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Paper No. 41
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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 IPR2017-01151
Patent 6,418,556 B1

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

EASTHOM, *Administrative Patent Judge*.

DECISION
Final Written Decision
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

This *inter partes* review, instituted pursuant to 35 U.S.C. § 314, addresses the patentability of claims 23 and 25–27 (the "challenged claims") of U.S. Patent No. 6,418,556 B1 (the "'556 patent"), owned by Rovi Guides, Inc. ("Patent Owner").

We have jurisdiction under 35 U.S.C. § 6. For the reasons discussed herein, Petitioner has shown by a preponderance of the evidence that the challenged claims are unpatentable.

A. Procedural History

Comcast Cable Communications, LLC ("Petitioner") filed a Petition for *inter partes* review of the challenged claims. Paper 2 ("Pet."). Patent Owner filed a Preliminary Response. Paper 6. Subsequent to the Institution Decision (Paper 8, "Inst. Dec."), Patent Owner filed a Response (Paper 18, "PO Resp.") and Petitioner filed a Reply (Paper 22, "Reply"). 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. An Oral Hearing occurred on June 12, 2018. Paper 40 ("Tr.").

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.

Petitioner notes Patent Owner asserted the '556 patent "against [several] Comcast entities . . . in U.S. International Trade Commission Investigation No. 337-TA-1001, styled *In the Matter of Certain Digital Video Receivers and Hardware and Software Components Thereof* ('ITC

Case')." *Id.* Petitioner also filed eight concurrent petitions challenging the '556 patent: Cases IPR2017-01144, IPR2017-01145, IPR2017-01146, IPR2017-01147, IPR2017-01148, IPR2017-01149, IPR2017-01150, and this case, IPR2017-01151.

C. The '556 Patent

The '556 patent, titled "Electronic Television Program Guide Schedule System and Method," provides a programming guide having channel surfing and reminder message features. *See* Ex. 1701, [54], 4:8, 12:49–59, Figs. 10–15. The surfing feature "provide[s] the user with current programming information for all programs as the user surfs through the available channels." Ex. 1701, [54], 4:8–10.

The '556 patent describes "a particular need for a flexible program schedule system that allows a user to view selected broadcast programs on a portion of the screen of the television receiver while simultaneously viewing program schedule information for other channels and/or services on another portion of the screen." *Id.* at 3:4–9. In general, "[t]he user may navigate through the program schedule system with a remote controller . . . [that] operates on conventional principles of remote control . . . logic . . . , or other suitable user interface." *Id.* at 8:49–54. The '556 patent also describes a need for "surfing": "[A] need exists for a program guide which displays current program schedule information for each channel as the user surfs through the available channels." *Id.* at 2:59–61.

The '556 describes different modes. Figure 5, reproduced below, illustrates an example of surfing in a "Flip" mode:

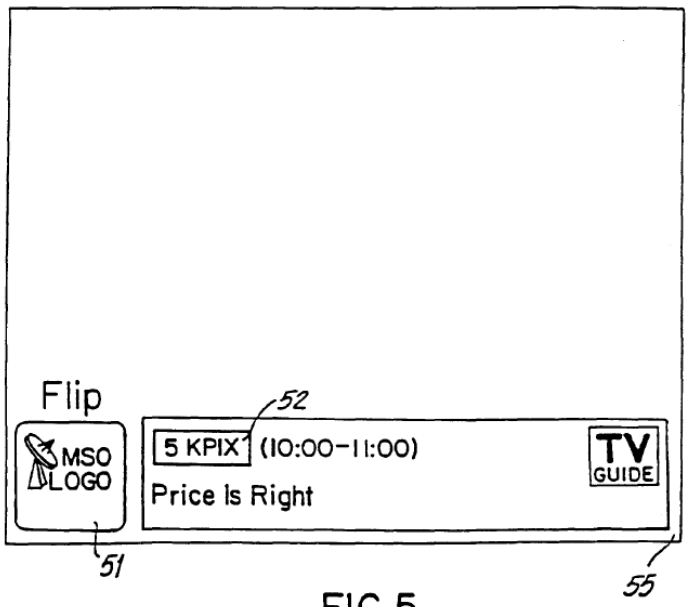


FIG.5

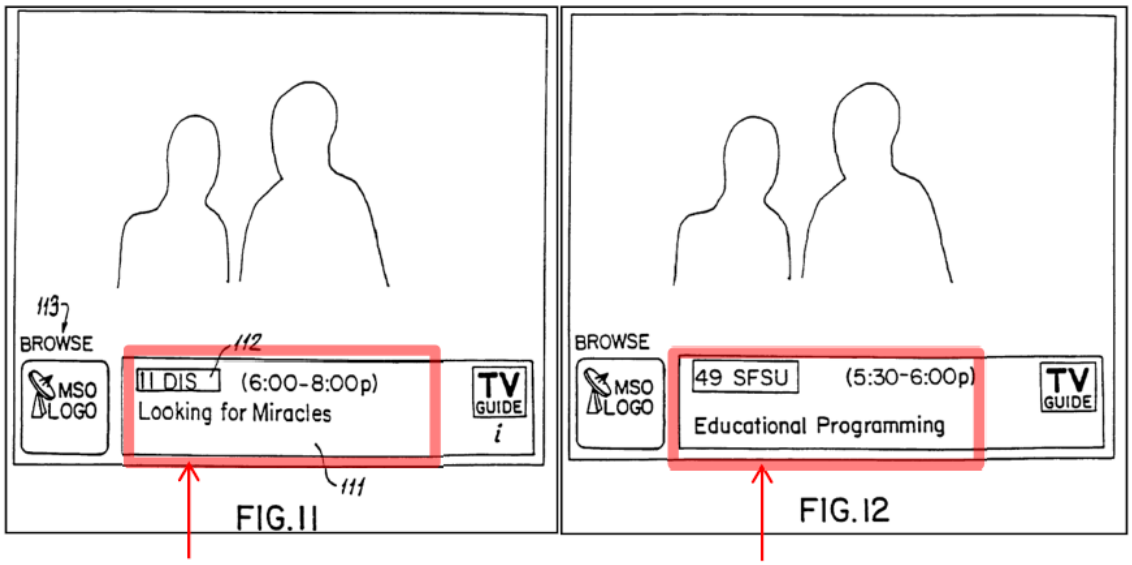
As indicated by Figure 5 above, each time a user changes (i.e., "flips") channels using remote control device 31, the system provides graphic program information 51 "superimposed in overlaying relationship" with "received program signal 55" corresponding to the currently viewed channel (e.g., channel 52). *See* Ex. 1701, 10:6–14.

In contrast to the Flip mode, in the 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 (emphasis added). 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, while a user views a television video program on the current channel, remote controller 31 allows the user to view program information about current programs on a different channel, or a future program on the same or a different channel, with said program information overlaying the currently

viewed television video program. *See id.* at 12:35–48, Fig. 12A (showing programing information of a future program (at 8:50 p.m.) overlaying a current television program signal (at 6:48 p.m.)).

The '556 patent generally refers to "other modes" in conjunction with a "highlighted program" associated with a cursor. *See* at 15:41–42. Using the remote controller, each mode provides navigation through channels. "The up/down direction arrow keys 37A allow a user to navigate through the different TV program channels when the program schedule system is in a FLIP or BROWSE mode, as will be fully described below, and also allow the user to navigate through highlighted bars displayed on the TV screen when in a MENU mode." *Id.* at 9:9–15. In a section titled "Menu Mode," the '556 patent states "a moveable highlighted cursor 185 is used to indicate the currently selected program to the user." *Id.* at 14:42–44, *see* Figs. 18, 25. In general, "[a]s with other modes, if a user wishes to tune to a highlighted program that is currently airing, he can do so by simply depressing the ENTER key on the remote controller" and for future programs, instead of tuning, exercise a reminder function. *Id.* at 15:42–47 (emphasis added).

Petitioner annotates Figures 11, 12, and 12A to illustrate the Browse mode features. Pet. 8–9. A reproduction of Petitioner's annotated Figures 11, 12, and 12A follows:



Program information for Channel 11 (current program)

Program information for a different channel

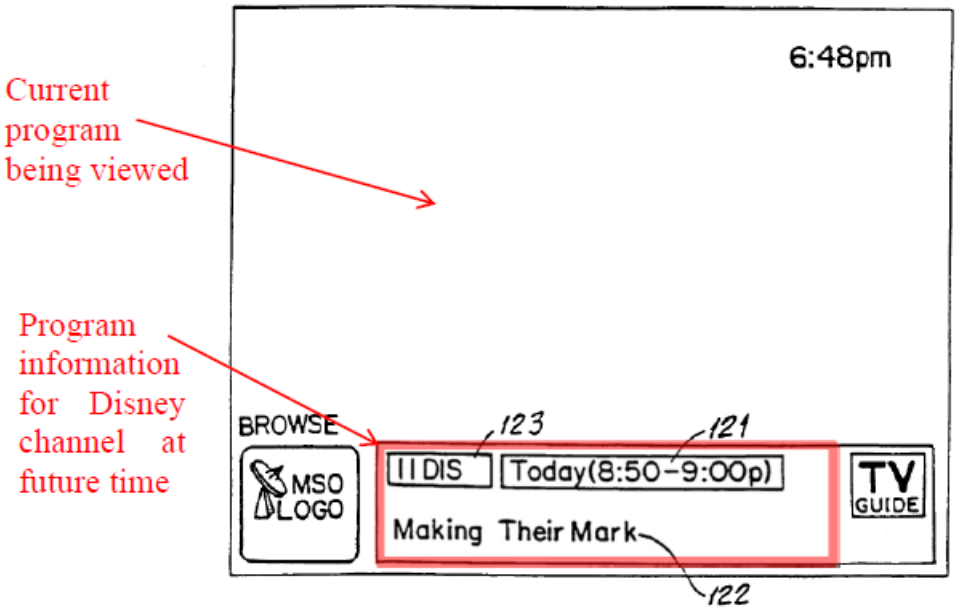


FIG. 12A

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 television program. *See* Pet. 8–9; Ex. 1701, 12:19–55.

While in the Browse, Menu, or "other modes," a user can prompt the system to provide a "REMINDER" selection message by pressing a key on a remote control device. Ex. 1701, 12:49–59 (describing "ENTER" remote control key); 15:11–13 ("If the highlighted show [in the Menu mode] is one that will appear at [a] future time, the user is again given the option of setting a REMINDER message."), 15:41–47 ("other modes"). The system then returns the following reminder selection message, which includes a prompt to press "Enter" to accept a reminder message, as illustrated below in Figure 13:

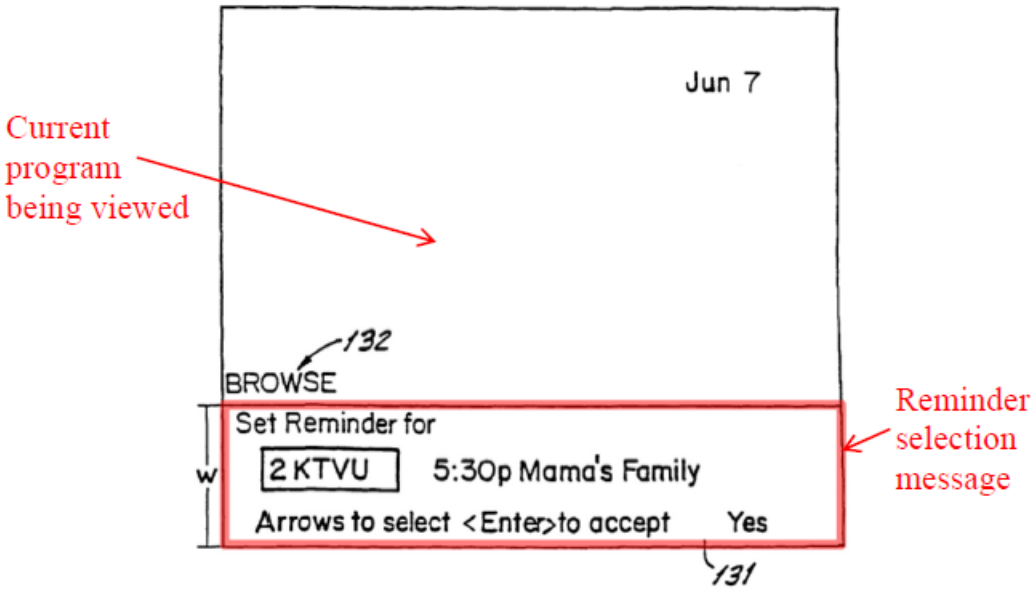


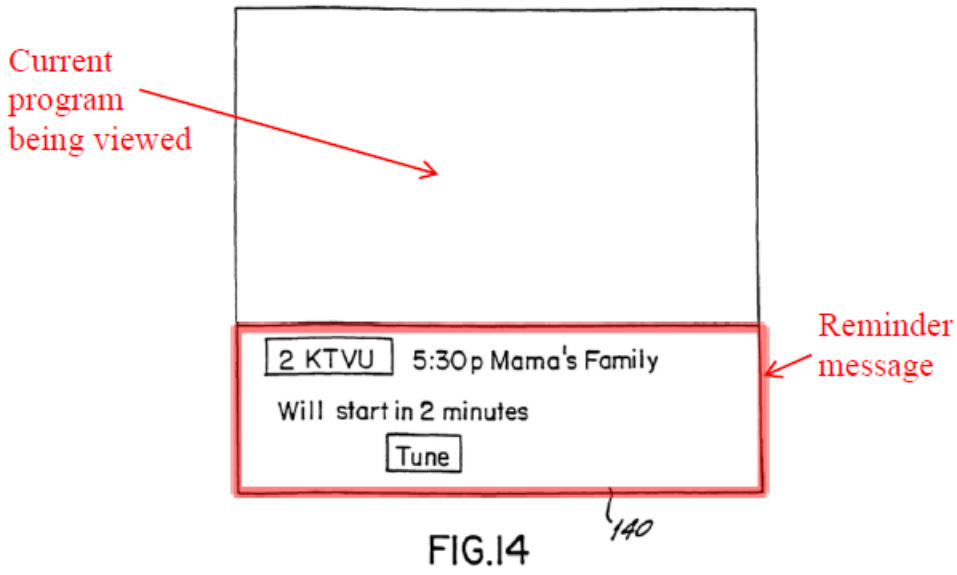
FIG.13

Petitioner's annotated version of Figure 13, above, depicts a reminder selection message "displayed as a second overlay 131 appearing above the [first] BROWSE overlay 132," which overlays a currently viewed program. *See* Ex. 1701, 12:53–59; Pet. 10.

So the reminder overlay/selection message (Figure 13) queries the user as to whether he or she desires setting up a reminder message to be displayed (about 5 minutes) prior to a specified future program. Ex 1701,

12:55–65. If the user responds affirmatively, microcontroller 16 will provide a reminder. *Id.* at 12:59–63.

Figure 14, reproduced by Petitioner as annotated below, depicts the resulting reminder message 140:



Pet. 11. As annotated Figure 14 above represents, the system displays reminder message 140 overlaying a TV signal at a predetermined time (2 minutes) before a start of the user-selected program. Ex. 1701, 12:63–13:3. The reminder message appears while a user may be viewing a television program and without the system being in any particular mode. *See id.* at 3:15–17.

D. Illustrative Claims

Independent challenged claims 23 and 25 recite similar subject matter. The challenged claims follow:

> 23. A process for displaying television schedule information on a video display on which is displayed a display signal comprising:

storing in a memory television program schedule information;

providing user control means for issuing user control commands, including selection commands, guide channel-control and guide time-control commands, and for transmitting signals in response thereto;

receiving by a data processor said user control commands;

controlling a program schedule display generator ["PSDG"] with the data processor for displaying, in a partial overlay on a portion of said display signal, interactively-selected successive portions of said schedule information comprising listing information for at least one program different from said display signal; and

consecutively displaying each said portion of said schedule information in response to consecutive user-activated 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; and

also configuring said data processor to control said display generator to also selectively display reminder selection messages in at least one mode of operation of said programming guide, for allowing said user to choose selection commands in response to said reminder selection messages for selecting a reminder associated with a chosen future program, each said selected reminder message also to be displayed on said display at a predetermined time prior to the time of occurrence of each chosen future one of said television programs, said reminder message being displayed in overlaying relationship with another display signal being displayed at said time said reminder message is displayed.

Ex. 1701, 31:23–60.

> 25. A process for displaying television schedule information on a video display on which is displayed a display signal comprising:
>
> receiving television program schedule information;
>
> providing user control means for issuing user control commands, including selection commands, guide channel-control and guide time-control commands, and transmitting signals in response thereto;
>
> receiving by a data processor said user control commands;
>
> controlling a program schedule display generator ["PSDG"] with the data processor for displaying, in a partial overlay on a portion of said display signal, interactively-selected successive portions of said schedule information comprising listing information for at least one program different from said display signal; and
>
> consecutively displaying each said portion of said schedule information in response to consecutive user-activated ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is received; and also configuring said data processing means to control said display generator to also selectively display reminder selection messages in at least one mode of operation of said programming guide, for allowing said user to choose selection commands in response to said reminder selection messages for selecting a reminder associated with a chosen future program, each said selected reminder message also to be displayed on said display at a predetermined time prior to the time of occurrence of each chosen future one of said television programs, said reminder message being displayed in overlaying relationship with another display signal being displayed at said time said reminder message is displayed.

Id. at 32:23–58.

> 26. The process of claims . . . 23 . . . or 25 wherein said display signal is chosen from the group consisting of a television program, promotional video clip or an advertisement.
>
> 27. The process according to claims . . . 23 . . . or 25 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.

Id. at 32:59–67.

E. Asserted Grounds of Unpatentability

Petitioner contends that claims 23 and 25–27 of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young '801 (Ex. 1702),[1] Young '121 (Ex. 1711),[2] Strubbe (Ex. 1710),[3] and one of Moro (Ex. 1703),[4] Reiter (Ex. 1704),[5] and Remillard (Ex. 1705).[6] Pet. 13. In its summary and analysis of the Remillard ground, Petitioner also relies on purported Applicant Admitted Prior Art ("AAPA"). *See id.* at 13, 72–89.[7]

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[1] Young et al., WO 92/04801 (issued Mar. 19, 1992).
[2] Young, U.S. Pat. No. 4,706,121 (issued Nov. 10, 1987).
[3] Strubbe et al., U.S. Pat. No. 5,047,867 (issued Sept. 10, 1991).
[4] Moro, E.P. Pat. Pub. No. 0444496 (published Sept. 4, 1991).
[5] Reiter, U.S. Pat. No. 4,751,578 (published June 14, 1988).
[6] Remillard, U.S. Pat. No. 5,404,393 (issued Apr. 4, 1995, filed Sept. 28, 1992).
[7] Petitioner contends that the description of commercially available components used to implement the video display generator ("VDG") and overlay technique described in the '556 patent (Ex. 1701, 8:3–48) constitutes AAPA that can be relied on for obviousness determinations. *See* Pet. 72–89. According to the '556 patent, the VDG includes a commercially available VGA-type graphics card. *See* Ex. 1701, 8:3–48; Pet. 15, 21 (citing (Ex. 1701, 8:3–48; Ex. 1709 ¶¶ 116–118), 74 (citing Ex. 1709 ¶¶ 37, 116–118, 244–250).

The Petition relies on the (first) declaration testimony of Anthony J. Wechselberger (Ex. 1709). The Response relies on the declaration testimony of Alan C. Bovik (Ex. 2706). The Reply relies on the (second) declaration testimony of Anthony J. Wechselberger (Ex. 1720).

II. DISCUSSION

A. Claim Construction

The Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–45 (2016) (upholding the use of broadest reasonable construction standard in *inter partes* review). Consistent with the broadest reasonable construction, claim terms presumptively carry 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, "[a] construction that is unreasonably broad and which does not reasonably reflect the plain language and disclosure will not pass muster." *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (internal quotation marks and citation omitted), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) (en banc).

The Institution Decisions analyzes certain phrases recited by the '556 patent that Petitioner asserted fall under 35 U.S.C. § 112, ¶ 6. Inst. Dec. 13–22. Neither party contests our claim constructions in a manner that requires

further analysis. *See* PO Resp. 15 (characterizing the construction of one term as "unduly narrow," but asserting "for purposes of the present proceedings . . . resolution of these [claim construction] disputes is unnecessary"); Reply 4–7 (providing claim constructions for a term discussed further below). The parties also do not point us to arguments or evidence that necessitates a further analysis of the prior claim constructions.

Accordingly, after a further review of the record, we incorporate by reference and adopt our analysis and conclusions in our Institution Decision regarding the following claim terms. Inst. Dec. 11–25.

Term	Construction	Analysis/Citation
"user control means for issuing user control commands . . . and . . . transmitting signals in response thereto" (claims 23, 25)	means-plus-function limitation; corresponding structure is a remote controller with conventional guide and selection control logic (Ex. 1701, 8:49–9:6; Figs. 1, 3)	Inst. Dec. 13–14
"a program schedule display generator ['PSDG']. . . for displaying" (claims 23, 25)	under a first alternative upon set forth in the Institution Decision upon which the parties agree, denotes a class of analog hardware devices that overlay text information onto a video signal	Inst. Dec. 14–23
"data processor" (claims 23, 25) and "data processing means" (claim 25)	not a means-plus-function limitation; "said data processing means" refers back to a "data processor"	Inst. Dec. 25;

1. "to . . . display reminder selection messages in at least one mode of operation of said programming guide"

We also preliminarily construed "at least one mode of operation of said programming guide" (in all independent claims) as recited in each challenged claim to define one or more different mode configurations of the data processing means for choosing among reminder selection messages. *See* Inst. Dec. 22–24 (noting the specification describes several modes and discussing Patent Owner's position during the ITC Case). During the ITC Case, Patent Owner stated the phrase requires no construction or requires a construction "such that reminder messages may be presented in one or more configurations." Ex. 2701, 73.

Relevant to the claim construction of certain terms as explained further in the next section, nothing restricts the challenged claims to a single mode, such as the Browse mode. *See supra* Section I.C (describing different modes). Rather, the '556 patent indicates the challenged claims include and require support from combined features of different modes of operation. Each of the challenged claims require the ability to select reminder messages "in at least one mode," and they require displaying the reminder messages at "a predetermined time prior to the time of occurrence of each chosen future one of said television programs." The former phrase "at least one" means one or more, and the latter reminder or alert feature implicates other modes of television watching—i.e., to alert a watcher of an upcoming show in any mode. *See* Ex. 1701, 3:15–17.

During the Oral Hearing, Petitioner conceded the administrative law judge ("ALJ") in the ITC Case determined the Browse modes limits the claims to that single mode (Tr. 11:22–12:4), but argued that the ITC Case involved "a completely different record than we have here today" (*id.* at

20:12–13), and argued that Patent Owner characterized the Browse mode broadly during prosecution (*id.* at 5:23–6:6). Both parties disagree with a central basis of the ALJ's reasoning, as neither party argues here that the challenged claims require a single-entry program listing feature (of the Browse mode) as discussed further below.[8]

Patent Owner also characterized its claims more broadly in the ITC Case, in direct opposition to what it asserts here, as discussed further below. *See* Ex. 2701, 71 (Patent Owner arguing the Browse mode "unduly narrows the claims' scope"), 68 (Patent Owner arguing "[t]he inventors did not disavow the plain and ordinary scope of 'one mode of operation of said

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[8] 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). PO Sur-Reply 2 (Paper 34) (citing Ex. 2[7]01, 72 n.33) (additional briefing introduced *infra* Section II.A.3); Ex. 2701, 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. 2701, 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. 2701, 72 (citing the '556 patent, 11:21–13:14). Also, as noted, 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 id.* at 72. We determine the challenged claims recite "*at least* one mode" as a purported limit to the reminder function—i.e., not as a limit to selecting and displaying portions of the overlay display.)

programming guide' such that it narrowly covers only a 'browse mode' of operation").

On this record, including consideration of the intrinsic record, the ITC Case, the prosecution history, and evidence and arguments supplied, for the reasons above and further below, we determine the challenged claims include features from different modes to provide a flexible program system not limited to any single mode for simultaneous viewing of multiple programs in a partial overlay. *See, e.g.*, Ex. 1701, 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.").

2. PSDG "for displaying, in a partial overlay . . . interactively-selected successive portions of said program schedule information comprising listing information for at least one program different from said display signal" and "consecutively displaying each said portion of said schedule information in response to consecutive user-activated ones of said guide control commands for successively navigating through listing information for sequential time periods or programs"

All the challenged claims recite the above-listed phrases. Petitioner provides a claim construction for the first phrase, which includes "interactively-selected successive portions," referring in short-hand form to it as the "successive portions." Reply 14 n.2. We construed similar phrases in the companion cases, including a phrase similar to the second phrase, which includes "consecutively displaying." *See supra* Section I.B (listing companion Cases IPR2017-01144, IPR2017-01145, IPR2017-01146, IPR2017-01147, IPR2017-01148, IPR2017-01149, and IPR2017-01150).

We refer to the intertwined limitations in short-hand form respectively as the "selecting" and "displaying" portions to capture the overlapping

subject matter of the challenged claims at issue here. Generally, a data processing means controls the PSDG (also called a video display generator ("VDG") in some claims not challenged here) to select and display guide portions. *See* Ex. 1701, Fig. 1 (microcontroller 16 as data processing means and PSDG/VDG 23). Specifically, claims 23 and 25 recite a selecting clause: a "data processing means" controls a PSDG "for displaying, in a partial overlay . . . interactively-*selected* successive *portions* of said program schedule information *comprising listing information for at least one program*." *See, e.g.*, Ex. 1701, 31:34–38 (emphasis added). Claims 23 and 25 next recite a "displaying" clause that refers back to the "for displaying" and "selecting" clause: "consecutively displaying *each said portion* of said schedule information in response to consecutive user-activated ones of said guide control commands for successively navigating through listing information for sequential time periods or programs." *See, e.g., id.* at 31:41–44 (emphasis added).

Petitioner contends under the broadest reasonable interpretation, "'successive portions' can refer to portions that are either successive in time (see Ex-1701, FIGs. 11–12A) or spatially successive (see FIGs. 18 and 25; see also Ex-1701, 14:1–28, explaining cursor movement)." Reply 4. In other words, Petitioner contends that by using control commands to move a highlighted cursor across, up, or down, a grid that displays multiple programs, channels, and times, as depicted in Figures 18 and 25, with the grid overlaying a program, as broadly described in connection with a passage at column 3, lines 4–9 described below, this corresponds to the selecting and displaying limitations under construction here. So using "consecutive . . . guide control commands for successively navigating" causes selecting and displaying "interactively-selected successive portions."

See Reply 4–7 (characterizing this position as the same position as advanced by Patent Owner during the ITC Case).

To simplify, consecutive remote control commands move the cursor to *select* successive portions of the grid, and corresponding highlighting via the moving cursor causes successive *display* of the selections, to provide responsive navigation through times or programs. *See* Ex. 1701, Fig. 18, 8:49–51 (cursor navigation). Patent Owner's expert, Dr. Bovik, agrees that the displayed and selected limitations relate to each other. Ex. 2706 ¶ 83 (stating "similar language is found in each independent claim" and the "interactively-selected" limitation "is directed to what is displayed in the overlay").

The specification supports this reading of the challenged claims. For example, within the Menu Mode (Ex. 1701, 13:15)—i.e., in the "All-Listings mode" (*id.* at 14:42) or in the "'Category Listing' mode" (*id.* at 14:54)—commanding the cursor to move informs the user of an interactive selection by displaying the selection as highlighted. This informing or displaying by highlighting results in providing an immediate option as a result of the highlighting—an option to tune to the highlighted program or to set a reminder message (assuming a highlighted future program). *See id.* at 15:8–13. The '556 patent states this highlighting feature occurs "with other modes." *Id.* at 15:42–46.

Patent Owner does not provide a construction for the selected and displayed portions at issue here, but raises arguments that Petitioner contends turn on claim construction thereof. *See* Reply 7 (citing PO Resp. 15–19, 27–28). 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. 28 (emphasis added). Apparently, this argument implicates a required "change" of "displayed schedule information" beyond a display change caused by spatially moving 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 [spatially] through program listings that are displayed simultaneously." Reply 4.

Patent Owner's position rests on the argument that the challenged claims require certain features of the disclosed Browse mode. *See* PO Resp. 28 ("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). During the Oral Hearing, Patent Owner verified that its arguments turn on limiting the claims to features of the disclosed Browse mode. *See* Tr. 46:11–22.

Petitioner contends the Browse mode does not limit the challenged claims in the manner argued by Patent Owner. *See* Reply 11 & n.4 (stating "under BRI, the claims do not recite this mode," "except for [unchallenged] independent claim 19" (which recites "for displaying program schedule information in a browse mode" (Ex. 1701, 29:67–30:1)). Petitioner agrees the challenged claims *cover* "successive in time" portions as the Browse mode supports, 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 (via cursor movement in a guide). *See* Reply 4 (citing Ex. 1701, 14:1–28). As Petitioner argues, the challenged claims recite navigation listing information for "sequential time periods or

programs," not time periods *and* programs. *See id.* at 20 (emphasis by Petitioner).

The '556 patent and claim language supports Petitioner's position. The '556 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. 1701, 3:4–9 (emphases added). This passage does not limit the simultaneous viewing of "selected broadcast programs" or "*program* schedule information for other *channels and/or services*" to a single-entry (i.e. for a single program or channel). Construing the claims to include listing either a single program or several programs listed simultaneously as a partial overlay provides the surfing feature described as a need: "[A] a need exists for a program guide which displays current program schedule information for each channel as the user surfs through the available channels." *Id.* at 2:59–61.[9]

In the context of at least one embodiment of the Browse mode, surfing means simply obtaining textual information about a channel while viewing another channel—as opposed also to viewing video on, and textual information about, each channel as occurs while surfing in the Flip mode. *See supra* Section I.C; Ex. 1701, Figs. 5 (Flip), 11, 12, 12A (Browse). So a user can "surf" in the Browse or Flip modes by flipping through a single line

[9] Figures 36A–D represent a flow diagram of the disclosed process, but the parties do not provide briefing on that flow diagram to resolve the question of whether the Browse mode includes more than one listing and cursor navigation. Figures 36A–D do not limit the Browse mode to a single listing.

of channel information (providing textual information about the channel) displayed as a partial overlay. *See id.* Or according to the general teaching at column three quoted above and other disclosed aspects of other modes, a user can "surf" by scrolling a highlighting cursor across two or three lines of channel information displayed simultaneously as a partial overlay. *See* Ex. 1701, 3:4–9, 3:33–37, 2:42–61, 15:8–12, 15:42–47. Challenged claims 23 and 25 comport with both surfing descriptions, but more closely hue to the latter, by reciting "displaying . . . interactively-selected successive *portions* of said schedule information *comprising listing information for at least one program*." *Id.* at 31:35–40 (emphasis added), 32:34–38 (emphasis added).

During the Oral Hearing, Patent Owner characterized the quoted passage at column three, lines 4–9, as "just a generic characterization." *See* Tr. 44:3–44:7. Patent Owner explained that only the Flip and Browse modes provide for partial overlays, but this explanation does not address the column three passage, which provides support for the broad language in the challenged claims—i.e., providing for overlays of guide *portions* not limited to a single line of information—and without any mention of the Browse mode (or any mode). *See id.* at 50:2–7; Ex. 1701, 3:4–9. Claims 23 and 27 broadly recite "*portions* of said schedule information *comprising listing information for at least one program.*" *Id.* at 31:36–40 (emphasis added), 32:34–38 (emphasis added). *Portions* include more than a single line of information.

A single-line of information as disclosed in the Browse mode imputed by Patent Owner as limiting the challenged claims improperly relies on the figures to limit the claims. *See* Ex. 1701, 11:10–15, 33–53, Figs. 11, 12, 12A. "While the drawings of [the Browse mode] consistently depict [adding and deleting a single line of information], drawings in a patent need not

illustrate the full scope of the invention." *See Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246, 1255 (Fed. Cir. 2011) (citing *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007) ("[P]atent coverage is not necessarily limited to inventions that look like the ones in the figures. To hold otherwise would be to import limitations onto the claim from the specification, which is fraught with danger.")).

During the ITC Case, contrary to its position here, Patent Owner agreed the figures cannot limit the claims, arguing "further limiting 'browse mode' *to the display of only one program listing is unwarranted*. . . . In contravention of settled rules, *this would limit the term to the figures disclosed in the specification*." Ex. 2701, 60 (citing *Hill-Rom Servs. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014)) (emphasis added).

Also, the '556 patent describes splitting the television screen, or on a single screen, showing two or more programs while employing the Browse mode. Ex. 1701 ("[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." *Id.* at 11:54–58. These disclosures contemplate viewing different types of information in an interactive overlay simultaneously with multiple television video programs—coupling interactive program overlay information for each of the broadcast programs appearing on a single screen. This shows that the Browse mode or a contemplated mixture of modes

involves listing multiple interactive items of program information as an overlay corresponding to one or more broadcast programs on the screen.[10] 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).

In relation to Figures 18 and 25 relied upon by Petitioner, as part of the "All Listings mode" (*see* Ex. 1701, 13:15–14:44), the specification states "[i]n the All Listings mode, *a moveable highlighted cursor 185 is used to indicate the currently selected program to the user*. The user manipulates the cursor movement using the direction arrow keys on the remote controller." *Id.* at 14:42–44 (emphasis added). In other words, in this mode, the moveable cursor "indicate[s] the currently selected program to the user," which supports Petitioner's position that moving a highlighted cursor in general corresponds to the "consecutively displaying" and "displaying interactively-selected successive portions" limitations.

In the Menu Mode, the specification states "no program signal is displayed on the television receiver"—i.e., no overlay occurs in that mode. Ex. 1701, 13:28–29. Nevertheless, as discussed above, the specification generally does not limit the claims to a specific Browse mode feature (e.g., a single channel listing or adding and deleting that listing) or to an overlay menu size, as it generally describes "a particular need for a flexible program schedule . . . to view selected broadcast programs on a portion of the screen .

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[10] 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 this way. You might have other modes that do other things. It's a comprising claim.").

. . while *simultaneously* viewing program schedule information *for other channels and/or services on another portion of the screen.*" *Id.* at 3:4–9 (emphasis added). As discussed above, this passage describes *simultaneously* viewing information about multiple channels or other services, instead of simultaneously viewing just one channel at a time. 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*." *Id.* at 3:33–37 (emphasis added). Some navigating mechanism necessarily must exist to interact with the overlaid schedule information that contains more than one line of information. The '556 patent provides the mechanism—"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." *Id.* at 8:49–54 (emphasis added). In other words, the '556 patent describes using a remote controller to control a cursor or otherwise control selections, as implemented by a conventional remote controller.

Although, as noted in the discussion of the ITC Case (Sections II.A.1, II.A.3), the ALJ determined that the Browse mode only lists one program at a time, the record does not indicate the ALJ considered the broader column three passages or other passages as quoted above. Also, Patent Owner contended no need exists here to resolve that single-entry listing question. *See* Tr. 45:14–16 ("And whether or not it should be limited to one display, I don't think that's a question we need to reach here because there is no successive display at all."). Later, however, Patent Owner responded "I

think it does" during a colloquy about whether the '556 patent supports selecting one of two simultaneous listings with a cursor in the Browse mode. *See* Tr. 51:13–52:12 (contending this question does not appear in the briefing).

Accordingly, Patent Owner does not contend here specifically that the challenged claims require "single-entry" listing overlays, but does appear to contend the claims require adding and deleting—i.e., because they preclude cursor navigation. *See* Reply 4 (characterizing Patent Owners arguments). This contention involves picking and choosing different disclosed Browse mode features as claim features. *See id.* As described above, the '556 patent supports combining cursor features of the Menu mode, with overlay features of the Browse mode, or other modes, per the generic passage describing flexible overlays of viewed programs (Ex. 1701, 3:4–9), the similar passage describing interactive overlays of programs as an object of the invention (*id.* at 3:33–37), the cursor navigation passage (*id.* at 8:49–54), and the passage describing channel surfing as providing program information for unviewed programs instead of "wait[ing] until the advertisement . . . is over" (*id.* at 2:42–61). Stated differently, the '556 patent supports displaying successive selections provided by commanding a highlighting cursor in a partial overlay as satisfying the "consecutively displayed" and "interactively-selected [successive] portions."

Moreover, "even where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words of expressions of manifest exclusion or restriction." *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1381 (Fed. Cir. 2009); *Liebel–Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004). The '556 patent does not

show a clear intent to limit the "consecutively displayed" and "interactively-selected [successive] portions" to any specific features of a Browse mode or to limit aspects of "other modes" as a partial overlay that may include a "highlighted program." *See* Ex. 1701, 15:41–42.

Patent Owner raises the prosecution history, but Patent Owner does not explicitly contend or show how it narrows the challenged claims. For example, in a section titled "Relevant Prosecution History" (PO Resp. 13), 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. 13–14 (quoting Ex. 1706, 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" as somehow implicating a requirement to "change[] the display" *Id.* at 28. But Patent Owner does not show how any specific prosecution history argument limits the challenged claims to *require* a change of displayed textual schedule information (to preclude cursor navigation). *See id.*

The cited prosecution history argument (PO Resp. 14 (citing Ex. 1706, 979)) reveals then-Applicant argued "[a]s *also* reflected in the Interview Summary Record of May 7, 1996, the Examiner also found separately allowable claims directed to the Browse mode in combination with the capability of a user to selected a reminder for a chosen program." Ex. 1706, 979 (emphasis added). This argument, which purportedly summarizes the noted interview with the Examiner, at most shows Applicant argued *some claims* (discussed during the May 7, 1996 interview as noted below) include a Browse mode. Applicant concluded its prosecution

argument with "[a]ll of the pending claims . . . now include either the tuning or reminder aspect." *Id.* This concluding statement does not refer to the Browse mode. *Id.*

In addition, contrary to how Applicant characterized the May 7, 1996 interview in its prosecution arguments, the Interview Summary Record does not refer to the Browse mode. *Id.* at 939. And it lists only three claims, claims 42, 72, and 73, as the "[c]laims discussed." *Id.* Claims 42, 72, and 73 issued respectively as claims 2, 16, and 17. *See* PO Resp. 11; Ex. 2401, 939, 1835, 1845. (The record reveals that then-claims 42 and 73 did not issue until further amendments. *See* Ex. 2401, 951–52, 961 (May 23, 1996 amendments, referring to subsequent amendments E2, M2)).[11]

Of the three claims discussed during that interview, only then-claims 72 and 73 included language implicating aspects of the Browse mode by reciting "said navigation including deleting at least one program listing appearing in the overlay and adding at least another program listing in the overlay." Ex. 1706, 960–962 (underlining original showing amendments by Applicant), 946, 976 (May 23, 1996 amendments and remarks "in response to the Office Action dated March 6, 1996" and in response to "the personal

[11] The Examiner issued a Response to Rule 312 Communication, referring to an amendment of November 29, 2001 filed by Applicant. *See id.* at 1829. Applicant filed the amendment pursuant to 37 C.F.R. § 1.312. *Id.* at 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." *Id.* at 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. *Id.* at 1824–29. On July 30, 2001, the record indicates Patent Owner did not present arguments for patentability, but presented a paper stating it amended the inventorship. *See id.* at 1817–23.

interview held on May 7, 1996"); *see supra* Section I.C (discussing Fig. 12A and the Browse mode which includes adding and deleting one program at a time).

In the same May 23, 1996 amendments, Applicant *deleted "one at a time"* from the phrase "displayed [one at a time]" in prosecution claims 72 and 73 (now claims 16 and 17). Ex. 1706, 960–62. Similarly, as indicated in the previous paragraph, Patent Owner also added "at least" to the adding and deleing phrase of claims 72 and 73. *Id.* These amendments show Applicant did not intend to limit any claims to a partial overlay with a single program listing. And because, for example, claim 17 expressly recites the adding and deleting limitations, this dictates against imputing the "change" of display urged by Patent Owner to challenged claims 23 and 25.

In the same May 23, 1996 remarks that involved amendments adding "at least" and removing "one at a time" after the May 7, 1996 interview, Applicant argued

> the principal invention of the claims remaining in the present application - - i.e., *the so-called 'Browse' mode of operation—permits* a user to interactively scan through program listings in a time and/or channel domain while continuing to view the current program . . . . The user can thus interactively navigate through the listing information . . . by issuing appropriate sequential time and/or channel control commands, while not missing any content of the program being simultaneously viewed.

Id. at 977 (emphasis added).

In the context of the amendments (i.e., adding "at least" and removing "one at a time") to claims 72 and 73 discussed during the May 7, 1996 interview, Applicant's quoted arguments above do not urge a single-entry restriction with respect to any claim, and at most implicate adding and deleting with respect to claims 72 and 73 (per their claim language as

amended), whatever Applicant considered to define the Browse mode. Also by referring to what "the so-called 'Browse' mode of operation . . . *permits*," Applicant did not restrict the claims to a specific feature of the Browse mode. *See id.* (emphasis added). Even if Applicant, at most, may have intended some claims to include some features of the "so-called 'Browse' mode of operation"—only challenged claim 17 retains any of the argued features—and claims 17, 23 and 25 includes more than a single-entry program listing (thereby including cursor navigation).

During the ITC Case, Patent Owner down-played its use of the term "browse" and stressed its prosecution history arguments and claims intended to capture

> *a television signal in partial overlay with a guide having interactive functionality*—including the ability to scroll through different time periods and channels, tune to different programs from the guide, set reminders, etc. Although *the inventors used the short-hand term "browse"* to describe these features, *they did not limit the invention to a "browse" mode of operation*. They simply pointed out that the claims *did not cover static guides overlaid with program information*-something that the claim language regarding the video display generator means also makes clear.

Ex. 2701, 68 (emphases added).

Shifting from its characterization of the prosecution history in the ITC case as merely overcoming overlaid "static guides," Patent Owner argues here that the challenged claims "are directed to interactively-selected successive portions of schedule information ***for display*** in an overlay—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. 28 (citing Ex. 2706 ¶¶ 82–83). Again, this

ambiguous argument about "change" at most only tracks the scope of claim 16's and 17's adding and deleting limitations. Regarding the challenged claims, as discussed above, passages in the specification quoted above (*e.g.* Ex. 1701, 3:4–9, 33–37, 8:49–54), and Patent Owner's position in the ITC Case, describe a need for *flexible interactive* partial overlays (as opposed to "static guides" (Ex. 2701, 68)) without precluding cursor navigation (i.e., otherwise requiring specific Browse mode features such as the adding and deleting features or the single-listing features). *See* Ex. 1701, Figs. 11, 12, 12a (discussed *supra* Section I.C).

Moreover, unchallenged claim 19 specifically recites "the browse mode of operation" (Ex. 1701, 30:1–2) and no other challenged claim does. As none of the challenged claims recite the Browse mode, claim 19 indicates Patent Owner did not intend the challenged claims to require the recited "browse" limitation (even if Patent Owner intended otherwise for claim 17 and 19). "[I]mporting a [browse] limitation improperly discounts substantive differences between the claims. Such differences can be a 'useful guide in understanding the meaning of particular claim terms.'" *Arlington Indus.*, 632 F.3d at 1254 (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc); citing *Curtiss–Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381 (Fed. Cir. 2006) ("[C]laim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous . . . .")); *see also 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."). [12]

Like claim 19, claim 17 also undermines Patent Owner's arguments. Claim 17 limits the "interactively selected . . . and consecutively displayed . . . for successively navigating" clause by reciting "said navigation including deleting at least one program appearing in the overlay and adding at least one program appearing in the overlay." Claim 17 shows that "interactively selected" and "consecutively displayed" as recited in the other challenged claims does not require adding and deleting, otherwise, the adding and deleting clauses recited in claim 17 would be superfluous. *See Arlington Indus.*, 632 F.3d at 1254 (citing *Curtiss–Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381 (Fed. Cir. 2006) ("[C]laim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous . . . .")).

Assuming for the sake of argument that alleged prosecution history disavowals apply in these *inter partes* proceedings, Patent Owner's remarks in the instant case that rely on prosecution history fail to show how its statements in the prosecution history met the exacting standard of disclaimer of claim scope during prosecution required to limit the challenged claims to the disclosed, but unclaimed, Browse mode features (e.g., adding and

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[12] *Arlington* applied the doctrine of claim differentiation on two independent claims. *See id.* at 1250–54 (claims 1 and 8). We recognize the doctrine is not "at its strongest" here, but it does shed light on the patentee's intent, as *Arlington* makes clear. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) ("[W]here the limitation that is sought to be 'read into' an independent claim already appears in a dependent claim, the doctrine of claim differentiation is at its strongest.").

deleting, or single-listing features). "Disavowal 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* at 10 (quoting *Epistar Corp. v. Int'l Trade Comm'n*, 566 F.3d 1321, 1334 (Fed. Cir. 2009)).

Patent Owner also argued during the ITC Case that construing the claims to require a Browse mode "unduly narrows the claims' scope." *See* Ex. 2701, 71; 48Inst. Dec. 23–25 (discussing the ITC Case and "one mode"). Consistent with that position, in summarizing its position during prosecution, Applicant stated "[t]he fact that all of the pending claims remaining in the application now include either the selecting or reminder aspect *is an independent basis for allowance of the present application*." Ex. 1706, 1032 (May 27, 1997 Applicant remarks (emphasis added)). Applicant also stressed that "the references currently teach or suggest no more — i.e., the display of schedule information as an overlay." *Id.* at 1031. Distinguishing static guides, Applicant explained its claims require "a fully interactive capability for allowing the user to sequentially navigate through the program schedule information in a time and/or channel domain." *Id.* at 978. None of the arguments discuss, let alone preclude, cursor navigation.

As noted above in Section II.A.1, the challenged claims recite "displaying reminder selection messages in at least one mode" showing, per the explicit claim terms (i.e., "at least one mode") that the challenged claims do not require selecting a reminder message in a single mode of operation (such as the Browse mode). *See, e.g.*, Ex. 1701, 15:8–13 (providing reminder selection in the "All Listings Mode"—a feature of the Menu

mode).[13] The challenged claims also require a reminder message "to be displayed . . . at a predetermined time prior to the time of occurrence of each chosen future one of said television programs." This clause makes little sense if the Browse mode cabins the challenged claims on all fronts, because not displaying reminder messages in the Menu mode, Flip mode, or a normal television viewing mode, defeats the purpose of the reminder message as alerting a viewer of an upcoming desired program. *See* Ex. 1701, Fig. 14 (reminder message 140); 12:63–13:4 (reminder message appears five minutes before the selected program begins); Inst. Dec. 30–32.

In summary, the prosecution history arguments, the ITC Case arguments by Patent Owner, the disclosures in the '556 patent describing general remote control, cursor navigation, and the ultimate need for a flexible interactive program guide, and the plain language of the challenged claims reciting "displaying *portions of said schedule information comprising listing information for at least one program*," support Petitioner's claim construction. The challenged claims do not require adding and deleting textual or other information. The '556 patent's disclosure of "a moveable highlighted cursor . . . to indicate the currently selected program to the user" (*see* Ex. 1701, 14:42–44, Fig. 18) and highlighting disclosures for "other modes" (*id.* at 15:42–47) show that highlighting successive time slots or channels on a screen, without necessarily changing textual information on

[13] The challenged claims require displaying the "reminder message being displayed in overlaying relationship with another display signal being displayed at the time said reminder message is displayed" (which may include a television viewing mode), they do not do not require displaying the reminder messages in any particular mode and do not require selecting the reminder messages during an overlay event.

the screen, corresponds to the "successive portions" and "consecutively displayed" navigation limitations of the challenged claims, with claim 17 narrowing those navigation phrases by reciting adding and deleting phrases.

Accordingly, even if the claims *include* features of the Browse mode, nothing *limits* the claims to that mode generally or specifically with respect to selecting and displaying a portion of a program guide as a partial overlay. Based on the foregoing reasons, we adopt Petitioner's claim construction as the broadest reasonable construction. Therefore, selected successive portions and consecutively displayed portions include consecutive in time or spatially consecutive displays of portions.

3. The ITC Case Infringement Allegations

Petitioner contends Patent Owner's infringement allegations during the ITC Case support its claim construction positions. Reply 4–7. As discussed above in the claim construction section, 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. Inst. Dec. 23–25. 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. 41:7–9), 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. Paper 33. 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 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.

Id. (citing Ex. 2[7]01, 69).

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 id.*; 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 2 (citing Ex. 1[7]28, 2–3; Ex. 1[7]29; Ex. 1[7]30; Ex. 1[7]31; Ex. 1[7]32; Ex. 1[7]33).

> For example, Dr. Delp explains that "limitation 3f" in claim 3, i.e.,
>
> > each said portion comprising listing information for each successive one of said television programs scheduled to appear on said set of channels and being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is stored in said memory means,
>
> reads on "[t]he Mini Guide." *See* Ex. 1728, 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 overla[i]d 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. 1728, 2 (emphasis added). This testimony tracks Petitioner's claim construction here.

In its Opposition, Patent Owner responds by arguing "Dr. Delp pointed to the cursor movement for 'navigating' within the guide, and not for the disputed 'display of interactively-selected successive portions' and 'consecutively displaying each said portion' limitations." PO Opp. 3 (citing Ex. 1[7]28, 2). The cited evidence does not support Patent Owner. It 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. 1728,

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 id.* At the outset, Dr. Delp generally stated "[t]hey do" after being asked if "the Legacy guide boxes satisfy this [claim 3f] limitation." *See id.* at 2. The claim 3 limitation, including "consecutively displayed in response to corresponding consecutive . . . commands," reasonably corresponds to the challenged claims limitations of "consecutively displayed" and "interactively-selected [successive] portions."

Based on the foregoing discussion, Petitioner shows persuasively that Patent Owner's positions in the ITC Case support Petitioner's claim construction here and contradict Patent Owner's claim construction arguments here.[14]

B. Obviousness

As indicated above, Petitioner contends that the challenged claims of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young '801, Young '121, and Strubbe, further in view of one of Moro (48IPR), Reiter (49IPR), or Remillard (50IPR).

1. Level of Ordinary Skill and Weight of Expert Testimony

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

[14] Both parties appear to have switched positions to a certain extent relative to positions in the ITC Case. *See, e.g.*, Ex. 2701, 68–73, 100. Nevertheless, the record here supports Petitioner's claim construction for the reasons explained herein, including a different evidentiary record, and the ITC Case involved a narrower claim construction standard than the standard employed here.

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

Pet. 16 (citing Ex. 1709 ¶ 30).

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. 14–15 (citing Ex. 2706 ¶¶ 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. 66:11–18. 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.

Petitioner contends we should afford little weight to the testimony by Patent Owner's expert, Alan C. Bovik, Ph.D., about 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. Reply 1–3.

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."); *cf. In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (Petitioner's burden of proving obviousness cannot be satisfied by mere conclusory statements).

2. Overview of Young '801

Young '801 discloses program schedule information for a currently tuned channel and other channels. *See* Ex. 1702, Fig. 2. Young '801 describes an interactive program guide/grid including program schedule information stored in schedule memory 232 and outputted to video display generator 224. *Id.* at 26:5–7. According to Young '801, 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). *Id.* at 11:30–12:26, 13:28–14:5.

Figure 2 (annotated by Petitioner (48Pet. 36)) follows:

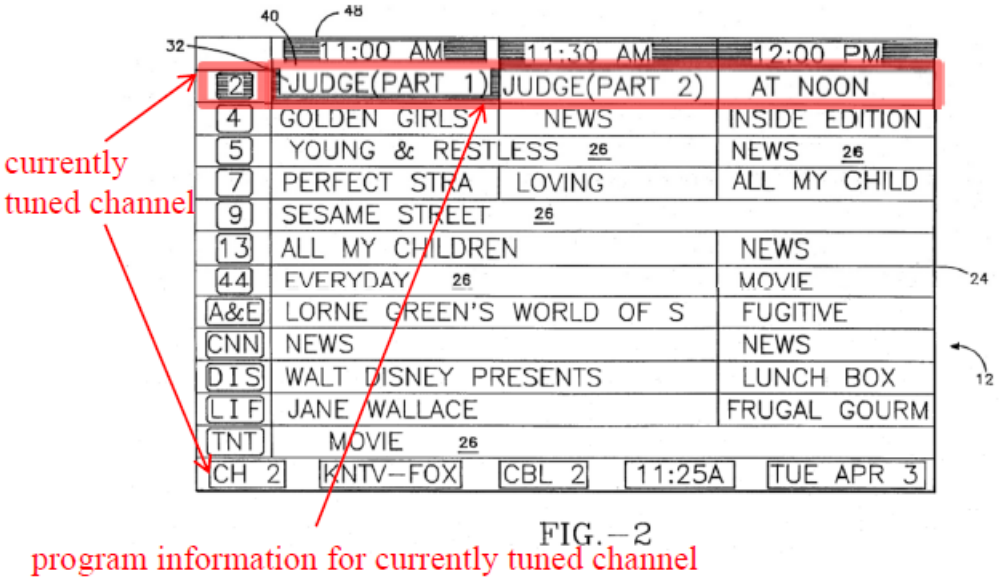


FIG.–2

Figure 2 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. *See* Ex. 1702, 13:5–14:5. As shown above, upon first opening the guide, the cursor 32 appears situated on the current program of the currently-tuned channel. *Id.* at 13:28–30. The grid highlights the currently-tuned channel. *Id.* at 13:5–7, Fig. 1.

Figure 6 of Young '801 (as annotated by Petitioner) follows:

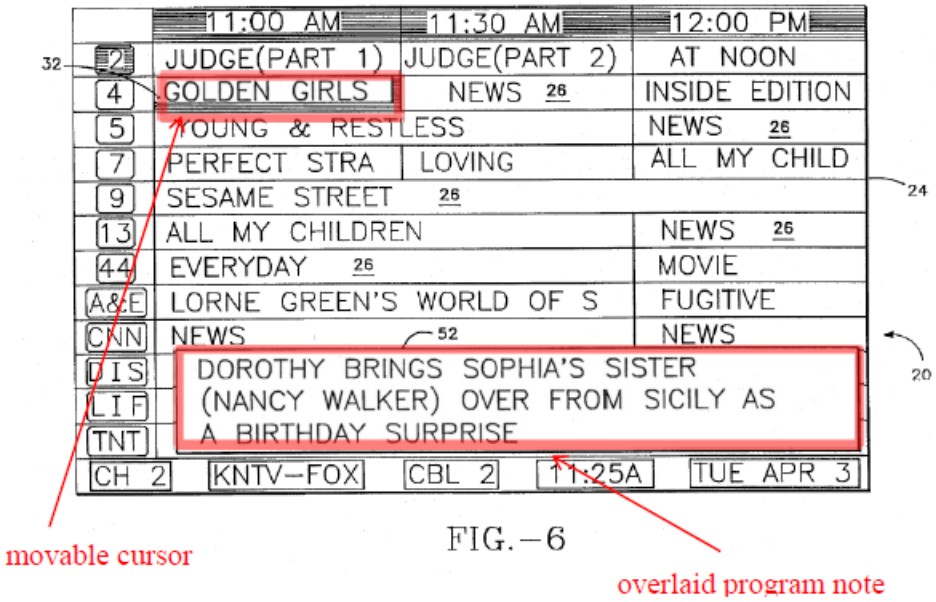


FIG.–6

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

Young '801 also discloses "[a] grid 24 page may be changed by either a page command or by entering a channel Up/Dn command as described above." *Id.* at 13:7–9. Young refers to the latter command as a "Tuner command," stating "[w]hen the last channel on a page is reached, the next Tuner command will change the channel to the channel listed at the beginning of the following page." *Id.* at 13:1–4; *see also* 12:36 (describing

"a Tuner Up/Down channel command"). Young also describes highlighting channels "[o]nce into the new page." *Id.* at 13:17–18. In other words, in addition to using the Tuner Up/Down command to highlight cells 26 within a page, Young '801 discloses changing a page to display another set of channels using a page command or the Tuner Up/Down channel command (which changes the page when the highlighted cursor exists at the top/bottom of a page). *See id.* at 13:1–34.

In addition, Young '801 discloses "grid continuity icon 38" in Figure 1, which "indicate[s] cell 26 continuity," wherein "the border of a cell 26 . . . *is continued to the next screen*." *Id.* at 9:30 (emphasis supplied). In other words, Young '801 discloses moving a cursor 32 within a page and for displaying a future set of times for a group of displayed channels on another page (i.e., "continued to the next screen"). *See id.* at 9:7–10:5. Young '801 provides "schedule update[s]" and allows future programs to be recorded. *See id.* at 10:6–31.

Another command, the "What's On TV command," "alternates between the grid guide 24 and the What's Next on Channel row guide 58." *Id.* at 14:14–16. This command "will replace the grid guide 24 with a single channel row guide 58." *Id.* at 14:17–18. Toggling the command "switches between the grid 24 and the list 58." *Id.* at 14:8–9. Also, "[w]hile viewing the single channel row guide 58, the Up/Down channel command may be used to change the channel to be listed." *Id.* at 14:23–25.

3. Overview of Young '121

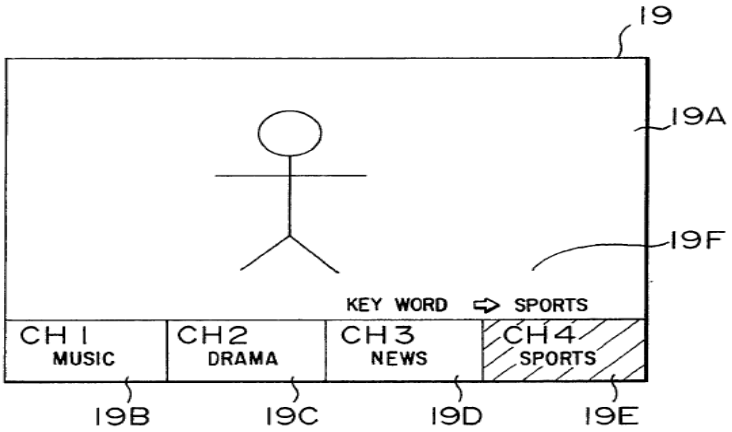
Young '121 teaches allowing a user to select a program from a program guide to create a reminder for selected future and recurring programs by toggling keys on remote control transmitter 116 or 118, with the reminder superimposed as a subtitle on the future TV program. Ex.

1711, 9:48–50; 15:19–16:41, 20:39–46, Figs. 3, 5, 13 (flow box 508). Young '121 also teaches the desirability to eliminate manual selections and allow all programs to be selected from a guide "by pointing to menu items." *Id.* at 3:21–24.

4. Overview of Moro

Moro discloses overlaying interaction menus on a portion of a television broadcast using a remote control device. Ex. 1703, Abstract, 2:40–52, 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 4:45–5:9. Moro describes one benefit of the system as allowing a user to obtain information about other programs "without interrupting" the currently viewed show. *Id.* at 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.

5. Overview 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. 1704, 6:13–38, 3:13–26. Reiter provides an option of displaying the television schedule information as an interactive menu 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 "scroll[ing]"), 4:63–65 (similar disclosure). Reiter discloses a viewer who "wished to view a subset of the information, e.g., the television program schedule for the day . . ., 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, which mixes video data with program information and/or closed caption data to provide the overlay. *See id.* at Figs. 1, 2. The mixer mixes "a regularly received television signal with the signal generated by the microcontroller. *Id.* at 2:45–47. 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 [a]s 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.

6. Overview of Remillard

Remillard discloses overlaying interaction menus on a portion of a television broadcast using a remote control device. Ex 1705, Abstract, 2:63–3:3, 5:55–61 ("television broadcast").) A reproduction of Figure 3 of

Remillard follows:

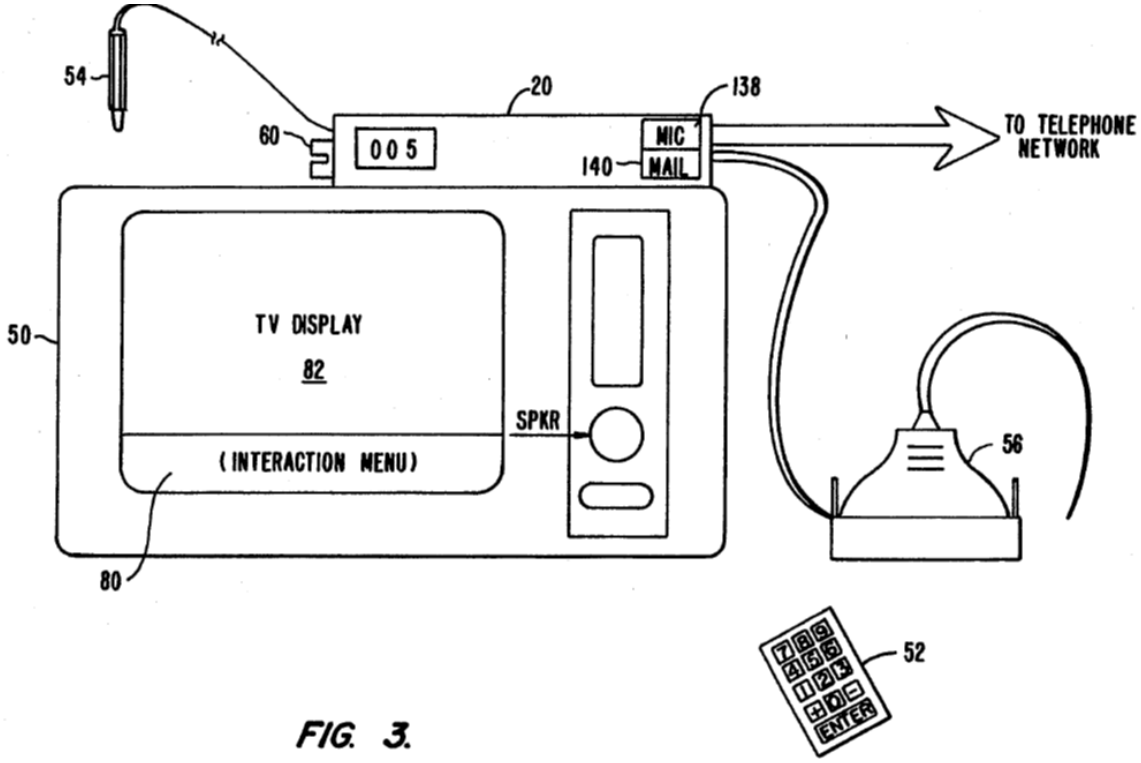


FIG. 3.

Figure 3 shows interaction menu 80 overlaid on a portion of a television broadcast, and shows remote control device 52 for interacting with the menu. *See* Ex. 1705, 7:35–50. 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." *Id.* at 2:63–3:1. Remillard states "[w]hen the user selects a particular show matching a predefined criteria, a special menu or informational graphic is optionally displayed" as an overlay in window area 80. *Id.* at 6:1–3. A user can also select a "purchasing menu" to overlay in window area 80. *Id.* at 6:4–6.

7. Overview of Strubbe

Strubbe describes an interactive menu system that provides overlay messages including reminder messages. Strubbe states "[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. 1710, 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. 1710, 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. 1710, 6:45–49 ("This reminder may be . . . a visual message (typically shown as a [picture-in-picture (PIP)] display. At the appointed time, the PIP may then show the opening, for example, 10 seconds of the program."), 8:19–24 ("In order to record a program presently being broadcast, the user depresses the Record Now button 52.6 on the remote control transmitter 52 and the graphic 'Recording' appears for approximately 10 seconds overlaid on the television screen with the program being recorded as shown in FIG. 11a.").

According further to Strubbe,

> [i]t 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:

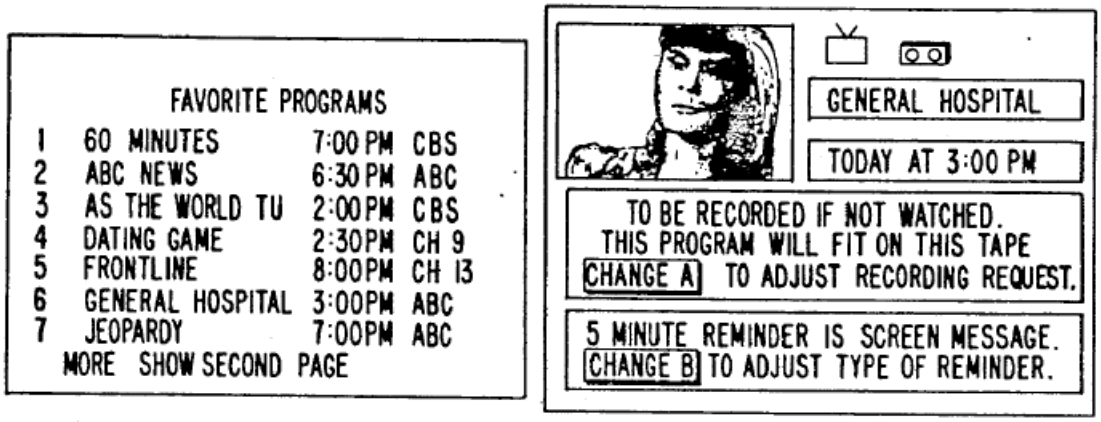


FIG. 6a FIG. 6b

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).

8. Young '801, Young '121, Strubbe, and Moro

Petitioner persuasively shows that claims 23 and 25–27 the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young '801 (Ex. 1702), Young '121 (Ex. 1711), Strubbe (Ex. 1710), and Moro (Ex. 1703). Pet. 26–45. Petitioner relies on the declaration testimony of Mr. Wechselberger (Ex. 1709). The Petition, citing Mr. Wechselberger, 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, 22–24 (citing Ex. 1706, 128–41, 442–44, 797, 810–823, 939–80; 1709 ¶¶ 54–72); Ex. 1709 ¶¶ 54–72 (summarizing relevant prosecution history).

Petitioner persuasively reads most of the claim limitations recited in independent claims 23 and 25 onto Young '801's interactive menu system. Pet. 26–53. For example, Petitioner reads the preamble of claim 23, "process for displaying television schedule information on a video display on which is displayed a display signal," onto Young '801's disclosure, *inter alia*, of a "process that allows a television viewer to access on screen television program listings and use the program listings in an easy and convenient way." *Id.* at 33 (citing Ex. 1702, 1:4–9, 4:15–18). Petitioner also cites Young '801's television/monitor 210 ("video display"), which displays television schedule grid 24 ("television schedule information") and also displays a concurrent broadcast signal ("display signal"). *Id.* (citing Ex. 1702, 12:27–32, 14:30–15:2, Figs. 1, 10, 22B; Ex. 1709 ¶¶ 121–124).

Petitioner persuasively reads claim 23's "storing in a memory television program schedule information" onto Young '801's disclosure of storing "listing data" in "schedule memory 232," and other similar disclosures, wherein the system transmits listing and other program data in a VBI of a television signal. *See id.* (quoting Ex. 1702, 25:29–30, Fig. 22A; Ex. 1702 ¶ 125).

Petitioner persuasively reads claim 23's "user control means" for issuing commands and transmitting signals on Young '801's remote controller 212. Pet. 34–36 (citing Ex. 1702, 10:6–9, 13:28–34, 26:5–10, 27:1–13, Fig. 21; Ex. 1709 ¶¶ 116–122); Ex. 1702, Figs. 21, 22A (remote controller 212).

Petitioner persuasively reads claim 23's "receiving by a data processor said user control commands" onto Young '801's disclosure of CPU 238 ("data processor") that receives signals in response to user control commands. *Id.* at 36 (citing Ex. 1702, Fig. 22A (characterizing "CPU 228 connected to IFR receiver 264, which receives signals from remote controller 212"), 27:1–13, 24:17–24; Ex. 1709 ¶ 133).

Petitioner persuasively reads claim 23's "controlling a program schedule display generator with the data processor for displaying" a partial overlay of schedule information "for at least one program different from said display signal" partly onto Young '801's video display generator 224 ("program schedule display generator"), as controlled by CPU 228 ("data processor"). *See* Pet. 36–40 (citing Ex. 1702, 11:30–12:26, 13:28–14:5, Fig. 6). Petitioner explains "Young '801 describes an interactive program guide/grid including program schedule information stored in schedule memory 232 and outputted to video display generator 224." *Id.* at 38 (citing Ex. 1702, 26:5–7). Petitioner explains that Young '801 provides an

interactive menu that allows a user to see a currently selected program and select displayed portions for a currently tuned program and for other programs on a different channel. *See id*. at 38–39 (discussing Ex. 1702, Fig. 6).

Petitioner persuasively contends the "interactively-selected successive portions," "consecutively displaying," and "navigating" limitations ("consecutively displaying each said portion of said schedule information in response to consecutive user-activated 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") read on displaying highlighted cursor movements as the cursor moves across the grid of Young '801 to select different channels or programs. *See* Pet. 36–45 (citing Ex. 1709 ¶¶ 155–158 (discussing navigating through grid time periods or programs 11:00AM, 11:30AM, and 12:00PM); citing Ex. 1702, 3:14–17, 4:27–5:3, 8:28–9:29, 13:5–15:1, 26:5–10, Figs. 1, 2, 6, 7). Petitioner also relies on control commands specific to the schedule for navigation, including channel up/down keys 136 and a "What's On TV key" 142. *Id*. at 34–35 (annotating Ex. 1702, Fig. 21).

According to Petitioner, Young '801 does not disclose a partial overlay feature involving a program guide displayed at the same time and partially overlaying a television program, but Moro suggests such a feature in the system of Young '801. *See* Pet. 40–41 (citing Ex. 1703, Fig. 2, 5:31–35, 6:3–7). Petitioner contends Moro "discloses superposing . . . character information on the television signal. . . . Thus, a user can learn about other available programs 'without interrupting' the program he/she is currently watching, thereby 'greatly improving the operating convenience.'" *Id*. at 41 (quoting or citing Ex. 1703, 2:48–52, 3:55–58, 5:31–35, 6:3–7).

Petitioner articulates persuasive reasons why a person of ordinary skill in the art would have modified Young '801's interactive system to include a partial overlay as Moro suggests. For example, Petitioner contends the modification would "allow a viewer to view the program information without interrupting the currently tuned and displayed program as taught by Moro." *Id.* at 42 (citing Ex. 1709, ¶143). Petitioner persuasively contends the proposed modification

> would have merely involved combining prior art elements according to known methods to yield predictable results. . . . The known prior art elements are the currently tuned program and program schedule information in Young '801. The known method is the overlaying technique disclosed in Moro. The predictable results are allowing the viewer to view the program schedule information without interrupting the currently tuned and displayed program, as taught by Moro.

Id. at 43 citing (Ex. 1709 ¶¶ 144–145).

Petitioner also persuasively contends

> [i]t . . . would have been apparent to a POSITA that Young '801's program guide could be reduced in size to prevent it from obscuring most of the currently tuned and displayed program, 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."

Id. (quoting Ex. 1702, 4:15–18; citing Ex. 1709 ¶ 150). As one example of providing a minimum amount of information, Young '801 discloses an overlay displaying information about a single television program. *See* Ex. 1702, Figs. 9, 10.

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. 44 (citing Ex. 1709 ¶¶ 146–149). Citing relevant portions of the prosecution

history, Mr. Wechselberger explains that "[t]he examiner never changed his position [that] using an overlaying technique was obvious." Ex. 1709 ¶¶ 146–150 (discussing and quoting Ex. 1706, 797, 854, 1024–25). Mr. Wechselberger further explains "[t]oward the end of prosecution," Applicant amended claims to include a "reminder limitation" in order to overcome the Examiner's rejections. *See id.* ¶ 149 (citing Ex. 1706, 939, 946–980). Mr. Wechselberger also notes that during prosecution Applicant conceded "the references currently relied on teach or suggest . . . the display of schedule information in an overlay." *Id.* ¶ 148 (quoting Applicant, Ex. 1706, 1031).

Regarding the PSDG, Petitioner contends it would have been obvious to replace or modify Young '810's VDG 224 and video switcher 226 with Moro's character generator section 18 to implement the overlay functionality recited in the claims. According to Petitioner, Moro's "[c]haracter generator section 18 converts character information received from microcomputer 17 and superposes (overlays) the character information onto video signals that are sent to monitor 19 for display." Pet. 44 (citing Ex. 1703, 3:55–58, Fig. 1; Ex. 1709 ¶ 154).

Petitioner also persuasively 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. . . . A POSITA would have been motivated by trends in the television industry to incorporate computer components into televisions, and based on the knowledge of a POSITA regarding how to implement such functions.

Pet. 44–45 (citing Ex. 1709 ¶¶ 155–156); *see* Ex. 1709 ¶¶ 14–16, 155–156

(citing, *inter alia*, Ex. 1715, 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)). As indicated above in the claim construction section and in the Institution Decision, the '556 patent cites known hardware, including a commercially available video graphics card as an embodiment of a PSDG or VDG. *See supra* Section II.A.3; Inst. Dec. 16 ("In terms of the hardware, VDG 23, including an example of 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.'") (quoting Ex. 1702, 8:12–21).

Petitioner persuasively relies on the combination of Young '801, Young '121, Moro, and Strubbe to address the data processor functions of providing reminder and reminder selection messages and interactively controlling the PSDG to display selected portions of program schedule information partially overlaying another display signal and allowing a user issuing commands to navigate through listing information, as set forth in challenged independent claims 23 and 25. *See* Pet. 46–53.

As indicated above, Petitioner persuasively relies on Moro to suggest the partial overlay technique and structure to modify Young 801's PSDG based on Moro's teachings and/or trends in the industry suggesting video graphics cards, and Petitioner relies on Moro, Strubbe, and Young '121 to modify the data processor of Young '801, which controls the PSDG. *See* Pet. 42–45.

Petitioner persuasively relies on Strubbe and Young '121 to teach or suggest a similar partial guide overlay technique to that of Moro, further teaching displaying information, including reminder messages, for a predetermined time and including reminder selection messages. *Id*. at 46–52

(citing Ex. 1709 ¶¶ 163–167; Ex. 1711, 3:21–24 (teaching the desirability of setting reminders from a program guide); Ex. 1710, 6:42–49 (describing a Change B button and PIP (picture in picture) visual reminder displayed 10 seconds before show), Fig.14a (showing a reminder message).

In Strubbe, after a user selects "favorite broadcast programs" to place in a Future Program menu, the menu delivers an option for selecting a reminder message. *See* Ex. 1710, 5:29–50, 6:44–45, Figs. 6a, 6b, 8a, 8b, 8c, 8d. A user employs a "Change B" toggle option to select the type of reminder. *See id.* at 6:44–49 (allowing a user to select "which kind of audible/visual" reminder message and describing it as occurring "for example, minutes before the starting time of the program").

Petitioner cites Figure 14a of Strubbe, which discloses an example of reminder overlay (PIP) message, as reproduced below:

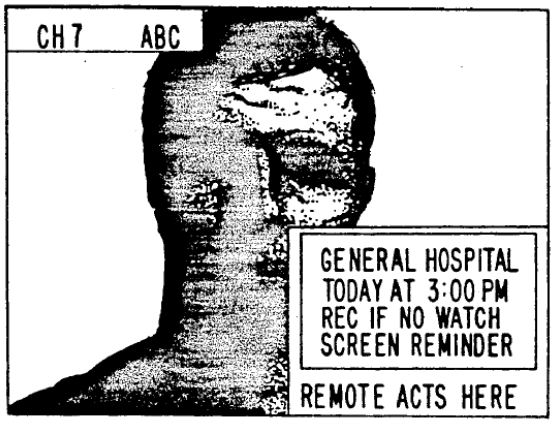


FIG.14a

Pet. 50 (reproducing Fig. 14a of Strubbe). Figure 14a above shows an overlay screen reminder message indicating "GENERAL HOSPITAL TODAY AT 3:00 PM)" overlaying a television show on channel 7 "ABC."

Building on Strubbe's reminder messages, Petitioner also persuasively contends

> Moro teaches overlaying program information for other channels on a currently tuned broadcast to allow the user to view the schedule information while still viewing the broadcast content which allows for "greatly improving the operating convenience." (Ex-1703, 2:48–52, 6:3–7.) In addition, Young '121 provides motivation for overlaying reminder messages because Young '121 teaches displaying a reminder/alarm by superimposing the name of the program, for which the reminder was scheduled, over another display signal as a subtitle on a TV screen.

Pet. 51 (citing Ex. 1711, 16:38–41, 20:43–46, FIG. 13 (step 508).)

Regarding a reason to modify the Young '801-Moro-Young '121 combination to include reminder selection messages as suggested by Strubbe, Petitioner persuasively contends it would "allow a user to customize the reminder" of the Young '801-Moro-Young '121 combination. *Id.* at 49 (citing Ex. 1709 ¶164). Petitioner further explains

> [a] POSITA would have recognized that program guide systems (like Young '801's system) were intended for a large number of users with various preferences. . . . And, Young '121 teaches the desirability of setting reminders from a program guide. Thus, a POSITA would have looked to improve flexibility of various aspects of Young '801's system, including when and/or how reminder messages are provided.

Id. at 50 (citing Ex. 1709 ¶ 158)(internal citations omitted).

Further regarding customizing the predetermined display time of a signal, Petitioner persuasively contends "Strubbe teaches displaying the reminder message on the display at a predetermined time period before the future program." *Id.* at 51 (citing Ex. 1710, 6:45–49, 10:6–14; Ex. 1709 ¶ 166). Petitioner cites Moro for its disclosure that displayed program

information "may be adapted to disappear automatically a predetermined time after starting [the] display." Pet. 54–55 (quoting Ex. 1703, 5:21–26).

Claim 27 narrows the predetermined time of claims 23 and 25 by requiring it to "a user-selectable variable time period." Petitioner persuasively builds on Moro's "adapted" statement regarding making information "disappear automatically" (*id.* at 54 –55 (citing Ex. 1703, 5:21–26)) as follows:

> A POSITA would have appreciated that displaying program information for a predetermined time period, as shown in Moro, would provide the information while limiting distractions. (Ex-1709, ¶¶177–178.)
>
> It would have been obvious to modify Young '801 to make the program schedule information disappear automatically at a predetermined time after starting display, as taught by Moro. (Ex-1709, ¶178.) It would further have been obvious 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. (Ex-1709, ¶178.) It was known that many predetermined values could be adjustable/user-configurable, thereby providing a customized and improved user experience. (MPEP § 2144.04 ("making adjustable"); Ex-1709, ¶178.) Young '801 even describes several adjustable or customizable options including the display of program notes and titles. (Ex-1702, 15:8–16, FIG. 11.)

Pet. 55.

Citing the testimony of Mr. Wechselberger and prior art references, Petitioner makes a detailed showing with respect to claims 23 and 25–27. *See id.* at 26–55. The showing for claim 25 largely tracks that for claim 23, and Petitioner points out persuasively how and where the references teach the difference in limitations. *See id.* at 52–53. Claim 26 depends from one of challenged claims 23 or 25 and further requires a display signal to consist of a television program. As Petitioner persuasively points out, and as noted

above, each of Young '801, Moro, Young '121, and Strubbe disclose a television signal with a guide. *Id.* at 54 (citing Ex. 1709 ¶¶ 172–173).

In light of the record, including a consideration of Patent Owner's counter-arguments addressed and summarized below, Petitioner persuasively shows that the subject matter of claims 23 and 25–27 would have been obvious over the combination of Young '801, Young '121, Strubbe, and Moro. *See id.*

Based on the summary discussion above and a review of the record, we agree with the accuracy of Petitioner's showing. In light of the record, including considering Patent Owner's arguments summarized below, Petitioner shows by a preponderance of evidence that the subject matter of challenged claims 23 and 25–27 would have been obvious over the combination of Young '801, Young '121, Strubbe, and Moro. *See id.*

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

Petitioner persuasively shows that claims 23 and 25–27 the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young '801 (Ex. 1702), Young '121 (Ex. 1711), Strubbe (Ex. 1710), and Reiter (Ex. 1703). Pet. 56–72. Citing the testimony of Mr. Wechselberger, Petitioner presents a detailed showing with respect to claims 23 and 25–27. *See id.* Similar to its ground based on Moro, Petitioner reads most of the claim limitations recited in independent claims 23 and 25 onto Young '801's program guide. *See id.* Petitioner relies on Reiter and Moro in a similar fashion, i.e., primarily to teach and suggest the partial overlay functionality and PSDG as recited in the challenged claims so that a viewer my continue to watch a current television program and obtain interactive programming guide information. *See id.* at 57 (citing Ex. 1704, 6:29–38, 3:13–26; Ex. 1709 ¶¶ 196–198). Petitioner explains a viewer in Reiter's system "may

choose between an overlay or full screen display to output the requested information." *Id.* (citing Ex. 1704, 4:40–5:22).

Petitioner persuasively contends the "interactively-selected successive portions," "consecutively displaying," and "navigating" limitations ("consecutively displaying each said portion of said schedule information in response to consecutive user-activated 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") read on displaying highlighted cursor movements as the cursor moves across the grid of Young '801. *See* Pet. 60 (relying on its showing outlined in Section II.B.8 (citing Ex. 1709 ¶¶ 181–189, 204-205)).

Similar to its showing above based on Moro, Petitioner relies partly on Young '121 to suggest setting up a reminder from a program guide. *Id.* Petitioner provides additional reasons for providing the overlay functionality, citing Young '801, Reiter, Young '121, and further relies on Strubbe to suggest providing reminder selection messages from an overlay configuration and providing responsive reminder messages overlaying a signal, as recited in the challenged claims. *See id.* at 57–59 & n.8 (citing Ex. 1702, 2:18–29; Ex. 1709 ¶¶ 208, 211). In addition to providing an articulated rationale as partly summarized above, Petitioner provides a detailed showing for each challenged claim, supported by a factual underpinning. *See id.* at 60–72.

Petitioner adds "the 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. 81 (citing Section VIII.A.1 of its Petition); *see* Ex. 1709 ¶¶ 146–149, 251–252. We

refer to our summary of the prosecution history set forth above in Section II.B.9.

Petitioner persuasively relies on its showing of claim 23 to address the differences between claims 23 and 25. *Id.* at 70 (citing Ex. 1709 ¶ 217); *id.* at 52–53 (table addressing similarities and differences). Claim 26 depends from claim 23 or claim 25 and requires a television display signal. Petitioner persuasively shows Young '801, Reiter, Young '121, and Strubbe each disclose a television signal and a program guide. *Id.* (citing Ex. 1709 ¶¶ 218–219). Claim 27 depends from claim 23 or claim 25 and requires "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." Relying on Strubbe and Young '801, Petitioner persuasively shows providing a user-selectable time-period would have been obvious to improve the customer experience by giving her some control while minimizing distractions of an overlay. *See id.* at 71–72 (citing MPEP § 2141; Ex. 1709 ¶¶ 224–225).

Based on the summary discussion above and a review of the record, we agree with the accuracy of Petitioner's showing. In light of the record, including considering Patent Owner's arguments summarized below, Petitioner shows by a preponderance of evidence that the subject matter of challenged claims 23 and 25–27 would have been obvious over the combination of Young '801, Young '121, Strubbe, and Reiter.

10. Young '801, Young '121, Strubbe, and Remillard

Petitioner persuasively shows that challenged claims 23 and 25–27 of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young '801 (Ex. 1702), Young '121 (Ex. 1711), Strubbe (Ex. 1710), and Remillard (Ex. 1705). Pet. 72–89. Citing the testimony of Mr. Wechselberger,

Petitioner makes a detailed and persuasive showing with respect to the challenged claims. *See id.* Similar to its grounds based on Moro and Reiter, Petitioner reads Young '801 on most of the claim limitations recited in independent claims 23 and 25. *See id.* at 77–89. Petitioner relies on Reiter, Moro, and Remillard in a similar fashion, i.e., primarily to teach and suggest the partial overlay functionality and the PSDG as recited in the challenged claims so that, *inter alia*, a viewer my continue to watch a current television program and obtain interactive programming guide information. *See id.* at 80 ("The predictable results are allowing the viewer to view the program schedule information without interrupting the currently tuned and displayed program." (citing Ex. 1709 ¶¶ 245–246)). In its summary and analysis, Petitioner also relies on purported Applicant Admitted Prior Art ("AAPA"), which we address further below. *See* 50Pet. 12, 22, 26–33.[15]

Petitioner adds "the 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. 81 (citing Section VIII.A.1 of its Petition; Ex. 1709 ¶¶ 251–22); *see* Ex. 1709 ¶¶ 146–149, 251–252.

[15] Petitioner contends that the description of commercially available components used to implement the video display generator ("VDG") and overlay technique described in the '556 patent (Ex. 1701, 8:3–48) constitutes AAPA that can be relied on for obviousness determinations. *See* Pet. 22 (citing MPEP § 2129, Ex. 1709 ¶¶ 108–110). According to the '556 patent, the VDG includes a commercially available VGA-type graphics card employed in the invention. *See* Ex. 1701, 8:3–48; Pet. 12, 22, 26–33.

With respect to overlay functionality and the related PSDG, Petitioner contends

> [t]he '556 Patent describes implementing the video display generator with "a commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec.". . . This 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.

Id. at 79 (quoting Ex. 1701, 8:11–12; citing Ex. 1709 ¶¶ 116–118); *see also id.* at 80–81 (contending the overlay functionality provided by Remillard and Young '801 suggest providing different listing information from the current display signal).

Petitioner persuasively contends the "interactively-selected successive portions," "consecutively displaying," and "navigating" limitations ("consecutively displaying each said portion of said schedule information in response to consecutive user-activated 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") read on displaying highlighted cursor movements as the cursor moves across the grid of Young '801. *See* Pet. 45, 77 (relying on its showing in Section VIII.A of its Petition); *see supra* Section II.B.8). As noted above in Section II.B.8, Petitioner also relies on control commands specific to the schedule, including channel up/down keys 136 and a "What's On TV key" 142. *See* Pet. at 34–35 (annotating Ex. 1702, Fig. 21).

Petitioner relies partly on Young '121 to suggest setting up a reminder from a program guide and from at least one mode. *See id.* at 82–83. Petitioner provides additional reasons for providing the overlay functionality, citing Young '801, Reiter, and Young '121, and further relies

on Strubbe to suggest providing reminder selection messages from an overlay and reminder messages overlaying a signal, as recited in the challenged claims, in order to obscure a minimal amount of information, prevent users from missing desired programs, and provide flexibility to accommodate different users. *See id.* at 80–87 (citing Ex. 1702, 4:15–18; Ex. 1710, 6:45–49, 10:6–14, Fig. 6b, Fig. 14a; Ex. 1711, 3:21–24, 15:19–16:41, 20:39–46, Fig. 13 (step 508); Ex. 1709 ¶¶ 247–252, 257–264). In addition to providing an articulated rationale as partly summarized above, Petitioner provides a detailed showing for each challenged claim, supported by a factual underpinning. *See id.* at 77–89.

Petitioner persuasively relies on its showing of claim 23 to address the differences between claims 23 and 25. *Id.* at 87 (citing Ex. 1709 ¶ 266); *id.* at 52–53 (table addressing similarities and differences). Claim 26 depends from claim 23 or claim 25 and requires a television display signal. Petitioner persuasively shows Young '801, Reiter, Young '121, and Strubbe each disclose a television signal and a program guide. *Id.* at 88 (citing Ex. 1709 ¶¶ 267–268). Claim 27 depends from claim 23 or claim 25 and requires "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." Relying on Strubbe and Young '801, its previous showing as outlined above in Section II.B.9, and the prosecution history wherein the Examiner found the limitation obvious, Petitioner persuasively shows providing a user-selectable time period would have been obvious to improve the customer experience by giving her some control while minimizing distractions of an overlay. *See id.* at 88–89 (citing Ex. 1709 ¶¶ 272–275; Ex. 1706, 855–56).

Based on the summary discussion above and a review of the record, we agree with the accuracy of Petitioner's showing. In light of the record, including considering Patent Owner's arguments summarized below, Petitioner shows by a preponderance of evidence that the subject matter of challenged claims 23 and 25–27 would have been obvious over Young '801, Young '121, Strubbe, and Remillard. *See id.* at 72–89.

11. Patent Owner's Response, Petitioner's Reply

Initially, Patent Owner provides an overview of the asserted references. PO Resp. 15–27 (Sections IV.A–G). Patent Owner contends that in the ITC Case or during prosecution Patent Owner overcame the references. *See, e.g.*, PO Resp. 21–22 (discussing Moro), 22–24 (discussing Reiter). Patent Owner's contentions fail to specify the requisite context of Petitioner's obviousness showing here. The analysis above includes an analysis of the prosecution history and the ITC Case. *See* Sections II.A, B8–10.

Patent Owner generally discusses what a particular reference allegedly fails to disclose, but this discussion does not bear on Petitioner's showing, because Petitioner does not rely on the features in the references as discussed. For example, Patent Owner contends "Moro provides no explanation of what it means for the remote controller to 'operate[] to switch to the fourth channel of the satellite broadcasting.'" PO Resp. 22 (quoting Ex. 1703, 5:37–40). Petitioner does not rely on Moro for a fourth channel switching feature, and Patent Owner does not explain clearly how that contention bears on an issue here. To the extent Patent Owner's Response addresses Petitioner's specific showing here, we address it below. We group Patent Owner's arguments as falling under the headings below. Any arguments not discussed specifically below do not sufficiently address

Petitioner's persuasive showing.

a. Selected and Displayed Portions

Patent Owner contends Young '801 does not disclose or suggest the "consecutively displaying sequential time periods in response to consecutive guide commands" (PO Resp. 18–19) and "interactively-selected [successive] portions" (*id.* at 27–28). Patent Owner's arguments primarily turn on claim construction. For example, Patent Owner argues "Petitioner does not explain how Young '801 discloses . . . 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. 18–19 (citing Ex. 2706 ¶¶ 44–53).

As determined above, however, the challenged claims do not require a specific Browse mode feature. *Supra* Section II.A.1–3 (Claim Construction). Patent Owner selectively attempts to incorporate various aspects of the Browse mode but the challenged claims do not preclude cursor navigation.

Patent Owner's citations to Dr. Bovik's testimony do not support Patent Owner. At the cited portions, Dr. Bovik testifies about what Young '801 discloses (Ex. 2706 ¶¶ 44–51), testifies "moving a cursor from one program to another on a displayed grid in Young '801 is nothing like the Browse mode" (*id.* ¶ 52), and concludes Young '801 does not disclose a tuning function (*id.* ¶ 53). The challenged claims here do not involve tuning and do not incorporate all the Browse mode features.

In addition, the Petition shows that Young '801 as combined with Moro, Reiter, or Remillard teach the disputed displaying and selecting phrases. Each reference, Moro, Remillard, and Reiter, teaches an *interactive*

partial overlay display further suggesting the combination with Young '801's interaction menu. *See supra* Section II.B.4–6; Ex. 1703, 4:1–4, 5:6–35, Fig. 2 (("INTERACTION MENU" as a partial overlay to a television signal); Ex. 1704, 5:15–6:54 (viewer determines overlay format and other options for interactive menu using remote controller). Patent Owner recognizes Remillard discloses "interaction menus" in the partial overlay area 80. *See* PO Resp. 25 (quoting Ex. 1705, 5:37–60).

Even if the challenged claims require surfing implicitly or for some other reason, the claim construction allows for surfing via a cursor, which Young '801 teaches. *See id.* Surfing involves providing information as a partial overlay about different channels and the '556 patent does not limit it to the Browse mode. *See* Ex. 1702, 2:42–61 (generally discussing surfing through channels as providing information about the channels and discussing a need to provide it while watching another channel); *supra* Section I.C, II.A.2 (discussing surfing).

Patent Owner also contends

> the claims are not directed to selecting an individual program from a list of programs, but are directed to interactively-selected successive portions of schedule information ***for display*** in an overlay—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. 28 (citing Ex. 2706 ¶¶ 82–83). This argument fails to explain clearly how the claims preclude cursor navigation for surfing or otherwise. Also, Patent Owner relies on "the disclosure of the Browse mode . . . and the explanation of the claimed invention in the prosecution history." *Id.* at 28. As set forth above, the prosecution history and Browse mode do not limit the

claims as argued to preclude cursor navigation. *See supra* Section II.A (Claim Construction).

Again, the cited portions of Dr. Bovik's testimony also do not help Patent Owner's position. For example, Dr. Bovik refers to claim 2 and states Patent Owner's "reading of the claims is supported also by the disclosure of the Browse mode in the specification." Ex. 2706 ¶ 83. Dr. Bovik also essentially agrees that the displayed and selected limitations relate to each other. *Id.* (stating the "interactively-selected" limitation "is directed to what is displayed in the overlay").

Petitioner shows, under the claim construction adopted above, which includes the prosecution history and the ITC Case, that moving the cursor across, up, or down Young '801's grid (e.g., Figure 6), corresponds to similar movements with respect to the '556 patent's grid at Figures 18 and 25. *See* Pet. 26–27 (discussing navigating through grid time periods 11:00AM, 11:30AM, and 12:00PM)), 34–35 (describing cursor movements of channel up/down keys 136 and the What's On TV key 142 (citing Ex. 1702, 24:17–33); Ex. 1701, 12:19–22 (In the Browse mode, "the schedule information appearing in the overlay portion describes *the programs* currently playing on any current channel" (emphasis added)), 12:35–36 (describing highlighting the "displayed time" for a future program in the Browse mode).

The clauses at issue in claims 23 and 25, "for displaying . . . interactively-selected successive portions of said schedule information," and "consecutively displaying each said portion of said schedule information in response to . . . consecutive . . . guide control commands for successively navigating through listing information for sequential time periods or programs" read on selecting and displaying successively highlighted

portions of the grid as the cursor moves in response to consecutive user commands. As discussed above in the claim construction section (*supra* Section II.A), Petitioner's reading of the claim language tracks the specification. For example, the specification contemplates multiple modes via a flexible guides and 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. 1701, 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. *See id.* at Fig. 18; Reply 12.

As indicated (*supra* Section II.A), the '556 patent provides features from multiple modes (which the challenged claims embrace) by describing 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. 1701, 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)).

The viewing of "other channels and/or services" or "information for other programs" in conjunction with the highlighted cursor descriptions, indicates displaying the selected portion as a highlighted portion among other non-selected portions. The '556 patent does not require "for displaying" to read only on portions of a guide not yet displayed on the guide (i.e., the challenged claims do not require adding and deleting listing information). The menu items in Young '801 constitute items "for display"–

–Young '801's cursor displays each portion in a new highlight (and other display features) according to consecutive selection commands.[16]

Petitioner also generally points to the "What's on TV request" and other more generic cursor movements, including left/right and up/down, as cursor commands that allow "the user to navigate the guide." Pet. 34–35 (citing Ex. 1702, 24:17–33). Patent Owner recognizes that Young '801's consecutive page commands produce a new channel and program list. PO Resp. 16 ("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. 1702, 13:5–10, Fig. 2. A full-screen page with program listings for a single channel can also be displayed. Ex. 1702, 14:6–29)."); Ex. 1702, 13:5–16, Figs. 1–3, 5–6. The Petition cites to portions of Young '801 that correspond to the page command, including a specific page command for toggling between Figure 7 and Figures 1–3, or 5–6 (i.e., toggling to the What's Next On Channel 2 Guide of Figure 7), in addition to cursor movements across a guide, to address the displaying and selecting clauses for navigation. *See* Pet. 45–46 (Ex. 1702, 3:14–17, 4:27–5:3, 13:5–15:2, Fig. 7; Ex. 1709 ¶¶ 157–158). At the page 3 passage cited in the Petition, Young '801 states

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[16] As Patent Owner recognizes, Young '801 provides additional 3D and other feedback related to the highlighted cursor display: "***If the cursor is moved left or right, the solid section will move accordingly, providing complete visual feedback.*** Thus, this modified 3D offset shadow cursor 32 satisfies the demands stated above: it spans the entire cell, yet clearly highlights the current underlying position. Movement of the cursor 32 will always be visible even for cells 26 that are much longer than the underlying cell." PO Resp. 30–31 (quoting Ex. 1702, 9:7–29 (emphasis by Patent Owner)).

"a cursor right command may cause an abrupt jump to a cell situated several hours from the current page." Ex. 1702, 3:14–17. At the page 13 passage cited in the Petition, Young '801 describes cursor and page changes: "A grid 24 page may be changed by either a page command or by entering a channel Up/Dn command . . . ." *Id.* at 13:7–9.

So even under Patent Owner's narrow claim interpretation, and view of Young '801, replacing one page with another using consecutive page commands as Young 801 teaches (as a partial overlay according to the secondary reference teachings) constitutes "for displaying . . . interactively-selected successive portions of said schedule information," and "consecutively displaying each said portion of said schedule information in response to . . . consecutive . . . guide control commands for successively navigating through listing information for sequential time periods or programs" as the challenged claims recite. Consecutive page commands, including What's on TV commands (*see* Ex. 1702, Figs. 7–8), correspond to "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."

Toggling to and from different channels of a single channel guide page 58 (Fig. 7) with successive times and a multiple channel listing 24 showing a subset of those times (Figs. 1–3 and 5–6) also satisfies the display and select clauses, including "successively navigating through listing information for sequential time periods or programs for which program schedule information has been received." *See* Ex. 1702, Fig. 7 (listing successive time periods and programs from 11 AM through 7 PM on channel 2); Figs. 1, 6 (listing a subset of those successive time periods for multiple channels); Reply 24 (discussing channel 2 with limited time slots in

Figure 1 as compared to Figure 7); Ex. 1702, 14:6–29 (describing a tight coupling and toggling "page relationship" for the What's On TV command to toggle from guide page 24 for Fig. 1–3 and 5–6 to guide page 58 for Fig. 7); Reply 13–14 (discussing the various page options), 19 (discussing toggling between Figures 1 and 7 as showing "navigating for later time periods or on different channels").

In response to Patent Owner's arguments, the Reply summarizes Young's page and cursor commands that satisfy the disputed limitations generally as outlined above. *See* Reply 13–14 (summarizing Young '801's commands to address the displaying and selecting clauses), 19 (citing Young '801's Figs. 1 and 7). In general, Young '801's guide system provides new pages of information to show different times and programs for channels in the horizontal direction and to show different programs for other channels in the vertical direction. With respect to the vertical direction, "[w]hen the last channel on a page is reached, the next Tuner command will change the channel to the channel listed at the beginning of the following page." Ex. 1702, 13:1–4. "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." *Id.* at 13:9–12. As noted above, the What's on TV page command (Ex. 1702, Fig. 8) provides a toggle between a current grid page (*id.* at Fig. 6) that shows multiple channels and limited time slots (11 AM to 12 PM) to a single channel listing (*id.* at Fig. 7) for multiple time slots (11 AM to 7 PM). *See id.* at 14:16–19, Fig. 8. In the horizontal (time) direction, "the border of a cell 26 . . . is continued to the next screen" designated by an arrow icon 38. *Id.* at 10:1–3, Fig. 5.

So Young '801's innovative cursor solution mitigates cursor jumps, with Young '801's system providing new pages with cursor movements.[17] As noted above, Patent Owner recognizes that Young '801 teaches a page command and also a single channel grid of programming listings that provide changes in the listing:

> 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. 1702, 13:5–10, Fig. 2. A full-screen page with program listings for a single channel can also be displayed. Ex. 1702, 14:6–29.

PO Resp. 16.

Accordingly, Petitioner shows that Young '801 teaches the disputed limitations by either scrolling within Young's screens via a highlighted cursor or by changing pages of information to display different guides showing new channels with different times and programs and/or future times for any given channel or channels. By employing new guide pages either in a vertical or horizontal (cursor jump) direction, as Young '801 also teaches and as Patent Owner recognizes (*see* PO Resp. 16), Petitioner shows that Young '801 teaches the limitation under Patent Owner's arguments urging a narrow claim construction.

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[17] In other words, the "innovative" cursor mitigates the jumps that Young '801 refers to in the context of jumping hours ahead. *See* Ex. 1702, 3:14–17. Also, describing Figure 1, Young '801 refers to "the border of a cell 26 that is *continued to the next screen*," as indicated by "an arrow icon 38 pointed to the right"—i.e., "to indicate cell 26 continuity." Ex. 1702, 9:35–10:3 (emphasis added). So Young '801 provides for new guides on the "next screen" to the "right, which is the direction of program lapse." *Id*. at 10:4–5.

Patent Owner also argues that "Young '801 was considered and initially relied upon by the Examiner, then ultimately overcome." PO Resp. 19 (citing Ex. 1706, 309, 443–44). Patent Owner does not explain sufficiently what occurred during prosecution with respect to Young '801 or how it bears materially on an issue at in the instant cases. *See id.* The cited sections appear to include arguments made by Patent Owner early in the prosecution (Oct. 28, 1994) to overcome an anticipation rejection based on Young '801, and early forms of the claims subsequently amended. *See* Ex. 1406, 416–438 (claims subsequently amended) 443–444 (arguments made). In another portion of the Response, Patent Owner contends "Applicants distinguished Young '801 by demonstrating that it failed to disclose viewing 'schedule information for other programs, e.g., in a window superimposed in partial overlaying relationship with the currently aired program' and 'user-selectable periods for displaying schedule information.' PO Resp. 12 (citing 1406, 443–44). This focuses on partial overlaying and user-selectable periods as argued limitations, showing Patent Owner did not distinguish the select and display features during prosecution.

As indicated above, the Petition provides a summary of the prosecution history, and it refers to actions occurring later than the 1994 period cited by Patent Owner (i.e., Examiner Interview Summary Record, May 7, 1996). *See* Pet. 22–24 (contending "the examiner indicated that the claims would distinguish over the prior art of record if they were amended to include a 'tuning function' or 'reminder function,'" and adding that the Petition present Strubbe and Young '121 in a new light (citing Ex. 1706, 939)). In addition, we discuss the pertinent prosecution history and the ITC Case in Section I.A and it does not support Patent Owner. In summary,

Patent Owner's arguments fail to undermine Petitioner's persuasive showing.

b. Interactively-Selected Successive Portions as a Partial Overlay

Patent Owner asserts "even if interactively-selected successive portions referred to moving a cursor," "the proposed combinations do not disclose displaying interactively-selected successive portions of schedule information in a partial overlaying relationship with another display signal." PO Resp. 29–30. We address the related arguments about selected and displayed portions in the preceding section.

Patent Owner contends "although Petitioner focuses on the cursor in Young '801, Petitioner fails to establish that a POSITA would have recognized Moro, Reiter or Remillard as disclosing support for a cursor-driven guide like that disclosed in Young '801 in a partial overlay." *Id.* (citing Ex. 2706 ¶¶ 88–89). Patent Owner contends Young '801 discloses an "innovative cursor" providing 3-D highlighting of grid cells, which involves an array of visible cells of irregular lengths having cells of regular length underlying the irregular cells. *Id.* at 30. Patent Owner contends Petitioner fails to explain how this disclosed cursor and cell arrangement would be employed in a partial overlay system. *Id.* at 30–32 (citing Ex. 2706 ¶¶ 89–90; Ex. 2707, 39:5–12).

Dr. Bovik's cited testimony largely tracks Patent Owner's arguments. *See* Ex. 2706 ¶¶ 89–90. Dr. Bovik also testifies that "Petitioner and Mr. Wechselberger fail to point to any disclosure of a partial overlay." *Id.* ¶ 89. The record does not support Dr. Bovik on that point as each secondary teaching discloses a partial overlay, as does Young '801 at Figures 9 and 10. *See* Ex. 1702, 14:30–31 ("Figures 9 and 10 show channel grazing overlays

64 and 66 that provide information on current programs when switching channels while watching television."); *supra* Sections II.B.2, 4–6, 8–10, 11a (secondary references showing interactive partial overlays).

Petitioner persuasively replies that each of "the secondary references," Moro, Reiter, and Remillard—"disclose information in a partial overlay relationship with a displayed program." *See* Reply 19. Petitioner also contends these references need not disclose a cursor driven guide because the grounds each rely on using Young '801's cursor guide. *See id.* at 20. In the Petition, Petitioner contends each reference, in combination with Young '801, suggests modifying Young '801 to create a partial interactive overlay (instead of a full screen) to allow a viewer to view the program information without interrupting the currently tuned and displayed program. *See* Pet. 28–29 (discussing Moro, citing Ex. 1703, 4:31–39; Ex. 1709 ¶ 143; quoting Ex. 1703, 2:48–52 ("it becomes possible to know the content of the program on the air based on the first video signal without interrupting the receiving of the second video signal")).

Similar to the ground based on Moro, Petitioner quotes Reiter for explicit motivation: "Reiter teaches 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.'" Pet. 57 (quoting Ex. 1704, 6:29–38, 3:13–26). Petitioner notes Reiter provides a choice so "that a viewer may request television programming scheduling, and may choose between an overlay or full screen display to output the requested information." *Id.* (citing Ex. 1704, 4:40–5:22). Similar to Moro and Remillard, Reiter specifically teaches an "INTERACTION MENU" as a partial overlay to a television signal, supporting Petitioner. Ex. 1704, Fig. 2, 5:15–6:20. And Reiter specifically notes for partial overlays or windows,

"the viewer may continue to view the television program he is currently watching." *Id.* at 6:36–38. Like Young '801's system, a remote keypad provides interactive menu control, with Reiter specifically teaching a partial overlay of an *interactive* menu. *Id.* at 5:7–21, 5:15–6:20.

Petitioner also contends Remillard teaches an interactive menu as a partial overlay in area 80 of a television signal. Pet. 72–73 (reproducing Ex. 1705, Fig. 3; citing *id.* at 5:55–61; citing Ex. 1709 ¶242). To interact, "[t]he user chooses one of the options from the menu by use of a remote keypad control." Ex. 1705, Abstract, Fig. 1, 5:37–60. Patent Owner recognizes Remillard discloses "interaction menus" in the partial overlay area 80. *See* PO Resp. 25 (quoting Ex. 1705, 5:37–60).

Therefore, Moro, Reiter, Remillard, and Young '801 (discussed *supra* in Section II.B.2, 4, 5, 6) individually show that an artisan of ordinary skill would have known how to implement a partial overlay controlled by a user, and would have had a sufficient reason to do so—i.e., to obtain program information without interrupting the currently viewed television show. *See* Ex. 1709 ¶ 142 ("[A] POSITA would have found it obvious to modify Young '801 to use well-known overlaying techniques, such as shown in Moro, to overlay the program schedule information, including interactively-selected portions of schedule information for a currently tuned channel and interactively-selected portions of schedule information for programs on channels different from the currently tuned channel, over a currently-watched program.), ¶ 196 (similar testimony regarding the obviousness of employing Reiter's technique "to view the program schedule information without interrupting a currently viewed program"); ¶ 242 (discussing trade-offs disclosed in Remillard for overlaying an interaction menu over "all or a portion of a television screen, as desired" (quoting Ex. 1705, 2:63–65) so

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").

Based on the foregoing, Patent Owner's arguments do not undermine Petitioner's persuasive showing.

c. Combining Young '801 with Moro, Reiter, Remillard, and Young '121

Patent Owner generally contends Petitioner fails to show an artisan of ordinary skill would have possessed motivation to combine the references in the manner proposed. PO Resp. 36–50. We address these arguments above to a large extent. Patent Owner makes other related arguments as noted in the following sections. Contrary to Patent Owner's arguments, Petitioner provides motivation for the combinations as discussed above and here.

1. Redesign Young '801 to Include Smaller Guides as Overlays

Patent Owner contends Petitioner "proposed redesign of Young '801's full-screen grid guide uses the grid guide in a new way (reduced in size and in an overlay) contrary to Young's requirement of 'conveying the most amount of information to the user in an easily understood manner within the limitations of the television display.'" PO Resp. 34–35 (quoting Ex. 1702, 3:29–32). According to Patent Owner, reducing Young '801's guide by eliminating some rows and columns so that its guide appears as an overlay runs counter to the desire to display the most amount of information to a user. *Id.* at 34–38. Patent Owner contends that Young 801's overlays of program notes minimize concealment of other guide information. *Id.* at 37–38.

Petitioner replies that Patent Owner reads Young '801 out of context. Petitioner maintains persuasively that "Young '801 describes the desire to display the most information possible in view of size and resolution limits of television displays. Young '801 never describes a requirement for displaying as much of the grid guide as possible." Reply 21 (quoting Ex. 1702, 3:20–35; citing Ex. 1720 ¶ 36). Petitioner also points out that Figure 6 of Young '801 specifically shows reducing the visible grid information by obscuring it under an overlay. *Id.* at 21–22. Petitioner contends reducing the grid size to accommodate a television screen does not run counter to Young '801. *Id.* at 22.

Petitioner persuasively shows that Young '801 does not amount to a substantial re-design of Young '801. As Petitioner also explains, Young '801 teaches "program note 52 overlays or hides 3 or 4 listings of a guide." Reply 24 (quoting Ex.1702, 12:16–17). Petitioner persuasively argues this teaches "displaying less of a guide [in order] to display something else, including the amount of the guide covered by something else could be variable and result in hiding [either 3 or 4] lines of the guide." *Id.*

In addition to the overlay of program notes, as mentioned above (Section II.B.11.B), Young '801 teaches other forms of overlays, including "grazing overlays." *See* Ex. 1702, 14:30–31 ("Figures 9 and 10 show channel grazing overlays 64 and 66 that provide information on current programs when switching channels while watching television.").

As also discussed above, Petitioner relies on the additional references as teaching that providing a partial overlay allows the user to view a program uninterrupted while obtaining useful information, with Reiter providing a choice of a full or partial overlay. *Supra* Section II.B.11.b; Pet. 28–29 (citing Ex. 1703, 2:48–52, 4:31–39; Ex. 1709 ¶ 143), 57 (citing Ex.

1704, 6:29–38, 3:13–26; 1709 ¶¶ 196–198), 72–73 (citing Ex. 1705, 5:55–61, Fig. 2; Ex. 1709 ¶ 242). In addition to Moro, Reiter, and Remillar providing or suggesting a reason for overlays, as Petitioner states, Young '121 and Strubbe suggest overlays in the form of reminder messages—further suggesting overlays provide additional information while allowing a viewer to watch a desired television show. *See* Pet. 29–31 (citing Ex. 1710, 6:42–49, Figs. 6b, 14a; Ex. 1711, 15:19–16:41, 20:39–46, 3:20–24).

As indicated above, each of the additional references, Moro, Reiter, and Remillard, teaches interactive menus as partial overlays controlled by a user. *See supra* Sections II.B.4–6, 8–10, 11a–b. For example, Reiter's options include an "overlay," "window," or "full screen," with "scroll[ing]." Ex. 1704, 6:29–38, 3:13–26, 4:63–65 (similar disclosure). Reiter discloses *a viewer who "wished to view a subset* of the information, e.g., the television program schedule for the day . . ., 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 (emphasis added).

Reiter further shows an artisan of ordinary skill would have possessed the requisite motivation (to prevent obscuring of the television show and provide user selected options) and skill to provide simple modifications of scale and formatting of Young '801's program guide (implemented for example by simply directing a selected portion of memory to be displayed). Mr. Wechselberger testifies credibly that the secondary references show that a "POSITA would have understood that various information [from Young '801] could have been presented in various layouts (e.g., grids, lists, narratives, etc.) within an overlay." *See* Ex. 1720 ¶ 8 ("Dr. Bovik consistently underestimates the knowledge and abilities of the POSITA. . . . A POSITA would have understood that various information could have been

presented in various layouts (e.g., grids, lists, narratives, etc.) within an overlay").

In addition to ignoring the knowledge of the skilled artisan, Patent Owner's arguments and testimony improperly attack the references individually instead of addressing the combined teachings of the references. Based on the foregoing, Patent Owner's arguments do not undermine Petitioner's persuasive showing.

2. Overlay and Reminder Functions, Elimination of Features

Patent Owner argues Petitioner's proposed combinations to add reminder functionality remove an "important aspect of Young '801," namely the program note overlay. PO Resp. 38 (citing Ex. 1706 ¶ 116; Pet. 48, 65, 83). According to Patent Owner, Young '801 teaches using a select key on a remote controller to implement the overlay note feature, but "when a user selects a program in the guide, Petitioner proposes to create a reminder for the program as taught in Young '121, rather than display an overlay" note as Young '801 teaches. *Id.* at 41.

Essentially, Patent Owner contends the select key of Young '801 cannot be used for both the reminder function and the overlay note function. *See id.* at 41–42. Patent Owner characterizes using Young '801's select key as Petitioner urges amounts to a "considerable change" over the interface of Young '121. *Id.* at 39–40. Patent Owner contends "Young '801 improves on Young '121" to create an overlay function rather than to create a reminder function. *Id.* at 40.

Petitioner replies that the considerable changes Young '810 describes about Young '121 "relate to navigating through the cells of the grid." Reply 23 (citing Ex. 1720 ¶ 13). As noted above, Patent Owner describes Young '801's system as including regular and underlying irregular cells and an

"innovative cursor" (PO Resp. 30–31 (citing Ex. 2706 ¶¶ 89–90; Ex. 1702, 9:7–29)), which supports Petitioner's characterization here.

Petitioner also contends that the combination does not require deleting one function in favor of another. *See* Reply 22–23. Petitioner persuasively argues, with corroborating testimony and evidence, that adding another button to provide the reminder selection would have been a "trivial technical issue" easily handled by those skilled in the art at the time of the invention by using two different keys. *Id.* (citing Ex. 1720 ¶¶ 10, 16; Ex. 1702, 13:28–14:5). Petitioner cites as an example, Young '801's disclosure of two different keys for separate commands after navigating with a cursor, including the "select" command to provide a program note and the "record it" command to record a program. *Id.* at 23 (citing Ex. 1702, 13:28–14:5; Ex. 1720 ¶¶ 15, 16). The record evidence supports Mr. Wechselberger's testimony that "incorporating separate buttons for the separate commands" would have been "trivial," because a remote control guide contains multiple buttons for multiple functions. *See id.* (citing Ex. 1702, Fig. 21). The cited testimony of Dr. Bovik does not address the issue regarding the ease of employing different buttons, and if anything, show controllers for guides employ different buttons for different functions. *See* Ex. 2706 ¶¶ 89–90 (describing cursor movement left/right).

Petitioner shows persuasively that an artisan of ordinary skill would have modified Young '801 to implement overlay and reminder functionality using simple cursor controls in order to retain the functions for their intended purpose of providing information without obscuring programs. Based on the foregoing, Patent Owner's arguments do not undermine Petitioner's persuasive showing.

3. Young '801's Video Switcher, Hindsight, Remillard's Genlock

Patent Owner argues "Replacing 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. 42–43 (citing Pet. 44; 63; 81; Ex. 1709 ¶¶ 152, 201, 248; Ex. 2706 ¶¶ 126–127). Patent Owner contends Young '801's system employs a video switcher that toggles between full-screen programming or guides, creating an "intuitive" feel resulting in "the program you're tuned to and no program information, or you get program information and no video." *Id.* at 43 (quoting Ex. 2707, 37:11–14). Patent Owner concludes "the proposed combinations would fundamentally change Young '801's 'intuitive user interface.'" *Id.* (citing Ex. 1702, 1:16–17; Ex. 2706 ¶¶ 126–127).

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. *Id.* at 44–46 (citing Ex. 2706 ¶¶ 128–129). In another related argument, Petitioner contends Remillard's system employs a genlock mechanism and a sync signal, and Young '801's system lacks a genlock and a sync signal. *Id.* at 46–47 (citing Ex. 2706 ¶¶ 130–134). Patent Owner also argues that Petitioner fails to describe how to combine the reference teachings. *Id.* at 48–50 (citing Ex. 2707, 39:5–20).

These arguments and the cited testimony of Dr. Bovik, which tracks Patent Owner's arguments (*see* Ex. 2706 ¶¶ 126–129), improperly address the references separately and improperly assume an obviousness challenge

requires a physical incorporation of parts disclosed in the separate references. *See id.* at 27 (citing *In re Mouttet*, 686 F.3d 1332, 1333 (Fed. Cir. 2012); *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983) ("[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review."); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) ("The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference . . . .")).

The combination as proposed does not require a video switcher, sync signal, or a genlock device, but even if it does under a proposed option by Petitioner, an artisan of ordinary skill readily could have employed it with good reason for doing so. *See* Reply 26 (citing Ex. 1720 ¶¶ 49, 52). Petitioner shows persuasively that artisans of ordinary skill readily would have provided partial overlay functionality by minimizing the information to be displayed to prevent obscuring the television program, as Moro, Reiter, and Remillard each suggest, either by using known cards, or other known hardware, and/or by modifying Young '801's system based on Moro's, Reiter's, or Remillard's teachings of a partial overlay, thereby implementing the desired partial overlay functions as suggested by the references. *See* Pet. 43–46 (citing Ex. 1709 ¶¶ 155–158), 57 (citing Ex. 1709 ¶¶ 196–198), 61–64 (citing Ex. 1709 ¶¶ 196–199, 201, 203), 77–81 (citing Ex. 1709 ¶¶ 244–252).

Mr. Wechselberger credibly supports Petitioner. *See* Ex. 1720 ¶¶ 46, 48 (testifying an artisan of ordinary skill would have been motivated to employ overlay functionalities as commonly implemented via off-the-shelf hardware, from integrated circuits to cards, and modifying a genlock system and a sync signal would have been routine); Ex. 2007, 39:12–20 ("So it's 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.").

An artisan of ordinary skill would not have viewed Young '801's system as limited to a binary choice of providing a full screen of video or a full screen of text, because closed captioning and other partial overlays were well-known. *See supra* Section II.B.1–7 (providing overview of art and skill-level). As noted above, Moro, Reiter, and Remillard each specifically discloses *interactive* partial overlays, Reiter explicitly provides the option of a full menu or partial menu, and Reiter describes implementing the options simply by controlling the amount of RAM memory to be displayed as an overlay. *See supra* Section IIB.11.b–c2, II.B.4–6, 8–10.

Also, Young '801 suggests providing minimal information via Figures 9 and 10 that show a display of single program information and via Figure 6 showing partial overlay 52. Given the various teachings of Young '801, known overlay techniques suggested therein, and reasons for using known overlay techniques as taught by the secondary references, an artisan of ordinary skill would have recognized that Young '801 does not limit its teachings to the two binary options as advanced by Patent Owner.

With respect to Remillard, the Petition asserts

> [A] POSITA, in view of Remillard, and AAPA would have modified Young '801 to use the commercially available video display generator disclosed in AAPA to provide, in an overlay over a currently broadcasted program, program schedule information for one or more other programs. . . . Remillard provides motivation for this predictable result, which merely involves using a known technique to improve similar devices in the same way.

Pet. 74 (citing Ex. 1709 ¶¶ 244–250). The combination does not require a genlock. *See* Reply 26. The parties essentially agree that the level of skill involves

> at least a bachelor's degree in computer science, computer engineering, electrical engineering, or the equivalent thereof, and 3–5 years of experience or familiarity with software development in the 1990–1993 time-frame, or the equivalent thereof, and some experience within the television distribution industry (broadcast, cable, or satellite), including television signal processing in consumer appliances.

Supra Section II.B.1. Such an artisan of ordinary skill would have been able and motivated to employ known hardware to implement the partial overlay 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. 42. For the other grounds, Petitioner makes similar conclusory statements regarding the Reiter and Remillard combinations.

PO Resp. 44–45.

As Petitioner replies, these arguments mischaracterize the Petition. Reply 25. As outlined above, each Petition relies on cited teachings in the references for a suggestion to combine the teachings. Petitioner quotes Moro for its explicit motivation, stating "a user can learn about other

available programs 'without interrupting' the program he/she is currently watching, thereby 'greatly improving the operating convenience.'" *See* Pet 41 (citing Ex.1703, 2:48–52, 5:31–35; quoting *id.* at 6:3–7, reproducing *id.* at Fig. 2). Petitioner also quotes "Young '801's teaching that 'supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information'" as suggesting minimizing the size of an overlay guide. *See* Pet. 43 (quoting Ex. 1702, 4:15–18; citing Ex. 1709 ¶ 150). Providing context, on the deposition page cited by Patent Owner (PO Resp. 43), 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." *See* Ex. 2707, 39:8–16; PO Resp. 43 (citing Ex. 2707, 39:17–20 (Mr. Wechselberger also testifying about known integrated circuits and the Rocgen card)).

Similarly, Petitioner contends Reiter provides "explicit motivation" to modify Young '801, asserting "Reiter teaches displaying information, such as program schedule information, in an overlay format so the viewer can continue to view a television program." Pet. 61 (citing Ex. 1704, 6:29–38, Fig. 3, 155 ("overlay format")). At the cited passage, Reiter explicitly states that in "a television overlay format. . . . the viewer may continue to view the television program he is currently watching." Ex. 1704, 6:35–38. Petitioner contends providing such an overlay to would "allow[] the viewer to view the program schedule information without interrupting the currently-watched program." Pet. 62. Petitioner also contends "[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." *Id.* at 62–63 (citing Ex.1709 ¶ 199; Ex. 1702, 4:15–18). At the cited portion of Young '801, Young '801 states "supplemental schedule 43 information is presented in overlays that obscure a minimum amount of useful other information." Ex. 1702, 4:15–18.

Similarly, Petitioner reproduces Figure 3 of Remillard and notes "Remillard teaches partially overlaying an interaction menu 80 on a portion of a conventional television broadcast." Pet. 73. Figure 3 depicts an "INTERACTION MENU" on the bottom of the television screen. *Id.* (citing Ex. 1705, 5:55–61; Ex. 1709 ¶ 242). Describing the interaction menu of Figure 3, Remillard discloses allowing a user to display an "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. 1705, 2:63–3:1. Petitioner contends "[a] POSITA would have appreciated that overlaying a menu on a portion of a television broadcast allows the viewer to continue to view the television broadcast while interacting with the menu." Pet. 73.

Petitioner also relies on the statement in Young '810 quoted above, "Young '801's statement that 'supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information.'" *Id.* at 80–81 (quoting Ex. 1702, 4:15–18; citing Ex. 1709 ¶ 247). Relying on the combined teachings, Petitioner contends "[a] POSITA would have appreciated that overlaying a menu on a portion of a television broadcast allows the viewer to continue to view the television broadcast while interacting with the menu as explained below. *Id.* at 73 (citing Ex. 1709 ¶ 242).

Based on the foregoing, Patent Owner's arguments do not undermine Petitioner's persuasive showing.

4. Applicant Admitted Prior Art ("AAPA")

Patent Owner contends Petitioner improperly relies on AAPA in the '556 patent specification. PO Resp. 50–54. Patent Owner concedes the '556 patent states that the "'present embodiment' may use 'a commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec.'" *Id.* at 50–51 (quoting Ex. 1702, 8:9–12).

The '556 patent also 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. 1701, 8:38–42. 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." *Id.* at 8:9–12.

By way of summary, with further respect to the "system components" of Figure 1, the '556 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. 1701, 8:42–47 (emphasis added).

Patent Owner contends the Petition may only rely "on the basis of prior art consisting of patents or printed publications." PO Resp. 51 (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.

Id. 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." *Id.* at 52 (citing Ex. 1709 ¶¶ 37, 116–118). Patent Owner also contends Petitioner relies on "an undated, unauthenticated Rocgen user manual (Ex. 1314) untethered to the alleged admissions in the '556 patent." *Id.* at 52.

Contrary to Patent Owner's arguments regarding the propriety of admissions in an *inter partes* review proceeding, our reviewing court recently held that statements in the specification are "probative on how one with ordinary skill in the art at the time of filing of the involved patent would have read and understood the disclosure of the prior art." *Paice v. Ford Motor*, 881 F.3d 894, 901 (Fed. Cir. 2018) (citing *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1362 (Fed. Cir. 2007) ("Admissions in the specification regarding the prior art are binding on the patentee for purposes of a later inquiry into obviousness."); *In re Baxter Travenol Labs*, 952 F.2d 388, 390 (Fed. Cir. 1991) (holding extrinsic evidence, including *admissions*, may be used to explain what a reference

discloses in a reexamination proceeding).[18]

Regarding the alleged admission, Petitioner replies "[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." Reply 28 (citing Ex. 1720 ¶ 50).

The record supports Petitioner. The inventors of the '556 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. Petitioner also contends it did not rely on the Rocgen manual. Reply 28–29. 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

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[18] *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).

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. 1709 ¶ 35. These devices later evolved into integrated circuits and cards including the Rocgen card that also correspond to the admissions about known hardware in the '556 patent, regardless of the manual. *See id.* 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. 1709 ¶ 37 (citing Ex. 1713, 31–32). Mr. Wechselberger also outlines the functions mentioned in column 8 of the '556 patent as functions performed by the admitted Rocgen device. *Id.*

In addition, the parties agree that the skill level here involves at least a bachelor's degree in computer science, computer engineering, electrical engineering, or the equivalent thereof, and 3–5 years of experience or familiarity with software development in the 1990–1993 time-frame, or the equivalent thereof, and some experience within the television distribution industry (broadcast, cable, or satellite), including television signal processing in consumer appliances. Pet. 16 (citing Ex. 1709 ¶ 30); PO Resp. 14–15 (citing Ex. 2706 ¶¶ 1–19); Tr. 66:11–18. Such a person would have been aware of commercially available hardware devices and how they operate to provide their intended overlay functionality. The '556 patent admits that the claimed system can be implemented with known parts with implementation details "not the subject of the present invention." Ex. 1701, 8:37–48. The record shows partial overlay functionality was well-known.

In summary, the statements in the '556 patent admit of commercially available PSDG cards, and constitute evidence that 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 suggest—i.e., one of the purposes for selling the card. *See* Ex. 1709 ¶¶ 34–36 (discussing disclosure in patent to an ordinarily skilled artisan and citing other patents with the known hardware).

Based on the foregoing, Patent Owner's arguments do not undermine Petitioner's persuasive showing.

12. Motion to Exclude

Patent Owner moves to exclude paragraphs 8, 24, 27–30, 32 and 38 of Mr. Wechselberger's second Declaration (Exhibit 1720) as "untimely and unfairly prejudicial" because those paragraphs are directed to "expert testimony that exceeds the permissible scope of reply." Paper 26 ("Mot. Exc."). Patent Owner also moves to exclude Exhibit 1722, cited by Mr. Wechselberger in paragraphs 24 and 29 of his second declaration, as likewise "untimely." *Id.* at 1. 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. Wechselberger's second declaration that addresses Patent Owner's narrow interpretation of the consecutively displayed and successive portions features recited in various forms in the challenged claims. As explained above, Petitioner generally cited to passages of the page mode in Young '801, including the What's on TV command, which creates a new page. *See* Pet. 34 (What's on TV), 45–46 (citing (Ex. 1702, 3:14–17, 4:27–5:3, 13:5–15:2, Fig. 7). Petitioner also

cites to Young '801's Figure 7 to show "navigating by time periods for a particular channel." *Id.* at 46 (citing Ex. 14:6–13).

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 overcoming cursor jumps to programs hours in advance and the page mode. *See supra* Sections II.B.8–11; Pet. 34 (What's on TV), 45–46 (citing (Ex. 1702, 3:14–17 (abrupt cursor jumps), 4:27–5:3, 13:5–15:2 (page commands), Fig. 7), 38 (generally stating "[t]the user navigates through the guide/grid using a movable cursor to select . . . to access additional information about programs (e.g., program description)."

So the Petition and the Reply do not change course. *See Ericsson Inc., v. Intellectual Ventures I LLC*, No. 2017-1521, slip op. at 13 (Fed. Cir. Aug. 27, 2018) (reply argument not improper when it expands on the same argument made in the petition). Rather, the Reply and Mr. Wechselberger's second declaration, which relies on Exhibit 1722, responds to arguments made by Patent Owner in its Response attempting to interpret the consecutively displayed and successive portions in a narrow fashion and responds to other arguments Patent Owner made about modifying Young '801. *See* Opp. Mot. Exc. 5–10. The Response arguments about cursor movement and the consecutively displayed and successive portions limitations contradict (or at least do not coalesce with) arguments made by Patent Owner in the ITC Case with respect to these cursor movement display features. Petitioner reasonably need not have anticipated the Response arguments to shift from Patent Owner's position in the ITC Case. *See id.* at 1–2.

Also, an artisan of ordinary skill 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. *See* Ex. 1720 ¶ 24 (describing Dr. Bovik's restricted view of Young '801 as unreasonable). This restricted reading of Young '801 unreasonably constrains the use of the guide to 1.5 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 address 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 (Ex. 1722) and elaborates about minimal program guide layout or format changes that go hand-in-hand with the Petitions' assertions of guide size reduction. *See* Ex. 1720 ¶ 24; Opp. Mot. Exc. 9–11 (discussing Ex. 1720 ¶¶ 36–37, 129–131, 136–137, 158), 11 (noting Dr. Bovik stated in his deposition "a user would have been 'confined to the visible screen'") (citing Ex. 1721, 56:16–23, 108:25–109:8, 116:17–117:2; Ex. 2706 ¶¶ 51–52).

In summary, the Petition cites to portions of Young '801 that describe the page mode and generally advance the theory of moving a cursor across, upward, and to the right to obtain consecutively displayed and successive portions of schedule information, citing portions that describe new pages and cursor jumps. Petitioner did not create a new theory about how the page guide operates but responded to Patent Owner's arguments. 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, Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 23 and 25–27 would have been obvious over the combination of Young '801, Young '121, Strubbe, and either Moro, Reiter, or Remillard.

IV. ORDER

ORDERED that 23 and 25–27 of U.S. Patent No. 6,418,556 B1 are unpatentable;

FURTHER ORDERED that pursuant to 35 U.S.C. § 318(b), upon expiration of the time for appeal of this Final Written Decision, or the termination of any such appeal, a certificate shall issue cancelling claims 23 and 25–27 of U.S. Patent No. 6,418,556 B1;

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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