resp. 33 (Patent Owner contending, among other reasons, its position "is confirmed by . . . the disclosure of the Browse mode in the specification").

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 the cursor movement using the direction arrow keys on the remote controller." Ex. 1301, 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. 1301, Fig. 18; *see* Pet. Reply 8 (citing Ex. 1301, 14:1–67).

As noted above, the challenged 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. 1301, 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 with another display signal." PO Resp. 34–35. According to Patent Owner, this is because none of Moro, Reiter, or Remillard "discloses a partial overlay use case for a cursor-driven guide like that disclosed in Young '801." PO Resp. 35 (citing Ex. 2306 ¶¶ 88–89); *see* PO Resp. 36 (citing Ex. 2306 ¶¶ 88–90).

We do not agree with Patent Owner that Moro, Reiter, or Remillard must disclose a cursor-driven guide. As Patent Owner recognizes, Petitioner relies on Moro, Reiter and Remillard for disclosing "information in partial overlaying relationship" or "simultaneous display" and on Young '801 for the "interactively-selected" aspect. PO Resp. 32–33 (regarding Young '801), 34 (regarding Moro, Reiter, and Remillard). 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)). Young '801 discloses navigating through the guide with cursor commands, as discussed above. Patent Owner's arguments fail to sufficiently consider what the combined teachings of the references would have suggested to one of ordinary skill in the art, for example, in view of Young '801's disclosed navigation.

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 with a currently-tuned program." PO Resp. 36. In essence, Patent Owner

argues that Moro, Reiter, or Remillard must be bodily incorporated into the system of Young '801, which is not required. *Mouttet*, 686 F.3d at 1332 ("It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of the 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* Pet. Reply 11–12, 22, 24–25. 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 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 10–11.

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. 1302, 13:5–16, Figs. 1–3, 5–6; Pet. 55 (citing Ex. 1302, 13:5–16; Ex. 1309 ¶ 151).

We also agree with Petitioner that claim 24 recites a narrower version of the "consecutively displayed" and "interactively-selected [successive]

portions." Pet. Reply 22. Thus, we agree that, because Petitioner demonstrated in its Petition that its combinations show "navigating by sequential time period," the combinations also show the broader "navigating by sequential time period or programs." Pet. Reply 22.

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 display signal" and "consecutively displaying each said portion 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 11 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. 1302, 13:5–16, Figs. 1–3, 5–6; PO Resp. 21 ("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. 1302, 13:5–10, Fig. 2. A full-screen page with program listings for a single channel can also be displayed. Ex. 1302, 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. 1302, 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 22–23 (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 11, 12, and 24 further demonstrate that the prior art does not disclose "changing what is shown in the partial overlay 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. 37–38.

(i) "each successive one"

Regarding independent claim 11, 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 channel, . . . consecutively displaying each said portion in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods." PO Resp. 39 (citing Pet. 43, 65, 79–80).

We do not agree that Petitioner's showing regarding the configuring limitation recited in independent claim 11 (identified by Petitioner as clause

11[F]) is inadequate. Rather, Petitioner discussed navigation through "sequential time periods" of program schedule information (Pet. 45) in its section addressing the limitation at issue (clause 11[F]) and previously discussed Young '801's user-activated cursor keys in discussing the "user control means" and guide control commands limitation (Pet. 30).

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. 39 (citing Ex. 2306 ¶¶ 94, 96–97). Patent Owner argues that independent claim 11 requires "changing" what is displayed in the program listings and seems to suggest that such "changing" requires wholesale replacement of the displayed program listings. PO Resp. 39.

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).[33] Third, as discussed above,

[33] 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

independent claim 24 requires adding and deleting program listings, which is language not present in independent claim 11. This weighs against reading such limitations into independent claim 11.

(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 12 and 24 each requires guide control commands for navigating both by channel and by time period. PO Resp. 40 (claim 12), 41 (claim 24). Patent Owner further contends that "the plain language further requires changing what is displayed in the partial overlay by time period or program." PO Resp. 40 (claim 12), 41 (claim 24).

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 "consecutively displaying each said portion 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" requires navigating by time periods *or* channels.

This is because the subject of the clause is "each said portion" and the action required is "in response to said user control commands to display

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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. 35–36 (quoting Ex. 1302, 9:7–29 (emphasis by Patent Owner)).

each said portion of program schedule information." The "said user control commands" include "guide channel-control and guide time-control," which requires two different commands. A natural reading is that "corresponding consecutive ones of guide control commands" refers to the same types of commands—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. 2306 ¶ 95; *see* PO Resp. 40 (citing Ex. 2306 ¶¶ 94–97), 41 (citing Ex. 2306 ¶ 98).

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 claim 12 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 "set of channels" as a difference between independent claim 12 and Petitioner's reference

claim 11. *See* Pet. 47, 49. 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.)." Pet. 48.

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 user to select any one of said television programs for which listing information is displayed in said partially overlayed 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 11, 12, 24, and 26 "requires an interaction with the information displayed in the partial overlay portion 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 user interaction. Thus, we do not agree with Patent Owner's arguments that rely on its overly narrow claim interpretation. PO Resp. 42–44.

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 television programs for which listing information is displayed in said partially overlayed portion."

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 Moro "was not considered during prosecution" (Pet. 23), the Petition presents Reiter and Remillard "in a new light" (Pet. 23, 24) relative to the prosecution history of the challenged patent. 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 challenged patent. *See* Pet. 11–12 (citing Ex. 1306; 1309).

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." Pet. 11 (citing Ex. 1306, 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. Pet. 12 (citing Ex. 1306, 939 (May 7, 1996 interview summary); Ex. 1306, 940–979 (May 23, 1996 amendment and accompanying remarks)). The Examiner, however, did not provide any reasons for allowance. Ex. 1306 (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* PO Resp. 10–11 (citing Ex. 1306, 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 the references that Petitioner relies upon in these proceedings." PO Resp. 14–15; PO Resp. 24 (indicating "[d]uring prosecution of the '556 patent, Young '801 was considered and initially relied upon by the Examiner, then ultimately overcome. *See* Ex. 1306, 309, 443–334.").

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* PO Resp. 24 (indicating the "Examiner considered combinations based on Young '268, Reiter, and Strubbe); Ex. 2301, 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 consistent position of the Office 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. 44–61 (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.

Petitioner maintains "each combination includes articulated reasoning with rational underpinnings for making the combination." Pet. Reply 26–31.

(i) Redesign Young '801

Patent Owner contends Petitioner attempts to "redesign . . . Young '801's full-screen grid guide [to be used] 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. 1302, 3:29–32). 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 (citing Ex. 1309 ¶¶ 128–135, 179–182, 224–227; Ex. 2306 ¶¶ 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. 47. 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 (emphasis in original). 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 "minimizes the concealment of the guide." PO Resp. 47–48 (citing Ex. 1302, 3:29–32, 4:15–18, 11:30–12:19; Ex. 2306 ¶ 112). Patent Owner also argues that none of the other references suggest reducing a full-screen guide to a partial overlay over a television program. PO Resp. 49 (citing Ex. 2306 ¶ 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 26. Petitioner replies, however, that Patent Owner reads Young '801 out of context. Pet. Reply 26 (citing Ex. 1302, 3:20–35). According to Petitioner, Young '801 "describes the desire to display the most information possible in view of size and resolution limits of television displays." Pet. Reply 26 (citing Ex. 1302, 3:20–35; Ex. 1320 ¶ 36). Petitioner also points out that Young '801 specifically describes reducing the amount of the grid guide visible to users by obscuring it under an overlay of a program note. Pet. Reply 27 (citing Ex. 1302, 12:16–17, Fig. 6); Ex. 1302, 12:16–17 ("The program note 52 overlays and hides 3 or 4 listings of a guide."). As such, Petitioner concludes reducing the grid size to accommodate a television screen does not run counter to Young '801. Pet. Reply 27.

As an initial matter, finding a teaching or suggestion 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 or hides 3 or 4 listings of a guide." Ex.1302, 12:16-17; Pet. Reply 29 (citing Ex.1302, 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 a full-screen grid guide. PO Resp. 48. 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 user other information" cannot be understood as precluding reducing the size of the full-screen grid guide display. Ex. 1302, 4:15–18; *see also* Ex. 1302, 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. 1302, 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. 1302,

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. 1302, 12:16–17; Pet. Reply 27.

In addition, both parties rely on declaration testimony of their respective experts. PO Resp. 46–49 (citing Ex. 2306 ¶¶ 108–114); Pet. Reply 26–27 (citing Ex. 1320 ¶¶ 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 Young '801 does not require "displaying the grid guide on the full screen of the television." Ex. 1320 ¶ 36; Pet. Reply 27 (citing Ex. 1320 ¶ 36). Mr. Wechselberger provides an explanation to support his conclusion:

> in view of the fact that the overlaid program note in FIG. 6 of Young '801 hides some of the program listings, a POSITA would have understood that it is acceptable to display only some of the program listings. The channel information boxes 58 (see FIG. 1), which provide information about the current channel, also take up room at the bottom of the screen thereby reducing the number of program listings that are included in the grid guide 24. [Ex. 1302], page 13, lines 14–16. Moreover, a POSITA would have understood that the size of the grid guide is not fixed given Young '801's disclosure that cells 26 within the grid guide can be "stretched or shrunk" to reflect a recording status. [Ex. 1302], page 10, lines 6-11.

Ex. 1320 ¶ 36. We also 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 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; *see* PO Resp. 49–53. 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. 51–52.

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. 24 (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 grid," a problem not addressed in Young '121. Pet. Reply 28 (citing Ex. 1320 ¶ 15). 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. 35 (citing Ex. 1302, 9:7–9).

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 one of ordinary skill in the art would understand that "both references using a key labeled 'select' to perform different functions presents a trivial technical issue that can be overcome by using two different keys." Pet. Reply 28 (citing Ex. 1320 ¶ 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. 1302, 13:28–14:5; *see* Pet. Reply 28 (citing Ex. 1302, 13:28–14:5; Ex. 1320 ¶ 16). We also 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. 53 (citing Pet. 41, 64, 79; Ex. 1309 ¶¶ 137, 184, 228; Ex. 2306 ¶¶ 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. 53.

Patent Owner explains that Young '801's system employs a video switcher that toggles between full-screen programming or guides. PO Resp. 54. 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 (citing Ex. 1302, 3:29–32; Ex. 2306 ¶ 127). The toggling also, according to Patent Owner, is "intuitive" because "it allows the user to view the schedule information in a full-screen guide, or watch TV programming in full screen without any overlay that would disrupt the viewing experience." PO Resp. 54 (quoting Ex. 2407, 37:11–14). For these reasons, Patent Owner contends that "the proposed combinations would fundamentally change Young '801's 'intuitive user interface.'" PO Resp. 54.

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. 1302, 12:16–17. 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.

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. 55–57. 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. 57–59. 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. 59 (citing Ex. 2306 ¶¶ 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. 58 (quoting Ex. 1305, 2:63–65, Fig. 2; Ex. 2306 ¶ 131). The Patent Owner also argues that Petitioner fails to describe how to combine the reference teachings. PO Resp. 59–61.

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. 55–57; *see also* Pet. Reply 30 ("The combination does not require Remillard's video controller 108 with the genlock."). It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements. *Mouttet*, 686 F.3d at 1332; *see* Pet. Reply 31 (quoting *Mouttet*, 686 F.3d at 1333). Rather, in Petitioner's Remillard combination, the overlay functionality is performed by the Rocgen card. Pet. Reply 30 (citing Ex. 1320 ¶ 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* Pet. 73 (Remillard teaches overlaying interaction menus on a portion of a television broadcast) (citing Ex. 1305, 5:55–61), 73 (Remillard combination's use of Rocgen card); Pet. 27–28 (Moro's teaching of program information overlaying the currently tuned program); Pet. 62 (Reiter teaches "displaying information in a partial overlay format so that 'the viewer may continue to view the television program he is currently watching.'") (citing Ex. 1304, 6:29–38).

First, Young '801 itself provides minimal information via Figures 9 and 10 that show a display of single program information and via Figure 6 showing partial overlay 52. Ex. 1302, Figs. 6, 9, 10; *see* Pet. 26 (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. 1302, 12:16–17. 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.

With respect to Remillard, Petitioner 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." Pet. 79 (citing Ex. 1309 ¶ 229). In other words, the Petition does not rely on the "genlock" system because the combination relies on admitted prior art involving the Rocgen card. *See* Pet. 79; Ex. 1320 ¶ 49; Pet. Reply 30 (citing Ex. 1320 ¶ 49).

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 interactively-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. 39–40. For the other grounds, Petitioner makes similar conclusory statements regarding the Reiter and Remillard combinations. Pet. 62–63, 77-78.

PO Resp. 55–56.

As outlined above, Petitioner provides sufficient articulated reasoning with rational underpinning to support a conclusion that the subject matter of the challenged claims. For example with respect to the combination of Young '801 and Moro, 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. Pet 39 (quoting Ex.1303, 6:3–7). Petitioner also relies on "Young '801's teaching that 'supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information.'" Pet. 40–41 (quoting Ex. 1302, 4:15–18).

(iv) Petition's Purported Ambiguity

Patent Owner contends that Petitioner's argument that one of ordinary skill in the art "would have been motivated to combine Young '801 with the asserted secondary reference *by modifying or replacing* Young '801's components to add overlay functionality" does not sufficiently establish how one of ordinary skill in the art would have combined the references. PO Resp. 59; *see* Pet. Reply 59–61

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. 59–61.

First, a deposition passage cited by Patent Owner support Petitioner's position. 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. 2307, 39:8–12, 17–20; *see* PO Resp. 60–61 (citing Ex. 2307, 39:5–20); Ex. 2007, 39:12–16 (also testifying about known integrated circuits and the Rocgen card). We understand Mr. Wechselberger's testimony as indicating that the particular manner of getting both the current video and the overlay at the same time can be accomplished in different ways within the ordinary level of skill.

Second, 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 Petition, Petition, and Petition *See* Ex. 1309 ¶ 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); Pet. 30 (citing Ex. 1309 ¶ 104); Ex. 1309 ¶ 110) (providing substantially similar reasoning to that in Ex. 1309 ¶ 104); Pet. 32 (citing Ex. 1309 ¶ 110); Ex. 1309 ¶ 114 (providing substantially similar reasoning to that in Ex. 1309 ¶ 104); Pet. 32

(citing Ex. 1309 ¶ 114).. This weighs against Patent Owner's argument that Petitioner's combination is fatally ambiguous.

We credit Mr. Wechselberger's 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.

(v) 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 manner proposed by Petitioner. Rather, we determine, based on Petitioner's showing in the Petition that is discussed above, that Petitioner has provided 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.

As discussed above, we also have concluded, based on the level of ordinary skill (as evinced by the disclosures of prior art references discussing the user interface displays on which Petitioner relies) and based Mr. Wechselberger's credible testimony, that Petitioner's asserted combination would do no more than yield predictable results of partially overlaying program guide information over a currently tuned video program.

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. 61–62 (citing Pet. 74–74).

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. 1301, 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. 1301, 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. 1301, 8:42–47 (emphasis added).

Patent Owner correctly notes that the Petition may only rely "on the basis of prior art consisting of patents or printed publications." PO Resp. 62 (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. 62–63. 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. 63. Patent Owner also contends Petitioner relies on "an undated, unauthenticated Rocgen user manual (Ex. 1314) 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. 65 (citing Ex. 2307, 8:9–12, 54:6–10, 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. 2307, 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. 2307, 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 LLC v. Ford Motor Co.*, 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).[34]

> 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-1320, ¶50.)

Pet. Reply 32.

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[34] *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 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).

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. 1301, 8:11–12 (describing "the video display generator (VIDEO DISPLAY GENERATOR) 23, which in the present embodiment may be a commercially-available VGA-type graphics card, such as a Rocgen card, manufactured by Roctec"), 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 manufacturered by Rotec."); *see*

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. 63 (contending Petitioner does not cite to a single document allegedly describing the teachings, structures, functions, or operations of the asserted AAPA); Pet. Reply 32–33 (Petitioner indicating that Patent Owner "argues 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] when describing the Rocgen card. (Pet. 47, 77)."); Ex. 1320 ¶ 49 (Mr. Wechselberger explaining that he did not rely on the Rocgen manual other than to corroborate his understanding of the capabilities of the Rocgen card disclosed in the challenged patent).

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. 1309 ¶ 34; *see* Ex. 1309 ¶¶ 16–17, 36, 139; Pet. Reply 32–33 (citing Ex. 1320 ¶ 49). These devices later evolved into integrated and other known circuits including the Rocgen card that also correspond to the admissions about known hardware in the challenged patent, regardless of the manual. *See* Ex. 1309 ¶ 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. 1309 ¶ 36 (citing Ex. 1313, 28). Mr. Wechselberger also outlines the functions mentioned in column 8 of the challenged patent as functions performed by the admitted Rocgen device. Ex. 1309 ¶ 36; Pet. 73 (citing Ex. 1309 ¶ 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 to 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* Pet. 16 (citing Ex. 1309 ¶ 30); PO Resp. 15 (citing Ex. 2306 ¶¶ 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 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. 1309 ¶¶ 34–36 (discussing disclosure in patent to an ordinarily skilled artisan and citing other patents with the known hardware).

G. Motion to Exclude

Patent Owner moves to exclude paragraphs 8, 24, 27–30, 32 and 38 of Mr. Wechselberger's second Declaration (Exhibit 1320) as "untimely, irrelevant, and unfairly prejudicial" because those paragraphs are directed to expert testimony exceeding the proper permissible scope of reply. Mot. Exc. 1, 2. Paper 26 ("Mot. Exc."). Patent Owner also moves to exclude Exhibit 1322) cited by Mr. Wechselberger in paragraphs 24 and 29 of his second declaration, as likewise "irrelevant, and unfairly prejudicial." Mot. Exc. 5. Petitioner opposes. Paper 28 ("Opp. Mot. Exc."). Patent Owner replies. Paper 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. Wechselber'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 24, 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 11 and 12. *See, e.g.*, Pet. 55 ("Young '801 allows the user to 'page' through program listings, which replaces one page of listings with another, thereby 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* Pet. 30 (discussing cursor movement) (citing Ex. 1302, 24:17–33), 55 (relying on page mode); *see also* Ex. 1302, 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. Wechselsber'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. 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 1322) 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. 2306 ¶¶ 108–115; Ex. 1320 ¶¶ 36, 37), 1–2 (noting Dr. Bovik in his deposition argued that navigation in Young '801's gird guide was "confined to the visible screen'") (citing Ex. 1321, 56:16–23, 108:25–109:8, 116:17–117:2).

Rather, as noted, the Petition cites 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 11–13, 22,

24, 26 (as depending from claim 22 or 24), and 27 (as depending from claim 11, 12, 22, or 24) would have been obvious over Petitioner's combination of Young '801 and Moro. We also determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 11–13, 22, 24, and 26 as depending from claim 22 or 24) also would have been obvious over (i) Petitioner's combination of Young '801, Young '121, and Reiter and (ii) Petitioner's combination of Young '801, Young '121, Remillard, and AAPA.[35] We further determine that claim 27 (as depending from claim 11, 12, 22, or 24) would have been obvious over (i) Petitioner's combination of Young '801, Young '121, Reiter, and Strubbe and (ii) Petitioner's combination of Young '801, Young '121, Remillard, AAPA, and Strubbe.

IV. ORDER

Accordingly, it is

ORDERED that claims 11–13, 22, 24, 26 (as depending from claim 22 or 24), and 27 (as depending from claim 11, 12, 22, or 24) 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 11–13, 22, 24, 26 (as depending from claim 22 or 24), and 27 (as depending from claim 11, 12, 22, or 24) of U.S. Patent No. 6,418,556 B1;

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[35] 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. 1301, 8:3–48) constitutes Applicant Admitted Prior Art ("AAPA") that can be relied on for obviousness determinations. Pet. 22 (citing MPEP § 2129).

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

FURTHER ORDERED that because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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