

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DISH NETWORKS L.L.C.,
Petitioner,

v.

CONTEMPORARY DISPLAY LLC,
Patent Owner.

IPR2019-01168
Patent 6,492,997 B1

Before MICHAEL R. ZECHER, SHEILA F. McSHANE, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

ZECHER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Petitioner, DISH Network L.L.C. (“Dish”), filed a Petition requesting an *inter partes* review of claims 1–43 of U.S. Patent No. 6,492,997 B1 (Ex. 1001, “the ’997 patent”). Paper 2 (“Pet.”). Patent Owner, Contemporary Display LLC (“Contemporary”), filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Taking into account the arguments presented in Contemporary’s Preliminary Response, we determined that the information presented in the Petition established that there was a reasonable likelihood that Dish would prevail with respect to at least one challenged claim. Pursuant to 35 U.S.C. § 314, we instituted this *inter partes* review on January 7, 2020, as to all of the challenged claims and all grounds raised in the Petition. Paper 9 (“Institution Decision”).

During the course of trial, Contemporary filed a Patent Owner Response (Paper 11, “PO Resp.”), Dish filed a Reply to the Patent Owner Response (Paper 14, “Pet. Reply”), and Contemporary filed a Sur-Reply to the Reply (Paper 17, “PO Sur-Reply”). An oral hearing was held on October 6, 2020, and a transcript of the hearing is included in the record. Paper 25 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–43 of the ’997 patent. For the reasons we identify below, we hold that Dish has demonstrated by a preponderance of the evidence that all challenged claims are unpatentable under § 103(a).

A. Related Matters

The parties indicate that the ’997 patent is the subject of the following two district court cases: (1) *Contemporary Display LLC v. DISH Network*

L.L.C., No. 1-18-cv-00476 (W.D. Tex. filed June 4, 2018); and (2) *Contemporary Display LLC v. LG Electronics USA, Inc.*, No. 2-18-cv-00152 (E.D. Tex. terminated Dec. 13, 2018). Pet. 1; Paper 3, 2.¹

B. The '997 Patent

The '997 patent, titled “Method and System for Providing Selectable Programming in a Multi-Screen Mode,” issued from U.S. Patent Application No. 09/103,315, filed on June 24, 1998. Ex. 1001, codes (54), (45), (21), (22). The '997 patent is a continuation-in-part of U.S. Patent Application No. 09/018,541, filed on February 4, 1998. *Id.* at code (63).

The '997 patent generally relates to “delivering television programming” that is categorized in domains and “delivering navigational tools” that provide information about, and access to, multiple television channels or programs. Ex. 1001, 1:28–32. According to the '997 patent, the early days of television offered viewers very few channels and a limited number of programs. *Id.* at 1:35–36. However, “[t]he advent of cable and satellite television broadcast systems increased the number of channels being delivered.” *Id.* at 1:44–45. On the one hand, this increase in channel capacity provided an “opportunity and need to offer a greater number and variety of programming of different types.” *Id.* at 1:55–57. On the other hand, this increase in channel capacity created “more difficult[y] for viewers to identify programming choices at any time by channel surfing.” *Id.* at 2:4–7. The '997 patent further discloses that new technological

¹ Contemporary’s Mandatory Notices filed in accordance with 37 C.F.R. § 42.8 do not include page numbers. Paper 3. We consider the Title page as page 1 and then proceed from there in numerical order.

advancements, such as digital video, high definition television, video on demand, and Internet or online services, provided even more accessible television channels or programs. *Id.* at 2:16–23.

The '997 patent purportedly addresses problems associated with channel surfing by providing “a viewing audience with content organized and presented to facilitate navigation through the content in an efficient and intuitive manner.” Ex. 1001, 2:35–38. Figure 15 of the '997 patent, reproduced below, illustrates an exemplary screen in a multi-screen browser that aims to achieve this goal. *Id.* at 4:18–19, 20:60.

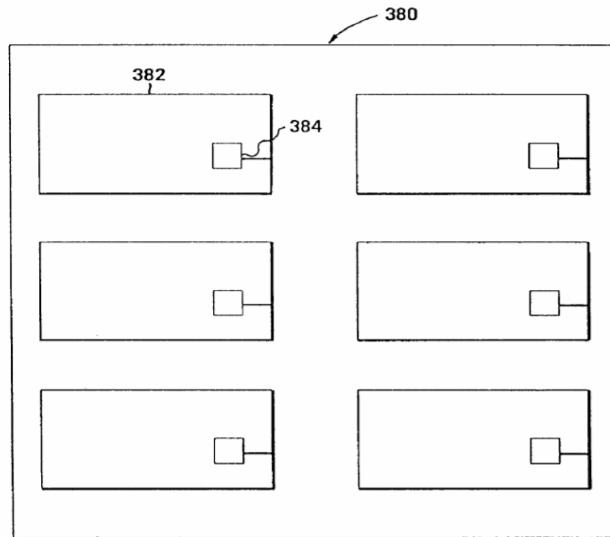


FIG. 15

Figure 15, reproduced above, illustrates television receiver screen 380 “with six reduced sized video displays 382 each displaying a different reduced size video signal.” *Id.* at 20:61–63. “Each reduced size video display [382] includes a designated area for displaying indicia 384 of the reduced sized display provided, such as a channel logo for the channel on which the program featured in the window is available.” *Id.* at 20:63–67.

Figure 17 of the '997 patent, reproduced below, illustrates one embodiment of a video source and grid overlay for a multi-screen browser tool. Ex. 1001, 4:24–26, 21:23–24, 21:27–30.

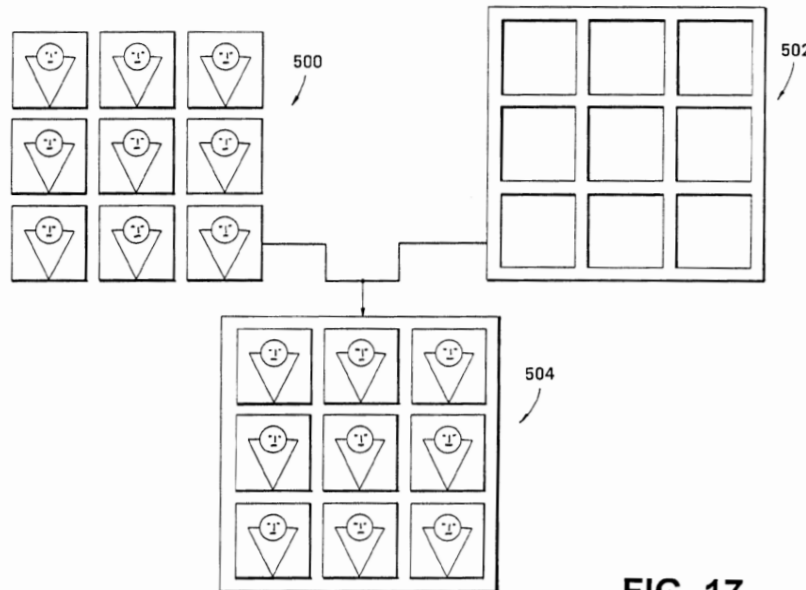


FIG. 17

Figure 17, reproduced above, illustrates video source 500 for a multi-screen browser tool. *Id.* at 21:23–24. The set top box for video source 500 (not shown in Figure 17) generates grid graphic 502. *Id.* at 21:24–26. The set top box then overlays grid graphic 502 and video source 500 to create multi-screen browser tool windows 504. *Id.* at 21:26–27. The '997 patent further discloses that a prospective user navigates multi-screen browser tool windows 504 by pressing direction keys 75–80 on remote control unit 68 (also not shown in Figure 17). *Id.* at 21:64–66.

C. Challenged Claims

Of the challenged claims, claims 1, 17, 29, 30, and 37 are independent claims. Each of independent claims 1, 17, and 29 is directed to “[a] system for presenting an interactive multi-window video display.” Ex. 1001,

35:45–46, 36:51–52, 37:48–49. Each of independent claims 30 and 37 is directed to “[a] method for presenting an interactive multi-window video display.” *Id.* at 38:3–4, 38:43–44. Claims 2–16 directly or indirectly depend from independent claim 1; claims 18–28 directly or indirectly depend from independent claim 17; claims 31–36 directly or indirectly depend from independent claim 30; and claims 38–43 directly or indirectly depend from independent claim 37. Independent claims 1 and 17 are illustrative of the challenged claims and they are reproduced below:

1. A system for presenting an interactive multi-window video display, the system comprising:

a receiver for receiving a multi-window real time video signal representing a multi-window corresponding to channels selected by a user in accordance with a category, comprising one or more reduced size video displays, and receiving a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal;

a generator, coupled to the receiver, for generating an overlay grid having a number of cells based on the cell quantity data value;

presentation means for presenting the multi-window video display within the cells of the overlay grid on a display device; and

selection means for allowing selection of one of the one or more reduced size video displays.

Id. at 35:44–61.

17. A system for presenting an interactive multi-window video display, the system comprising:

a receiver for receiving a plurality of multi-window real time video signals representing a plurality of multi-window video displays each comprising a plurality of reduced size video displays, wherein each multi-window video display is associated with a programming category and the reduced size video displays

contained in different multi-window video displays are in different categories respectively;

a generator coupled to the receiver for generating an overlay grid having a number of cells based on the number of reduced size video displays of the selected multi-window video signal;

presenting means for presenting the multi-window display together with the overlay grid so that the reduced size video displays are visible within the cells means for allowing selection of one of the plurality of multi-window video signals, and wherein the presenting means presents the multi-window video display of the selected multi-window video signal on the display device.

Id. at 36:51–37:5.

D. Asserted Prior Art References

Dish relies on the prior art references set forth in the table below:

Inventor²	U.S. Patent No.	Relevant Dates	Exhibit No.
Niijima	5,926,230	issued July 20, 1999; filed Jan. 25, 1996	1005
Devaney	6,357,045 B1	issued Mar. 12, 2002; filed Mar. 31, 1997	1006
Matthews	5,815,145	issued Sept. 29, 1998; filed Aug. 21, 1995	1007
Schein	6,002,394	issued Dec. 14, 1999; filed Apr. 11, 1997	1008

E. Asserted Grounds of Unpatentability

Dish challenges claims 1–43 of the '997 patent based on the asserted grounds of unpatentability set forth in the table below. Pet. 3, 10–84.

² For clarity and ease of reference, we only list the first named inventor.

Claims Challenged	35 U.S.C. §	Reference(s)
1–9, 12, 16, 30–36	103(a) ³	Niijima
10, 11, 13–15, 17–29, 37–43	103(a)	Niijima, Devaney
30, 32–36	103(a)	Matthews, Schein

II. ANALYSIS

A. Claim Construction

In an *inter partes* review proceeding based on a petition filed on or after November 13, 2018, such as here, claim terms are construed using the same claim construction standard as in a civil action under 35 U.S.C.

§ 282(b). *See* 37 C.F.R. § 42.100(b) (2019). That is, claim terms generally are construed in accordance with their ordinary and customary meaning, as understood by one of ordinary skill in the art, and the prosecution history pertaining to the patent at issue. *Id.*

The U.S. Court of Appeals for the Federal Circuit has explained that the use of the term “means” is central to the analysis of whether a claim limitation should be interpreted in accordance with 35 U.S.C. § 112 ¶ 6. *Flo Healthcare Sols., LLC v. Kappos*, 697 F.3d 1367, 1373 (Fed. Cir. 2012); *Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 703–04 (Fed. Cir. 1998). Use of the word “means” creates a rebuttable presumption that the patentees intended to invoke § 112 ¶ 6, whereas failure

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the ’997 patent issued from an application that was filed before this date, the pre-AIA version of § 103 applies. Ex. 1001, codes (21) and (22).

to use the word “means” creates a rebuttable presumption that the patentees did not intend to invoke § 112 ¶ 6. *Id.* The presumption is not rebutted if the word “means” is modified by functional language and is not modified by recital of sufficient structure in the claim to perform the claimed function. *Sage Prods. v. Devon Indus., Inc.*, 126 F.3d 1420, 1427–28 (Fed. Cir. 1997).

In its Petition, Dish contends that the claim term “overlay grid” should be construed as a “graphical pattern of horizontal and vertical lines, forming cells, displayed over the multi-window display.” Pet. 6. To support its proposed construction, Dish directs us to Figure 17 of the ’997 patent and its corresponding description, the supporting testimony of its declarant, Anthony Wechselberger, and the prosecution history of the ’997 patent. *Id.* at 6–7 (citing Ex. 1001, 21:25–30, Fig. 17; Ex. 1003 ¶¶ 53–56; Ex. 1002, 70).

Dish also contends that certain limitations recited in each independent claim use the word “means” and, as a result, there is a rebuttable presumption they are means-plus-function limitations that should be governed by § 112 ¶ 6. *See* Pet. 7. Dish then identifies the claimed function and corresponding structure for each means-plus-function limitation. *Id.* at 8–10. For convenience, the claimed function and corresponding structure for each means-plus-function limitation identified by Dish are set forth in the table below.

Means-Plus-Function Limitation	Claimed Function	Corresponding Structure
“presentation means” (claim 1)/“presenting means” (claims 17 and 29)	“presenting the multi-window video display within the cells of the overlay grid on a display device” (claim 1)/“presenting the multi-window display together with the overlay grid so that the reduced size video displays are visible within the cells” (claims 17 and 29)	graphics component and programmed processor (Ex. 1001, 21:45–47 (“[T]he set top box sends the overlaid graphic and video source . . . to the television receiver for display.”), 27:19–34 (describing use of graphics chip to present graphic images))
“selection means” (claims 1 and 29)	“allowing selection of one of the one or more reduced size video displays”	remote control/associated set top box input (Ex. 1001, 8:46–48 (“An infrared remote unit 68 . . . sends signals input by a viewer to an infrared input of the set top box.”), 19:33–39 (describing that a viewer presses the “gimme button” on remote to display the associated full size video))

Means-Plus-Function Limitation	Claimed Function	Corresponding Structure
“means for receiving one or more audio signals” (claim 4)/“means for receiving a plurality of audio signals” (claim 19)	“receiving one or more audio signals” (claim 4)/“receiving a plurality of audio signals” (claim 19)	tuner and programmed processor (Ex. 1001, 21:53–54 (“[F]or each program the head end transmits the audio data separately from but linked to the video data.”), 21:16–19, 27:6–8 (“A processor in the set top box controls the tuner to tune to a desired frequency band.”))
“means for automatically presenting an audio signal” (claims 5 and 20)	“automatically presenting an audio signal corresponding to a selected reduced size video display”	programmed processor (Ex. 1001, 21:50–52 (“[T]he system plays the audio stream associated with the video stream in the currently selected cell.”))
“means for receiving a video signal” (claims 6 and 21)	“receiving a video signal representing a full size video display corresponding to at least one of the reduced size video displays”	tuner and programmed processor (Ex. 1001, 21:16–19 (“The set top box receives a Video Source from the head-end containing the Videos to be reduced.”), 27:6–8(“A processor . . . controls the tuner to tune to a desired frequency band.”))

Means-Plus-Function Limitation	Claimed Function	Corresponding Structure
“means for automatically presenting a full size video display” (claim 7)/“means for displaying the full size video display” (claim 22)	“automatically presenting a full size video display corresponding to a selected reduced size video display” (claim 7)/“displaying the full size video display corresponding to a selected reduced size video display” (claim 22)	programmed processor (Ex. 1001, 19:33–39 (“If the viewer presses the gimme key 92 on a given program choice, step 324, the system determines whether the selected program choice is currently available for viewing, step 325” and, if so, “the program is displayed.”), 8:28–33)
“means for indicating” (claims 8 and 23)/“means for visually indicating” (claims 9 and 24)	“indicating [in the overlay grid] which of the one or more reduced size video displays is selected” (claims 8 and 23)/“visually indicating the selected reduced size video display on the display device” (claims 9 and 24)	graphics component and programmed processor (Ex. 1001, 21:12–14 (“A graphic highlight is displayed around the viewer’s selected reduced sized image 382.”), 21:45–47 (“[T]he set top box sends the overlaid graphic and video source . . . to the television receiver for display.”), 27:19–34 (describing use of graphics chip to present graphic images))

Means-Plus-Function Limitation	Claimed Function	Corresponding Structure
“means for allowing a user to select” (claim 13)/“means for allowing selection” (claim 17)	“allowing a user to select one of the plurality of multi-window video signals” (claim 13)/“allowing selection of one of the plurality of multi-window signals” (claim 17)	remote control (Ex. 1001, 21:7–9 (“The viewer selects the desired channel by making a category selection in the pick menu or by using the channel selection button 74.”))

In its Patent Owner Response, Contemporary essentially repeats verbatim the arguments it initially presented in the Preliminary Response. *Compare* PO Resp. 2–3, *with* Prelim. Resp. 2–3. That is, Contemporary disagrees with Dish’s proposed construction of the claim term “overlay grid,” and asserts that this term should be construed according to its plain and ordinary meaning in light of the ’997 patent, as a whole. PO Resp. 2. Turning to the means-plus-function limitations, Contemporary contends that, “[t]o the extent that [Dish’s] constructions are non-all-inclusive of the supporting structures in the specification,” Contemporary asserts that each means-plus-function limitation should be construed according to its plain and ordinary meaning in light of the ’997 patent, as a whole, and should include all supporting structures in the specification and their equivalents. *Id.* at 2–3.

Although Contemporary appears to dispute Dish’s proposed constructions of the claim term “overlay grid” and the means-plus-function limitations identified above, Contemporary does not explain what it believes to be their plain and ordinary meaning in the context of the ’997 patent. In any event, we need not construe the claim term “overlay grid” and the

means-plus-function limitations identified above because, when evaluating the merits of Dish’s Petition in light of the arguments and evidence presented by Contemporary during trial, the scope and meaning of the claim term “overlay grid” and the means-plus-function limitations are not in controversy. Accordingly, it is not necessary to reach these particular issues for purposes of deciding whether Dish has met its burden of demonstrating by a preponderance of the evidence that the challenged claims are unpatentable. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

In our obviousness evaluation below, we address the scope and meaning of the claim term “cell quantity data value,” as this term pertains to the teachings of Niijima contested by the parties. More specifically, we address below whether Niijima’s electronic program guide (“EPG”) data that includes, among other things, positions on a multi-screen and numbers of picture elements of reduced screens, teaches or suggests the claim term “cell quantity data value” as that term is used in the context of the ’997 patent.

B. Obviousness Over the Teachings of Niijima

Dish contends that claims 1–9, 12, 16, and 30–36 of the ’997 patent are unpatentable under § 103(a) as obvious over the teachings of Niijima. Pet. 10–50. Dish explains how Niijima teaches or suggests the subject matter of each challenged claim, and provides reasoning as to why one of ordinary skill in the art would have been prompted to modify the teachings of this reference. Pet. 12–50; Pet. Reply 1–18. Dish relies on the

Declaration of Mr. Wechselberger accompanying the Petition and the Rebuttal Declaration of Mr. Wechselberger accompanying the Reply to support its positions. Ex. 1003 ¶¶ 90–244; Ex. 1028 ¶¶ 9–40.

During trial, Contemporary presents a number of arguments, most of which focus on whether Nijima teaches or suggests “receiving a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal,” as recited in each of independent claims 1 and 30. *See* PO Resp. 4–17; PO Sur-reply 1–16. Contemporary relies upon the Declaration of Dr. Michael C. Brogioli, Ph.D., to support its positions. Ex. 2001 ¶¶ 40–78.

We begin our analysis with the principles of law that generally apply to an obviousness ground, an assessment of the level of skill in the art, followed by a brief overview of Nijima, and then we address the parties’ contentions with respect to the challenged claims.

1. Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1,

17–18 (1966). We analyze the asserted grounds based on obviousness with the principles identified above in mind.

2. Level of Skill in the Art

In determining the level of skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). Relying on the testimony of Mr. Wechselberger, Dish contends that a person of ordinary skill in the art at the time of the ’997 patent would have been an individual who possessed “at least a Bachelor of Science degree in Electrical Engineering, Computer Engineering, Computer Science, or equivalent as well as at least two years of relevant academic or industry experience in digital television broadcasting systems and electronic program guides.” Pet. 5 (citing Ex. 1003 ¶ 77). Contemporary does not dispute Dish’s assessment of the level of skill in the art because “it is not dispositive.” PO Resp. 2. Based on the fully developed trial record, we adopt Mr. Wechselberger’s assessment and apply it to our obviousness evaluation below because it is consistent with the ’997 patent and the asserted prior art.

3. Overview of Niijima

Niijima recognizes that, with the advent of cable television systems and digital direct broadcasting systems, there has been a dramatic increase in the number of available broadcasting channels that has made it more difficult for a viewer to find a desired program. Ex. 1005, 1:12–21. As a result, Niijima states that one of its objectives is “to provide an electrical

program guide system and method by which a desired program can be selected rapidly with certainty, intuitively and directly from among a large number of programs.” *Id.* at 1:60–64.

Niijima purportedly achieves this objective through the use of a broadcasting system illustrated in Figure 3, reproduced below. Ex. 1001, 4:22–23.

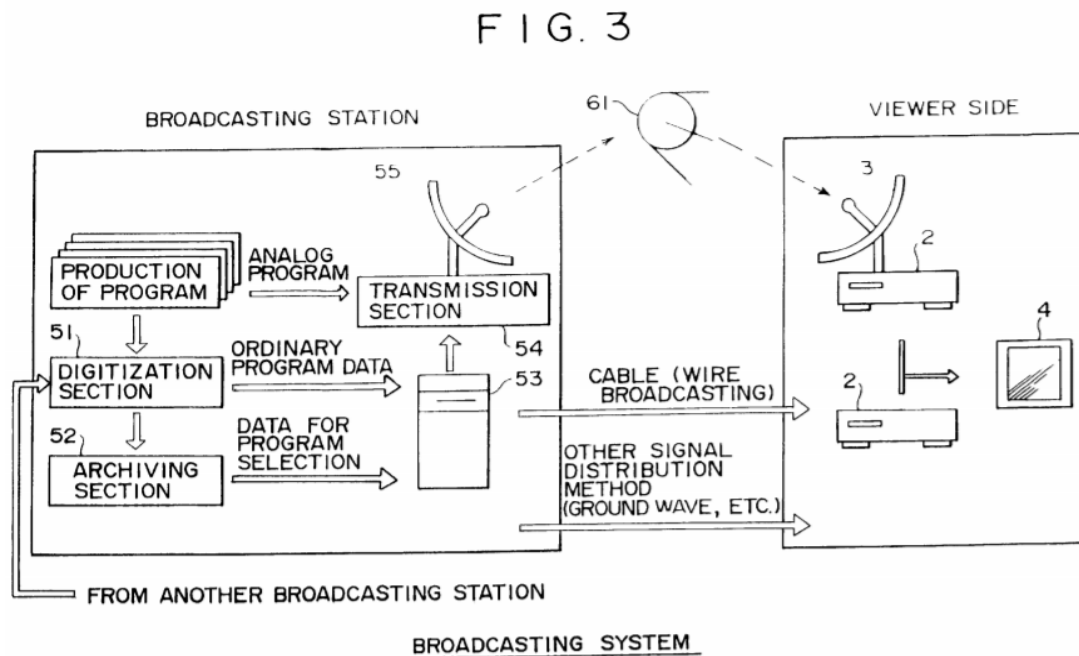


Figure 3, reproduced above, illustrates a broadcasting station having an archiving section 52 that combines a plurality of programs received from digitization section 51 and other broadcasting stations, and that reduces those programs to a plurality of channels that form an image of a multi-screen with nine reduced screens (i.e., archived data).⁴ *Id.* at 7:40–63. After some additional processing, video server 53 transmits this archived data to

⁴ Niijima discloses that “the terminology ‘archive’ is a computer terminology signifying to combine data of a plurality of files into one file.” Ex. 1005, 8:31–33.

the viewer side in one of the following three ways: (1) through transmission section 54 via artificial satellite 61; (2) through a wire transmission line, such as cable; or (3) through some other suitable signal distribution method. *Id.* at 8:40–9:6. Depending on how the archived data is transmitted from the broadcasting station, receiver 2 performs the necessary processing of data and then supplies a video signal to monitor 4. *Id.* at 9:18–22, 9:36–42.

Figure 5 of Niijima, reproduced below, illustrates one example of arranging and displaying the multi-screen with nine reduced screens on monitor 4. Ex. 1005, 4:26–27; 10:1–5.

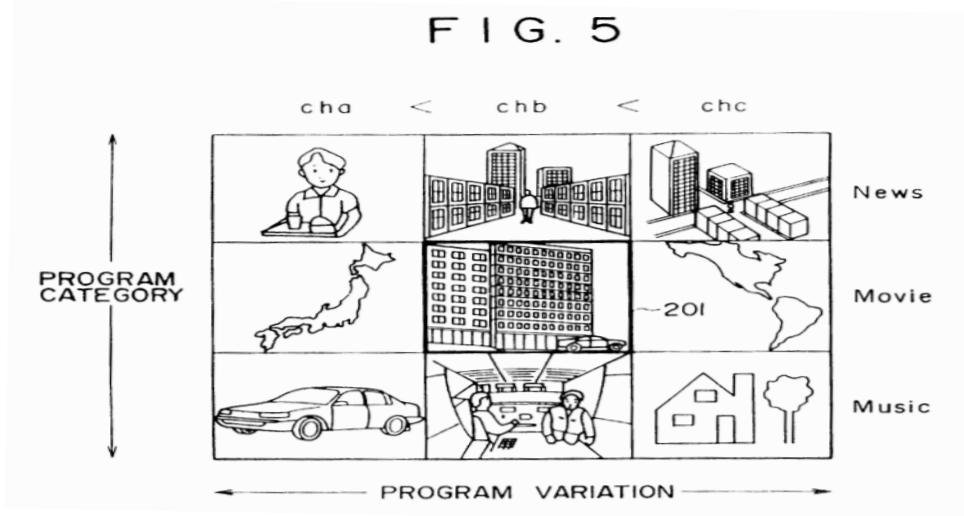


Figure 5, reproduced above, illustrates a 3x3 matrix that includes three categories of reduced screens (i.e., News, Movie, and Music), each of which includes a single, horizontal row of three programs that fall within the purview of that category. *Id.* at 10:5–13.

4. Claims 1 and 30

Beginning with independent claim 1, the preamble recites “[a] system for presenting an interactive multi-window video display.” Ex. 1001, 35:45–46. To the extent the preamble is treated as limiting, Dish contends

that Niijima teaches or suggests the features recited in the preamble because it discloses a single screen on which nine reduced size screens are displayed and arranged in a 3x3 matrix. Pet. 12–13 (citing Ex. 1005, 6:34–37, 19:42–44, Fig. 20; Ex. 1003 ¶¶ 90, 93). Dish further argues that Niijima’s multi-window display is interactive because one of the nine reduced size screens may be selected manually using remote commander 5. *Id.* at 13 (citing Ex. 1005, 13:30–32, 21:13–34; Ex. 1003 ¶¶ 91, 92).

Independent claim 1 recites “a receiver for receiving a multi-window real time video signal representing a multi-window corresponding to channels selected by a user in accordance with a category,” wherein the multi-window real time video signal further includes “one or more reduced size video displays.” Ex. 1001, 35:47–51. Dish contends that Niijima’s receiver 2, which includes reception section 2a controlled by processing section 2b, teaches the “receiver.” Pet. 14–15 (citing Ex. 1005, 9:14–18, 12:47–58, Figs. 3, 8; Ex. 1003 ¶¶ 94, 95). Dish argues that the data signal transmitted from Niijima’s broadcasting station to receiver 2, which includes multi-screens and currently available programming, teaches the “multi-window real time video signal.” *Id.* at 17–18 (citing Ex. 1005, 9:14–18, 12:50–54, 13:57–61; Ex. 1003 ¶ 102). Dish further argues that the customization of the content of the multi-window display performed by Niijima’s broadcasting station and receiver 2, along with the selection of channels that comprise the 3x3 preview screen, teach the “multi-window real time video signal” that corresponds to “channels selected by a user in accordance with a category.” *Id.* at 20–26 (citing Ex. 1005, 9:59–67, 19:49–57, 20:8–17, 20:38–40, 27:4–11; Ex. 1003 ¶¶ 108, 110, 114, 116, 117, 120, 121). Lastly, Dish argues that Niijima’s data signal transmitted

from the broadcasting station to receiver 2 includes six multi-screens, each with nine reduced size screens arranged in a 3x3 matrix to construct one multi-screen as a screen for program selection and, therefore, teaches “a multi-window real time video signal” that includes “one or more reduced size video displays.” *Id.* at 26–27 (citing Ex. 1005, code (57), 7:14–30, 10:52–54, 10:62–66; Ex. 1003 ¶¶ 122–124).

Independent claim 1 further recites that the “receiver” also “receiv[es] a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal.” Ex. 1001, 35:51–53. Dish contends that Niijima teaches or suggests this limitation because it discloses that the broadcasting station also transmits EPG data associated with each multi-screen, which includes, among other things, “positions on a multi-screen” and “numbers (for example, 240x160 pieces) of picture elements of reduced [size] screens,” to receiver 2. Pet. 27–28 (quoting Ex. 1005, 11:18–23) (citing Ex. 1005, 11:11–38); *see also id.* at 30 (arguing that Niijima’s receiver 2 receives the EPG data and stores it in memory) (citing Ex. 1005, 15:54–56; Ex. 1003 ¶ 129). Dish argues that the resulting multi-screen display “is formed from 720x480 picture elements” and it includes a 3x3 matrix of nine reduced size picture images, each with 240x160 pixels. *Id.* at 28 (quoting Ex. 1005, 10:63–67) (citing Ex. 1003 ¶¶ 125, 207). According to Dish, because the “size of the received multi-screen frame is known, a [person of ordinary skill in the art] would [have understood] that the ‘position on a multi-screen’ and numbers of picture elements of reduced size included in the EPG for the multi-screen ‘correspond[] to the number of reduced size video displays in the multi[-]window video signal.’” *Id.* (emphasis omitted). Relying on the testimony of its declarant, Mr.

Wechselberger, Dish asserts that Niijima's positions on the multi-screen that are provided with the EPG data constitute the "cell quantity data value" because they are indicative of the number of reduced size screens displayed. *Id.* at 28–29 (citing Ex. 1003 ¶¶ 126, 127).

Alternatively, Dish contends that, to the extent that the use of the EPG data to define the selection area and preview screen format is not explicit or inherent in Niijima, "a [person of ordinary skill in the art] would have been motivated to use 'the position in the multi-screen' values to define the number of reduced screens in the selection area and resulting preview screen because it is based on the size of the reduced screen." Pet. 29–30 (citing Ex. 1003 ¶ 128). As one example, Dish argues that, "for a monitor with 720x480 resolution, nine pieces of content at 240x160 arranged in a 3x3 matrix is displayed." *Id.* at 30.

Independent claim 1 next recites "a generator, coupled to the receiver, for generating an overlay grid having a number of cells based on the cell quantity data value." Ex. 1001, 35:54–56. Dish contends that Niijima teaches the "generator" because it discloses that receiver 2 includes processing apparatus 2b that uses a central processing unit ("CPU") and associated components to generate an On-Screen Display ("OSD"), such as the 3x3 preview screen illustrated in Figure 20. Pet. 35 (citing Ex. 1003 ¶ 138). Dish argues that the components that make up Niijima's processing apparatus 2b are coupled to reception section 2a (i.e., the "receiver"). *Id.* Dish further argues that Niijima's Figure 20 serves as one example of "generating an overlay grid having a number of cells based on the cell quantity data value," because Niijima discloses using the EPG data, which includes, among other things, "the position in the multi-screen" and

“numbers (for example, 240x160 pieces) of picture elements of reduced screens,” to generate a multi-screen display having a 3x3 matrix of nine reduced size screens. *Id.* at 31–32 (citing Ex. 1005, code (57), 6:56–58, 32:35–39, Fig. 20; Ex. 1003 ¶ 132).

Independent claim 1 further recites a “presentation means for presenting the multi-window video display within the cells of the overlay grid on a display device.” Ex. 1001, 35:57–59. Dish contends that this limitation is a means-plus-function limitation where the claimed function is “presenting the multi-window video display within the cells of the overlay grid on a display device” and the corresponding structure is a graphics component and programmed processor, which Dish asserts is taught by Niijima’s receiver 2. Pet. 36. More specifically, Dish argues that Niijima’s receiver 2 includes processing apparatus 2b, which uses a CPU and a component that produces OSD graphics to produce a multi-screen display having a 3x3 matrix of nine reduced size screens, such as the one illustrated in Figure 20. *Id.* at 36–37 (citing Ex. 1005, 13:10–17, 15:36–37, 16:12–17, 18:19–21, Fig. 20; Ex. 1003 ¶¶ 129–141)

Lastly, independent claim 1 recites a “selection means for allowing selection of one of the one or more reduced size video displays.” Ex. 1001, 35:60–61. Dish contends that this limitation is a means-plus-function limitation where the claimed function is “allowing selection of one of the one or more reduced size video displays” and the corresponding structure is a remote control and associated set top box input, which Dish asserts is taught by remote commander 5 and infrared (“IR”) reception section 39 of receiver 2. Pet. 38 (citing Ex. 1005, 13:9–20, 13:49–50, 16:25–17:34, Figs. 11A, 12; Ex. 1005 ¶ 142). Dish argues that Niijima’s remote commander 5

and IR reception section 39 of receiver 2 together perform the function of “allowing selection of one of the one or more reduced size video displays” because a viewer manually operates selection button 131 on remote commander 5 to move cursor 201 to a desired reduced screen. *Id.* at 38–39 (citing Ex. 1005, 22:35–38). After selecting a desired reduced screen, Dish argues that CPU 29 of receiver 2 “sends an instruction to the front end circuit 20 to receive the program of a channel linked to the selected reduced screen.” *Id.* at 39 (quoting Ex. 1005, 22:38–44) (citing Ex. 1005, 13:31–33).

Apart from being a method claim, independent claim 30 includes essentially the same limitations as independent claim 1. *Compare* Ex. 1001, 35:44–61, *with id.* at 38:3–20. Dish presents essentially the same arguments and evidence identified above with respect to independent claim 1 to support its explanation as to how the teachings of Niijima render the subject matter of independent claim 30 obvious. *See* Pet. 12–39; Ex. 1003 ¶¶ 173–225.

During trial, Contemporary presents arguments that fall within one of the following three groupings: (1) Dish does not point to any number in Niijima that corresponds to the number of displays in a multi-window video signal (i.e., the “cell quantity data value” limitation); (2) Dish’s characterization of Niijima is incomplete and inaccurate; and (3) even if we were to accept Dish’s characterization of Niijima, the modification to Niijima proposed by Dish’s declarant, Mr. Wechselberger, is unfeasible technically. *See* PO Resp. 4–17; PO Sur-reply 1–16. We address these argument groupings in turn.

- a. *“receiving a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal”*

In its Patent Owner Response, Contemporary contends that a person of ordinary skill in the art would have understood that the plain and ordinary meaning of the claim term a “cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal” requires that “the ‘cell quantity data value’ must be related to the total number of reduced size video displays in the video *signal*”—not just the number of reduced size video displays shown on a screen. PO Resp. 7 (citing Ex. 2001 ¶ 44). Contemporary argues that claim differentiation makes this clear by directing us to claim 11, which indirectly depends from independent claim 1, and further recites “wherein the cell quantity data value is *equal* to the number of reduced size video displays contained in the multi-window video display.” *Id.* (quoting Ex. 1001, 36:20–27).

Contemporary further contends that Niijima’s EPG data fails to disclose a number that corresponds to the number of displays contained in a multi-window video signal because this EPG data only indicates the positions on a multi-screen display and the size of picture elements. PO Resp. 7–8. Contemporary asserts that, even if Niijima’s system could use this EPG data “to calculate [the] number of screens to be displayed by looking to the largest position value,” “this number does not correspond to the number of displays in the signal.” *Id.* at 8 (emphasis omitted). Contemporary also argues that Dish’s reliance on Niijima’s transmitted signal that includes six multi-screens to teach the claimed “multi-window video signal” is “flawed” because this transmitted signal “includes more images than can be displayed at any one time.” *Id.* at 8–9.

In its Reply, Dish counters that Contemporary's argument that Niijima's EPG data fails to teach or suggest the claimed "cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal" is predicated on an erroneous claim interpretation. Pet. Reply 3. Dish contends that the "generating" and "presenting" steps recited in each of independent claims 1 and 30 "tie the 'cell quantity data value' to the overlay grid presented on the display and the number of reduced size video displays in the multi-window [signal]." *Id.* at 3–4 (emphasis omitted). Dish argues that, contrary to Contemporary's argument, dependent claim 11 reinforces this interpretation because claim differentiation dictates that independent claim 1 must encompass the embodiment covered by dependent claim 11. *Id.* at 4. Dish also argues that Contemporary's argument would exclude the only embodiment of a "cell quantity data value" in the specification of the '997 patent. *Id.* at 5 (citing Ex. 1001, 21:19–23). Dish asserts that, when considering the plain language of independent claims 1 and 30, along with the only embodiment in the specification, "the cell quantity data value must relate to the number of cells in the multi[-]window video display and in the signal." *Id.* (emphasis omitted) (citing Ex. 1028 ¶ 16).

Dish maintains that, based on its claim interpretation discussed above, Niijima's EPG data that include, among other things, positions on a multi-screen and the size of picture elements, teaches or suggests a "cell quantity data value" that "correspond[s] to the number of reduced sized video displays in the multi-window video signal," as recited in each of independent claims 1 and 30. Pet. Reply 6–7 (emphasis omitted) (citing Ex. 1005, 11:18–24; Ex. 1003 ¶ 127). Dish reiterates that interpreting the

“cell quantity data value” in this way is consistent with the only embodiment of the “cell quantity data value” disclosed in the specification of the ’997 patent. *Id.* at 7–8 (citing Ex. 1001, 21:19–23; Ex. 1028 ¶ 14). Dish further argues that, in its Petition, it demonstrated how Niijima’s EPG data “correspond[s] to” or “relate[s] to” the number of reduced size videos in the signal because Niijima’s transmitted signal may contain a number of multi-screens and the number of reduced size video displays in the transmitted signal is directly proportional to the number of reduced size displays in a multi-screen. *Id.* at 8 (citing Pet. 31; Ex. 1003 ¶¶ 130, 211; Ex. 1028 ¶ 19). Dish also argues that, in its Petition, it also demonstrated how Niijima discloses transmitting each individual multi-screen in the transmitted signal, which, according to Dish, Contemporary does not dispute. *Id.* at 8–9 (Pet. 49; Ex. 1003 ¶¶ 167, 168; Ex. 1028 ¶ 20).

Lastly, Dish disagrees with the arguments presented by Contemporary for the following three reasons: (1) “[Contemporary] is consistently unable to articulate why the number of reduced size [video] displays in the multi[-]window display is not ‘related to’ . . . the number of reduced size [video] displays in the signal”; (2) the Petition made clear that Niijima’s “EPG data is the cell quantity data value and it corresponds to the number of [reduced size video] displays in the signal,” which is exactly what is required by independent claims 1 and 30; and (3) to the extent Contemporary takes the position that “the only ‘cell quantity data value’ is an integer received with the reduced program whose sole purpose is to inform the receiver of the number of reduced [size video] screens in the signal,” Contemporary’s declarant, Dr. Brogioli, undermines this position because he testified during his deposition that the claimed “cell quantity data value” is not limited to an

integer. Pet. Reply 9–10 (citing Pet. 28–30; Ex. 1027, 81:6–11; Ex. 1028 ¶ 25).

In its Sur-reply, Contemporary contends that Dish’s insistence that Niijima’s EPG data is the “cell quantity data value” “is baffling” because it is not clear what portion of this EPG data purportedly corresponds to the cell quantity data value. Sur-reply 2. Contemporary argues that, although the Board in its Institution Decision understood Dish’s declarant, Mr. Wechselberger, to testify that “the number of the highest position cell in Niijima’s multi-screen” amounts to the “cell quantity data value,” Mr. Wechselberger actually requires performing operations or calculations on a variety of additional variables to determine the “cell quantity data value.” *Id.* at 2–3. According to Contemporary, Mr. Wechselberger’s testimony with respect to determining the “cell quantity data value” contradicts Dish’s argument that Niijima teaches “receiving . . . cell quantity data value,” as recited in each of independent claims 1 and 30. *Id.* at 3.

Contemporary further argues that it never made the argument that an integer value with direct equivalence to the number of reduced sized video programs in the multi-window display amounts to the “cell quantity data value,” but rather argues that the plain language of independent claim 1 requires an equivalence between the cell quantity data value and the number of reduced sized video displays in the multi-window video *signal*—not in the multi-window video *display*. PO Sur-reply 3; *see also id.* at 5 (arguing that independent claim 1 requires “an equivalence between the cell quantity data value and the number of reduced size videos in the *signal*, not the *display*”). To highlight this purported distinction, Contemporary argues that, although Niijima discloses that the number of reduced size video screens in

the multi-window video display is nine (e.g., Nijima’s Figure 5 illustrates a 3x3 matrix of nine reduced size video screens), the number of reduced size video screens in the multi-window video signal is actually fifty-four because the signal includes six multi-screens each with nine reduced sized video screens. *See id.* at 5–6 (citing Ex. 1005, Fig. 6; Pet. 16–17). Contemporary asserts that, in such a scenario, the cell quantity data value is actually fifty-four and not nine. *Id.* at 6; *see also id.* at 7 (arguing the same).

The parties’ dispute centers on the scope and meaning of the claim term “cell quantity data value.” We begin our analysis with the plain language of independent claims 1 and 30, each of which recites “receiving a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal.” Ex. 1001, 35:51–53, 38:10–12 (“the ‘cell quantity data value’ limitation”). Based on the explicit language of these two independent claims, the “cell quantity data value” need only correspond to, in some way, the number of reduced size video displays in the multi-window video signal.

As mentioned in our claim construction section above, neither party offers an explicit construction of the claim term “corresponding to.” *See supra* Section II(A). Contemporary provides various characterizations of the meaning of “corresponding to,” such as “related to” or “an equivalence between.” PO Resp. 7; PO Sur-reply 3. However, Contemporary indicates that its characterizations “do nothing more than point out the claim language itself.” PO Sur-reply 7. Moreover, neither party points to language in the specification of the ’997 patent that clarifies the meaning of “corresponding to.”

As noted by both parties, the doctrine of claim differentiation provides a useful indication of the scope of the “cell quantity data value” limitation. *See* PO Resp. 7; Pet. Reply 4–5. Where possible, we presume that “an interpretation of a claim should be avoided if it would make the claim read like another one.” *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991) (internal quotation omitted). Such a presumption is applicable where one party is urging that an independent claim should be interpreted to be read as its dependent claim. *See SunRace Roots Enterprise Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003). The term “equal to” is used in claim 11, which indirectly depends from independent claim 1 and, therefore, further limits independent claim 1. Ex. 1001, 36:25–27 (reciting “wherein the cell quantity data value is equal to the number of reduced size video displays contained in the multi-window video display.”). Where dependent claim 11 recites “equal to,” independent claim 1 only requires “corresponding to.” The term “corresponding to” has a broader meaning than the term “equal to.” Consequently, the cell quantity data value need not be a value that is equal to the number of reduced size displays in the multi-window video signal.

The specification of the ’997 patent also supports interpreting the “cell quantity data value” limitation in this way. The claim terms “corresponding to” and “cell quantity data value” do not appear together in the specification outside the claims. The only embodiment of the “cell quantity data value” in the specification is disclosed in relation to the process of displaying and navigating through the multi-screen browser tool (“MSB”) illustrated by the flowcharts in Figures 16A and 16B. The relevant disclosure states the following: “The data received from the head end specifies the number of

cells to be placed in a given MSB screen. In some embodiments, the data specifying the number of cells for each MSB display is sent in advance with the program guide information.” Ex. 1001, 21:19–23. Notably, this disclosure does not require that the “cell quantity data value” be equal to the number of reduced size video displays in the program guide information received from the head end (i.e., the multi-window video signal), but instead only requires that the “cell quantity data value” be used, in some undisclosed way, to specify the number of reduced sized video displays. This is consistent with interpreting the “cell quantity data value” as corresponding to, in some way, the number of reduced size video displays in the multi-window video signal. With this interpretation of the “cell quantity data value” limitation in mind, we turn to the merits of Dish’s position.

Based on the fully developed trial record, we agree with Dish that Niijima teaches or suggests “a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal,” as recited in each of independent claims 1 and 30. As illustrated in Figure 3 of Niijima, the broadcasting station includes archiving section 52, which, in turn, includes EPG data production apparatus 204 that produces EPG data from programs supplied to the broadcasting stations. Ex. 1005, 11:10–18. Niijima discloses that the EPG data includes, among other things, “positions on a multi-screen” and “numbers (for example, 240x160 pieces) of picture elements of reduced screens.” *Id.* at 11:18–23. Relying on these teachings in Niijima, Dish’s declarant, Mr. Wechselberger, testifies—and we agree—that the position on the multi-screen display provided with the EPG data for each multi-screen corresponds to the “cell quantity data value” because it is

indicative of the number of reduced size screens actually displayed.

Ex. 1003 ¶ 127.

Nijima further discloses that front end circuit 20 located within receiver 2 receives a signal containing the EPG data on transmission channel and then stores the EPG data in data buffer memory 35. Ex. 1005, 15:54–56. Relying on this teaching in Nijima, Mr. Wechselberger testifies that receiver 2 receives the signal containing the EPG data for each multi-screen that includes the “positions on a multi-screen” and “numbers (for example, 240x160 pieces) of picture elements of reduced screens” and, therefore, teaches or suggests “receiving a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal.” Ex. 1003 ¶¶ 125, 129 (emphases omitted). We agree with the conclusion reached by Mr. Wechselberger because the data value in the EPG data that represents the number of the highest position cell for each multi-screen corresponds to, in some way, the number of reduced size video displays in the signal. *See id.* ¶¶ 126–129. We note that these teachings in Nijima also are consistent with the disclosure in the specification of the ’997 patent of receiving data specifying the number of cells for each MSB display. *See* Ex. 1001, 21:19–23.

We are not persuaded by Contemporary’s argument that Dish’s reliance on Nijima’s transmitted signal to teach the claimed “multi-window video signal” is flawed because this transmitted signal includes six multi-screens, each with nine reduced size screens arranged in a 3x3 matrix, thereby totaling fifty-four reduced size screens that correspond to the “cell quantity data value.” *See* PO Resp. 8–9; PO Sur-reply 5–7. Although Contemporary is correct that Nijima discloses that archiving section 52

combines EPG data for six multi-screens into a single signal for transmission to receiver 2 (*see* Ex. 1001, 8:21–9:6), Contemporary fails to account for the breadth of a “cell quantity data value” required by independent claims 1 and 30.

As we explained above, the “cell quantity data value” corresponds to, in some way, the number of reduced size video displays in the multi-window video signal. In both his declaration accompanying the Petition and his rebuttal declaration accompanying the Reply, Mr. Wechselberger testifies that Niijima’s transmitted signal includes EPG data for six multi-screens. *See* Ex. 1003 ¶¶ 100, 101; Ex. 1028 ¶ 19. Mr. Wechselberger, however, further testifies that the number of reduced size video displays in Niijima’s transmitted signal “is . . . directly proportional (and therefore corresponds or relates to) the number of reduced size [video] displays in a multi-screen.” Ex. 1028 ¶ 19 (citing Ex. 1003 ¶ 130). We understand Mr. Wechselberger to testify that Niijima’s signal transmitted from the broadcasting station to receiver 2 that includes EPG data for each of the six multi-screens provides a six to one correspondence of reduced size video screens because the six multi-screens include fifty-four total reduced sized video screens that, for purposes of program selection and display, distill down to six individual multi-screens each with nine reduced size screens arranged in a 3x3 matrix. This six to one correspondence present in Niijima’s transmitted signal, which includes EPG data for each of the six multi-screens, properly accounts for the “cell quantity data value” required by independent claims 1 and 30.

We credit Mr. Wechselberger’s testimony in this regard because it is consistent with Niijima’s Figure 18 and its corresponding description. Figure 18, reproduced below, illustrates a diagrammatic view of a condition

wherein reduced size screens are stored in a matrix array in a virtual frame.
Ex. 1001, 4:58–60.

F I G. 18

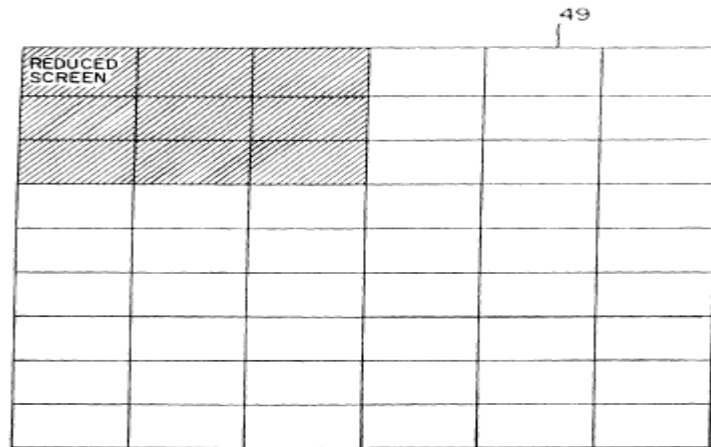


Figure 18, reproduced above, illustrates the process of demultiplexer 24 (not shown above) receiving six multi-screens transmitted in a single signal and storing these six multi-screens as a 6x9 matrix array of reduced size screens in virtual frame memory 49. *Id.* at 19:14–37. Although Figure 18 illustrates six multi-screens totaling fifty-four reduced size screens, the user only selects a single preview screen with nine reduced size screens arranged in a 3x3 matrix at any given moment for display on monitor 4. *Id.* at 21:3–6, Fig. 19 (illustrating a range of reduced size screens to be displayed on monitor 4).

b. Dish's Characterization of Niijima

Contemporary contends that Dish relies on a chart created by its declarant, Mr. Wechselberger that “represents a simplified version of Niijima” and “ignores large swaths of Niijima’s disclosure.” PO Resp. 10 (citing Ex. 1003 ¶ 126). Contemporary argues that Mr. Wechselberger’s chart “is incomplete and inaccurate” and, “[a]s a result, the ‘position’ of

each picture element fails to disclose or suggest a ‘cell quantity data value.’” *Id.* at 10–11.

More specifically, Contemporary argues that the positions of each picture element in Mr. Wechselberger’s chart “is not indicative of the number of reduced sized video displays.” PO Resp. 11 (emphasis omitted). To support this argument, Contemporary asserts that, “in a scenario where there is a total of three picture elements and there are nine positions for picture elements, the position of the picture element is not indicative of the number of reduced sized video displays if the three picture elements are in random positions” (e.g., positions 1, 4, and 7). *Id.* (underlying omitted). According to Contemporary, “Niijima expressly considers such a situation” because, “[i]n order to view the additional channels, a customer would be required to scroll across to the additional channels.” *Id.* at 12–14 (emphasis omitted) (citing Ex. 1005, 13:18–30, 21:54–65, Fig. 21; Ex. 2001 ¶ 53). Contemporary argues that Niijima’s disclosure of changing the multi-screen in response to the user scrolling either (1) results in changing the position value associated with each program in order to maintain a single multi-screen with nine reduced size screens arranged in a 3x3 matrix; or (2) the receiver does not receive the position value from the content provider, but rather the server determines the position value dynamically. *Id.* at 14–15 (citing Ex. 2001 ¶¶ 56–59). In either case, Contemporary asserts that “the ‘position’ value does not equate to the claimed ‘cell quantity data value corresponding to the number of reduced size video displays.’” *Id.* at 15.

Dish counters that it is actually Contemporary and its declarant, Dr. Brogioli, who “confuse and conflate the operation of Niijima’s broadcasting station and receiver [2].” Pet. Reply 11. Dish argues that Niijima discloses

“a sophisticated programming guide system” where the “broadcasting station generates a set of multi-screens that each contained reduced size [video] programs for display in a multi-window program guide display,” a multi-screen production circuit at the broadcasting station transmits EPG data “specifying the position of a [video] program on a multi-screen” to receiver 2, and it is “the position data included in the EPG data . . . [that] indicates the total number of reduced size [video] programs in the multi-screen.” *Id.* at 11–12 (emphasis omitted) (citing Ex. 1005, 7:43–65, 8:21–41, 11:18–23; Ex. 1003 ¶¶ 126, 208; Pet. 16–17, 27–28). Dish further argues that Niijima’s receiver 2 then “arranges the set of six multi-screens received from the broadcasting station in a . . . ‘matrix array’ in a virtual memory” and, as illustrated in Niijima’s Figure 18, “uses a selection area . . . to identify the multi-window display to display on the screen.” *Id.* at 12 (citing Ex. 1005, 4:57–59, 19:35–37, Fig. 18; Pet. 24, 29–31).

Dish also contends that Contemporary’s proposed hypothetical where the picture elements are arranged in Niijima’s 3x3 matrix array only in positions 1, 4, and 7, and the remainder of the cells (i.e., positions 2, 3, 5, 6, 8, and 9) might be empty, is not supported by Niijima because “[n]owhere does Niijima teach or suggest to a [person of ordinary skill in the art] that a multi-screen generated at the broadcasting station would have empty positions.” Pet. Reply 13 (citing Ex. 1027, 103:5–22; Ex. 1028 ¶ 30). Dish also argues that Contemporary’s argument that “a user’s ability to scroll between multi-screens means the positions of the screens must change” is “irrelevant” because “[t]here is no requirement in the claims that the ‘cell quantity data value’ equals the position of the program on the displayed screen as a user scrolls.” *Id.* at 13–15. Dish asserts that, even “where the

user scrolls to the right by one position, the selection area still has the same number of cells [(i.e., the 3x3 matrix)], the multi-screens in the virtual frame have the same size and arrangement, and the displayed programs retain their positions in their respective multi-screens.” *Id.* at 15 (citing Ex. 1028 ¶ 34).

In its Sur-reply, Contemporary maintains that Niijima discloses a scenario where empty cells may be transmitted from the broadcasting station to receiver 2 because “a given multi-screen will be full if and only if the total number of channels is divisible by the number of cells in the multi-screen.” PO Sur-reply 10–11. Contemporary argues that “Niijima . . . expressly contemplates handling ‘100 or more’ programs” and, therefore, the broadcasting station could prepare channels for transmission to receiver 2 that are not readily divisible by nine to create a 3x3 matrix array. *Id.* at 11 (quoting Ex. 1005, 26:48–53) (citing Ex. 1005, 13:18–30). Contemporary also argues that Niijima contemplates a scenario where empty cells may be transmitted from the broadcasting station to receiver 2 by disclosing that the broadcasting station is capable of arranging programs in an excessive number of categories, or arranging an excessive number of programs of a particular category, prior to transmission to receiver 2. *Id.* (citing Ex. 1005, 10:14–21, 10:29–33).

Based on the fully developed trial record, we agree with Dish that it provides a fair and accurate characterization of Niijima. Contemporary’s arguments in this regard initially focus on a chart cited in the Petition that was created by Mr. Wechselberger. *See* PO Resp. 10–11. For convenience, this chart is reproduced below.

Program A Start: 20:00 ET Channel: 100 Category: Sports Position: 1 Picture Elements: 240x160	Program B Start: 20:00 ET Channel: 110 Category: Sports Position: 2 Picture Elements: 240x160	Program C Start: 20:00 ET Channel: 111 Category: Sports Position: 3 Picture Elements: 240x160
Program D Start: 20:00 ET Channel: 112 Category: Sports Position: 4 Picture Elements: 240x160	Program E Start: 20:00 ET Channel: 120 Category: Sports Position: 5 Picture Elements: 240x160	Program F Start: 20:00 ET Channel: 010 Category: Sports Position: 6 Picture Elements: 240x160
Program G Start: 20:00 ET Channel: 121 Category: Sports Position: 7 Picture Elements: 240x160	Program H Start: 20:00 ET Channel: 122 Category: Sports Position: 8 Picture Elements: 240x160	Program I Start: 20:00 ET Channel: 123 Category: Sports Position: 9 Picture Elements: 240x160

Exemplary Electronic Program Data For Multi-Screen Programs

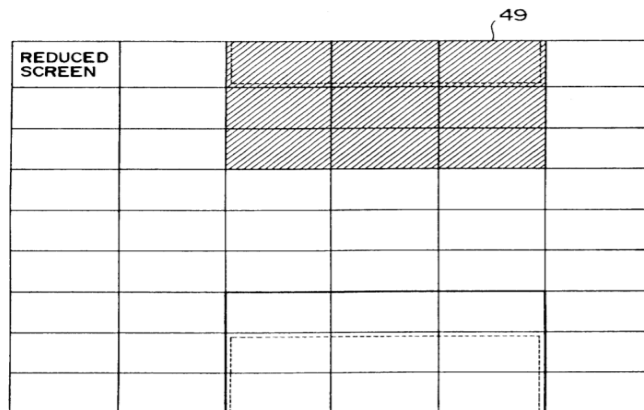
Pet. 29 (citing Ex. 1003 ¶ 126). Based on our independent assessment of Niijima, this chart, reproduced above, is nothing more than a visual illustration of Niijima’s disclosure that “EPG data includes broadcasting start times, broadcasting channel numbers, program categories, program names, positions on a multi-screen, and numbers (for example, 240x160 pieces) of picture elements of reduced screens.” Ex. 1005, 11:18–23. More specifically, this chart merely illustrates a single multi-screen with nine reduced size screens arranged in a 3x3 matrix that may be displayed on monitor 4, such as the preview screen illustrated in Niijima’s Figures 18 and 21. *Id.* at Figs. 18 (illustrating virtual frame memory 49 containing fifty-four reduced size video screens, but only displaying a single multi-screen with nine reduced size screens arranged in a 3x3 matrix at any given moment), 21 (illustrating the same).

We are not persuaded by Contemporary’s argument that the highest position value of the picture elements in Mr. Wechselberger’s chart does not constitute a “cell quantity data value” because Niijima purportedly discloses a scenario where the broadcasting station transmits EPG data that includes empty screens to receiver 2 so that, for a single multi-screen, there is a total

of three picture elements in positions 1, 4, and 7, and the picture elements in positions 2, 3, 5, 6, 8, and 9 are empty. *See* PO Resp. 11–14; PO Sur-reply 10–11. As support for this proposed hypothetical, Contemporary and its declarant, Dr. Brogioli, direct us to numerous disclosures in Niijima. However, upon reviewing each of these disclosures in Niijima, we were unable to locate a teaching or suggestion that supports finding that Niijima’s programming guide system operates in this way. We address each of Niijima’s disclosures relied on by Contemporary and Dr. Brogioli in turn.

First, as support for its proposed hypothetical, Contemporary and Dr. Brogioli rely on Niijima’s ability to change the multi-screen in response to a user scrolling. *See* PO Resp. 12–14 (citing Ex. 1005, 13:18–30, 21:54–65, Fig. 21; Ex. 2001 ¶ 53). Figure 21, reproduced below, illustrates a schematic view showing reduced size screens displayed on the monitor as a result of scrolling. Ex. 1001, 4:65–67.

F I G . 21



Although Figure 21, reproduced above, illustrates six multi-screens totaling fifty-four reduced size screens, the user scrolling through these fifty-four reduced size screens only selects a single preview screen with nine reduced size screens arranged in a 3x3 matrix at any given moment for display on

monitor 4. Even when the user scrolls downward so that the 3x2 reduced size screens in the lowermost and second lowermost rows surrounded by dotted lines and the 3x1 reduced size screens in the uppermost row surrounded by dotted lines constitute the 3x3 matrix that actually is displayed on monitor 4, there is no indication in Nijjima that any of these nine reduced size screens arranged in this particular 3x3 matrix would be empty or otherwise would include missing frames. *Id.* at 21:61–65.

Second, as support for its proposed hypothetical, Contemporary also relies on Nijjima’s disclosure that its programming guide system is capable of handling 100 or more programs and, in particular, how the broadcasting station is capable of arranging programs in an excessive number of categories, or arranging an excessive number of programs of a particular category, prior to transmission to receiver 2. *See* PO Sur-reply 10–11 (citing Ex. 1005, 10:14–21, 10:29–33, 13:18–30, 26:48–53). Although Contemporary is correct that Nijjima’s programming guide system is capable of handling 100 or more programs of various categories, these cited disclosures in Nijjima simply reinforce its stated objective—namely, “to provide an electrical program guide system and method by which a desired program can be selected rapidly with certainty, intuitively and directly from among a large number of programs.” Ex. 1005, 1:60–64. Nijjima accomplishes this objective by taking the 100 or more programs of various categories and distilling them down to a single multi-screen with nine reduced size screens arranged in a 3x3 matrix for display on monitor 4 at any given moment. *See, e.g., id.* at Fig. 5 (illustrating one example of arranging and displaying the multi-screen with nine reduced size screens arranged in a 3x3 matrix on monitor 4). When disclosing how Nijjima

achieves this objective, Contemporary does not direct us to, nor are we aware of, a single disclosure that teaches or suggests the broadcasting station actually generates EPG data that includes empty screens for transmission to receiver 2.

The testimonial evidence of record further supports our understanding that Niijima does not contemplate a scenario that involves the broadcasting station transmitting EPG data that includes empty screens to receiver 2. During the deposition of Dr. Brogioli, counsel for Dish inquired whether Niijima's Figure 6 and its corresponding description support Contemporary's hypothetical regarding whether the broadcasting station actually transmits EPG data that includes empty screens to receiver 2. The relevant exchange is reproduced below.

Q. So does Niijima in this section say that any of the nine screens received by the production circuit can be blank or empty?

A. I don't know that this paragraph that we're referring to speaks to that one way or the other.

Q. All right. Does Niijima anywhere say that any of the programs' input to its production circuit can be empty or blank?

A. I don't know that I've seen that Niijima uses the word "empty" one way or the other.

Q. Okay. Do you have an opinion on whether any of the input video signals to these 201-1 through 201-9 production circuits can be blank or empty in Niijima?

A. I don't know that Niijima contemplates that. I don't think I performed that exercise.

Ex. 1027, 103:5–22; *see also* Ex. 1028 ¶ 30 (Mr. Wechselberger testifying that he does not find support in Niijima for the "Dr. Brogioli's hypothetical of empty cells in the displayed multi-window display"). Based on the exchange between counsel for Dish and Dr. Brogioli, and further reinforced by Mr. Wechselberger's testimony accompanying Dish's Reply, Niijima

does not disclose explicitly that the broadcasting system transmits EPG data that includes empty screens to receiver 2.

During the oral argument, the panel proposed essentially the same question to counsel for Contemporary and he stated that Niijima was “silent” as to whether Niijima contemplates the broadcasting station transmitting EPG data that includes empty screens to receiver 2. *See* Tr. 47:9–17 (“JUDGE CYGAN: . . . In your response, you have presented a hypothetical that Niijima may have some empty screens. . . . Could you explain how Niijima would describe having empty screens as part of the reduced screens? MR. BRUNELLI: I’m not sure. I think that, I think Niijima’s *silent* on that.” (emphasis added)).

In conclusion, because there is no basis in the teachings of Niijima, nor is there testimonial evidence of record, that supports finding that the broadcasting station actually transmits EPG data that includes empty screens to receiver 2, we decline to speculate or assume how Niijima’s programming guide system would react if presented with this hypothetical scenario.

c. Whether Dish’s Purported Modifications to Niijima are Feasible Technically

In its Patent Owner Response, Contemporary argues that a person of ordinary skill in the art would not have modified Niijima in the manner proposed by Dish because it would “require[] a number of challenges,” including, among other things, “additional DRAM [Dynamic Random-Access Memory], additional compute time, more CPU power, and additional executable code on the CPU which requires instruction memory and power consumption.” PO Resp. 16 (citing Ex. 2001 ¶¶ 76, 77). Relying on the testimony of Dr. Brogioli, Contemporary argues that “[a]dding more

computation tasks to a (near) real-time system . . . would be highly problematic, even if it were possible.” *Id.* at 16–17 (citing Ex. 2001 ¶¶ 77, 78). More specifically, Contemporary asserts that Dish and its declarant, Mr. Wechselberger, “have not pointed to any portion of Niijima that would teach or suggest how any additional computation could or would be added to Niijima’s [programming guide] system in order to ‘determine’ the cell quantity [data value].” *Id.* at 18 (emphases omitted).

In its Reply, Dish counters that Contemporary’s argument that a person of ordinary skill in the art would not have modified Niijima in the manner proposed by Dish is “baseless” because “Niijima’s ‘cell quantity data value’ is sent in the EPG data . . . just like the ’997 patent’s value,” without the need for the MPEG decoder to run to decode the EPG data. Pet. Reply 16–17 (*comparing* Ex. 1005, 11:18–23, *with* Ex. 1001, 21:21–23) (citing Ex. 1005, 14:47–48, 15:54–56, Figs. 11A, 11B; Ex. 1028 ¶ 39). Dish also asserts that Contemporary’s argument in this regard lacks support because it only relies on Dr. Brogioli’s testimony, which lacks corroboration and, as a result, should be entitled to little weight. *Id.* at 17. Lastly, Dish argues that, even if we were to assume that its proposed modification to Niijima has a “‘number of challenges,’ including a need for additional ‘DRAM’ and ‘more CPU power,’ those challenges are irrelevant to the patentability of [the challenged claims of the ’997 patent].” *Id.* at 17–18.

As an initial matter, Contemporary does not explain adequately what specific modifications to Niijima would be required to address the number of challenges identified by both Contemporary and Dr. Brogioli. At best, this argument is predicated on the notion that the “cell quantity data value” required by independent claims 1 and 30 amounts to a single integer value.

See PO Resp. 16 (arguing that “the ’997 [p]atent simply requires *an integer value* in the stream to indicate the number of [reduced size] screens to be displayed” (emphasis added)); Ex. 2001 ¶ 76 (testifying that the steps involved in the process disclosed in the ’997 patent involve “[r]eceiving *an integer value* indicating the cell quantity data value” (emphasis added)). With this in mind, we understand both Contemporary and Dr. Brogioli to argue that Nijjima would need to be modified to properly account for a single integer value because a person of ordinary skill in the art would have understood that, based on the EPG data contained in the signal sent from the broadcasting station, receiver 2 requires some sort of additional processing to calculate a data value that represents the number of reduced size screens to be displayed. *See* PO Resp. 16; Ex. 2001 ¶ 76.

We disagree with Contemporary’s argument because, as we explained above, the “cell quantity data value” is not necessarily limited to a single integer value, but rather corresponds to, in some way, the number of reduced size video displays in the multi-window video signal. *See supra* Section II.B.4.a. We agree with Dish that Nijjima teaches receiving a cell quantity data value, such as a single integer data value in the EPG data that represents the *number* of the highest position cell for each multi-screen, corresponding to the number of reduced size video displays in the multi-window video signal, as required by independent claim 1 and 30. *See id.* Therefore, no additional teaching of determining the cell quantity data value is required by Nijjima to account for the disputed language of these two independent claims.

Contemporary’s argument in this regard also is undermined by Dr. Brogioli’s deposition testimony and statements by counsel for Contemporary

during oral argument, both of which appear to confirm our understanding that the “cell quantity data value” is not limited to a single integer value. During Dr. Brogioli’s deposition, he was asked whether independent “claim 30 required that the cell quantity data value be an integer” and, in response, he stated “I don’t believe it does.” Ex. 1027, 81:6–15. Counsel for Contemporary was presented with essentially the same question during the oral argument and, in response, he stated “[i]t doesn’t need to be an integer, . . . [b]ut it does need to be a single data value.” Tr. 30:10–18.

In any event, even if we were to assume that a person of ordinary skill in the art would have understood that, based on the EPG data contained in the signal sent from the broadcasting station, Niijima’s receiver 2 requires some sort of additional processing to calculate a data value that represents the number of reduced sized screens to be displayed, this additional processing at the receiver side, by itself, would not preclude a conclusion of obviousness. *See* PO Resp. 16–17; Ex. 2001 ¶¶ 76–78. Dish’s declarant, Mr. Wechselberger, testifies that the additional processing issues, such as “additional compute time, more CPU power, and additional executable code on the CPU[,] . . . are well within the skill of a [person of ordinary skill in the art] to solve—these are issues of any real-time system, and Dr. Brogioli does not cite to any special concern in Niijima . . . to support any argument that these issues could not be overcome by a [person of ordinary skill in the art].” Ex. 1028 ¶ 40. We credit Mr. Wechselberger’s testimony in this regard, especially because there is insufficient evidence in the record developed during trial that indicates some additional processing on the receiver side would result in changing Niijima’s principle of operation or otherwise render it inoperable for its intended purpose.

d. Summary

In summary, Dish has demonstrated by a preponderance of the evidence that the subject matter of independent claims 1 and 30 would have been obvious over the teachings of Niijima.

5. Claims 2–9, 12, 16, 31–36

Dish also contends that dependent claims 2–9, 12, 16, and 31–36 of the '997 patent are unpatentable under § 103(a) as obvious over the teachings of Niijima. Pet. 39–50. Dish explains how Niijima teaches or suggests the subject matter of each dependent claim, and provides reasoning as to why one of ordinary skill in the art would have been prompted to modify the teachings of this reference. Pet. 39–50; Ex. 1003 ¶¶ 144–171, 226–244.

As one example, claim 2 depends directly from independent claim 1, and further recites “wherein the receiver receives the cell qua[nt]ity⁵ data value as part of the multi-window video signal.” Ex. 1001, 35:62–64. Dish contends that Niijima teaches or suggests this limitation because it discloses that the broadcasting station converts the EPG data into packets and multiplexes them “so that they must be transmitted via one transmission channel” to receiver 2. Pet. 39 (quoting Ex. 1005, 11:24–33) (citing Ex. 1005, 15:54–56). As another example, claim 16 depends directly from

⁵ Dish assumes that the “cell qua_lity data value,” as recited in dependent claim 2, is a typographical error and, instead, should be treated as “cell quantity data value.” Pet. 39 n.6. Contemporary has not provided an alternate explanation or construction that would distinguish these two terms from each other, and finding no clear support in the specification of the '997 patent, we treat these two terms as being equivalent in scope.

independent claim 1, and further recites “wherein the display device is a television receiver.” Ex. 1001, 36:49–50. Dish contends that Nijima teaches or suggests this limitation because it discloses that monitor 4 “may be, for example, a television receiver.” Pet. 50 (quoting Ex. 1005, 9:18–21).

During the course of trial, Contemporary does not address separately Dish’s explanations and supporting evidence as to how the teachings of Nijima account for the additional limitations of dependent claims 2–9, 12, 16, and 31–36. *See* PO Resp. 4–17; PO Sur-reply 1–16. We have reviewed Dish’s explanations and supporting evidence as to how Nijima teaches the additional limitations of these dependent claims, and we agree with and adopt Dish’s analysis. *See* Pet. 39–50. Accordingly, Dish has demonstrated by a preponderance of the evidence that the subject matter of dependent claims 2–9, 12, 16, and 31–36 would have been obvious over the teachings of Nijima.

C. Obviousness Over the Combined Teachings of Nijima and Devaney

Dish contends that claims 10, 11, 13–15, 17–29, and 37–43 of the ’997 patent are unpatentable under § 103(a) as obvious over the combined teachings of Nijima and Devaney. Pet. 50–70. In support of its contentions, Dish explains how this proposed combination teaches or suggests the subject matter of each challenged claim, and provides reasoning as to why one of ordinary skill in the art would have been prompted to modify the teachings of Nijima with those of Devaney. *Id.* Dish also relies on the Declaration of Mr. Wechselberger to support its positions. Ex. 1003 ¶¶ 250–427.

During trial, Contemporary’s only argument is that Devaney fails teach or suggest that each of its surfing channels includes a “multi-window

video display,” as recited in independent claim 17, and similarly recited in independent claims 29 and 37. *See* PO Resp. 17–19; PO Sur-reply 17.

We begin our analysis with a brief overview of Devaney, and then we address the parties’ contentions with respect to the challenged claims.

1. Overview of Devaney

Devaney generally relates to digital television and, in particular, “to a method and apparatus that generates a time-multiplexed channel surfing signal at television head-end sites.” Ex. 1006, code (57), 2:34–36. Devaney discloses that “segments from a number of different channel feeds are combined to generate a surfing channel for transmission to the user.” *Id.* at 3:38–40. The surfing channel is displayed in a matrix screen format so “the user can view scenes from a number of different channels at one time.” *Id.* at 3:45–46. Devaney further discloses that the head-end may produce “[m]ultiple channel surfing channels . . . by providing two or more channel surfing channels.” *Id.* at 7:5–7. For example, “there may be a news channel surfing channel, sports channel surfing channel, a children’s channel surfing channel, and/or an education channel surfing channel.” *Id.* at 6:63–66.

2. Claims 17, 29, and 37

Dish contends that Niijima teaches or suggests all of the limitations of independent claim 17, except “wherein each multi-window display is associated with a programming category and the reduced size video displays contained in different multi-window video displays are in different categories respectively.” Pet. 54–62. Dish contends that, although Niijima discloses one embodiment where the broadcasting station arranges the reduced size screens into “individual categories of programs,” Devaney’s disclosure of a head-end that produces multiple category-based surfing

channels more clearly teaches or suggests this limitation. *Id.* at 56 (emphasis omitted) (quoting Ex. 1005, 9:64–67) (citing Ex. 1006, 6:63–66, 7:5–6). Dish also provides several reasons as to why one of ordinary skill in the art would have been prompted to modify the teachings of Niijima with those of Devaney. *Id.* at 51–54.

Beginning with independent claim 17, the preamble recites “[a] system for presenting an interactive multi-window video display.” Ex. 1001, 36:51–52. Dish contends that Niijima teaches or suggests this limitation for the same reasons discussed above with respect to the preamble of independent claim 1. Pet. 54 (citing Ex. 1003 ¶¶ 274–277). That is, to the extent the preamble is treated as limiting, Dish contends that Niijima teaches or suggests the features recited in the preamble because it discloses a single screen on which nine reduced size screens are displayed and arranged in a 3x3 matrix. *Id.* at 12–13 (citing Ex. 1005, 6:34–37, 19:42–44, Fig. 20; Ex. 1003 ¶¶ 90, 93). Dish further argues that Niijima’s multi-window display is interactive because one of the nine reduced size screens may be selected manually using remote commander 5. *Id.* at 13 (citing Ex. 1005, 13:30–32, 21:13–34; Ex. 1003 ¶¶ 91, 92).

Independent claim 17 further recites “a receiver for receiving a plurality of multi-window real time video signals representing a plurality of multi-window video displays each comprising a plurality of reduced size video displays.” Ex. 1001, 36:53–56. For the same reasons discussed above with respect to the “receiver” limitation of independent claim 1, Dish contends that Niijima’s receiver 2, which includes reception section 2a controlled by processing section 2b, teaches the “receiver.” Pet. 55 (citing Ex. 1003 ¶¶ 278, 279). Relying on the testimony of Mr. Wechselberger,

Dish argues that, “[i]n the combined system of Niijima and Devaney, each category-based preview channel is transmitted via a different transmission channel.” *Id.* (citing Ex. 1003 ¶ 281). Dish further argues that Niijima’s receiver 2 receives the data on each transmission channel, which includes multi-screens, EPG data, and programs. *Id.* (citing Ex. 1005, 13:57–61). According to Dish, after reception section 2a located within Niijima’s receiver 2 “receiv[es] a plurality of multi-window real time video signals representing a plurality of multi-window displays,” receiver 2 displays the associated preview screens (i.e., “the multi-window video displays”) on monitor 4. *Id.* at 55–56 (citing Ex. 1003 ¶¶ 280, 281). For the same reasons discussed above with respect to the “receiver” limitation of independent claim 1, Dish contends that each of Niijima’s multi-screens includes a plurality of reduced sized screens. *Id.* at 56 (citing Ex. 1005, 10:41–54). Dish, therefore, asserts that the combined system of Niijima and Devaney also teaches or suggests “a plurality of multi-window real time video signals . . . each comprising a plurality of reduced size video displays.” *Id.* (citing Ex. 1003 ¶¶ 282–284).

Independent claim 17 further recites that “wherein each multi-window video display is associated with a programming category and the reduced size video displays contained in different multi-window video displays are in different categories respectively.” Ex. 1001, 36:56–60. Dish contends that Niijima discloses one embodiment where the broadcasting station arranges the reduced size screens into “individual categories of programs.” Pet. 56 (emphasis omitted) (quoting Ex. 1005, 9:64–67). Dish, however, argues that Niijima does not disclose explicitly that “each multi-window display is associated with a programming category.” *Id.* Dish argues that Devaney

teaches or suggests this limitation because it discloses a head-end that produces multiple category-based surfing channels. *Id.* (citing Ex. 1006, 6:63–66, 7:5–6). According to Dish, in the combined system of Niijima and Devaney, it would have been obvious to a person of ordinary skill in the art to modify Niijima’s broadcasting station so that it generates sets of multi-screens based on different categories, as taught by Devaney. *Id.* For example, relying on the testimony of Mr. Wechselberger, Dish asserts that “one multi-screen set contains reduced screens associated with a first category (e.g., news), one multi-screen set contains reduced screens associated with a second category (e.g., sports), and so on based on the number of available category-based preview channels.” *Id.* at 56–57 (emphasis omitted) (citing Ex. 1003 ¶ 287).

Independent claim 17 next recites “a generator coupled to the receiver for generating an overlay grid having a number of cells based on the number of reduced size video displays of the selected multi-window video signal.” Ex. 1001, 36:61–64. For the same reasons discussed above with respect to the “generator” limitation of independent claim 1, Dish contends that Niijima teaches this limitation because it discloses “generat[ing] an overlay grid having the number of cells based on the cell quantity data value which determines the number of reduced size video displays in a given multi-window video display.” Pet. 57–58 (citing Ex. 1003 ¶¶ 288–295).

Independent claim 17 recites “presenting means for presenting the multi-window video display together with the overlay grid so that the reduced size video displays are visible within the cells.” Ex. 1001, 36:65–67. Similar to the “presentation means” limitation recited in independent claim 1, Dish contends that this limitation is a means-plus-

function limitation where the claimed function is “presenting the multi-window video display together with the overlay grid so that the reduced size video displays are visible within the cells” and the corresponding structure is the graphics component and programmed processor, which Dish asserts is taught by Nijima’s receiver 2. *See* Pet. 58. For the same reasons discussed above with respect to the “presentation means” limitation of independent claim 1, Dish contends that Nijima’s receiver 2 includes processing apparatus 2b, which uses a CPU and a component that produces OSD graphics to produce a multi-screen display having a 3x3 matrix of nine reduced size screens, such as the one illustrated in Figure 20. *Id.* at 36–37 (citing Ex. 1005, 13:10–17, 15:36–37, 16:12–17, 18:19–21, Fig. 20; Ex. 1003 ¶¶ 129–141), 58.

Independent claim 17 further recites that “presenting means presents the multi-window video display of the selected multi-window video signal on the display device.” Ex. 1001, 37:2–5. Once again, similar to the “presentation means” limitation recited in independent claim 1, Dish contends that this limitation is a means-plus-function limitation where the claimed function is “present[ing] the multi-window video display of the selected multi-window video signal on the display device” and the corresponding structure is the graphics component and programmed processor, which Dish asserts is taught by Nijima’s receiver 2. *See* Pet. 58. For the same reasons discussed above with respect to the “presentation means” limitation of independent claim 1, Dish contends that Nijima presents the multi-screen display together with the overlay grid on monitor 4. *Id.* at 58–59 (citing Ex. 1003 ¶ 300). According to Dish, in the combined system of Nijima and Devaney, “the multi-screen presented for display is

associated with the selected multi-window video signal (e.g., sports preview channel, movies preview channel, etc.).” *Id.* at 59. For example, Dish asserts that, “if the viewer selects the news preview channel, the news preview screen is displayed on” Niijima’s monitor 4. *Id.*

Lastly, independent claim 17 recites “means for allowing selection of one of the plurality of multi-window video signals.” Ex. 1001, 36:66–37:2. Similar to the “selection means” recited in independent claim 1, Dish contends that this limitation is a means-plus-function limitation where the claimed function is “allowing selection of one of the plurality of multi-window video signals” and the corresponding structure is a remote control, which Dish asserts is taught by Niijima’s remote commander 5. *See* Pet. 59. More specifically, Dish contends that Niijima’s remote commander 5 includes “preview button 143 [that] is manually operated in order to cause the monitor apparatus 4 to display a preview screen.” *Id.* (quoting Ex. 1005, 17:9–11). According to Dish, when modifying Niijima’s receiver 2 with the teachings of Devaney, this receiver allows the preview screen to display a menu of available category-based preview channels selectable by the user. *Id.* (citing Ex. 1003 ¶ 301). Dish also argues that Niijima discloses that “it is otherwise possible to change over the screen, for example, in a page turning manner so that all data for program selection may be observed.” *Id.* (quoting Ex. 1005, 30:29–34). Relying on the testimony of Mr. Wechselberger, Dish asserts that, in the combined system of Niijima and Devaney, a user would be capable of turning from one category-based preview channel (e.g., news) to another category-based preview channel (e.g., movies). *Id.* (citing Ex. 1003 ¶ 301).

Turning to the rationale to combine, Dish contends that a person of ordinary skill in the art would have combined “Devaney’s teachings regarding the generation of multiple category-based preview channels” with Nijjima’s EPG data. Pet. 51 (Ex. 1003 ¶¶ 250–254). Based on these combined teachings of Nijjima and Devaney, Dish asserts that “a [person of ordinary skill in the art] would have been motivated to generate a set of multi-screens for a first programming category and transmit these multi-screens and their associated EPG data on a first transmission channel, to generate multi-screens for a second programming category and transmit these multi-screens and their associated EPG data on a second transmission channel, and so on based on the desired number of preview channels.” *Id.* at 52 (citing Ex. 1003 ¶¶ 250, 251). According to Dish, in the combined system of Nijjima and Devaney, “the viewer identifies the specific category-based preview channel she desires to view (e.g., news preview channel, movie preview channel, etc.)” using Nijjima’s monitor 4 and remote commander 5. *Id.* at 53 (citing Ex. 1003 ¶ 253). Dish then asserts that, “[w]hen the viewer selects one of the preview channels, . . . receiver [2] tunes to the specific channel, processes the multi-screens, and displays the category-based preview channel on [a] monitor,” such as Nijjima’s monitor 4. *Id.* In addition, Dish contends that a person of ordinary skill in the art would have been motivated to combine the teachings of Nijjima with those of Devaney to “simplif[y] the process of finding a desired program by separating programs by category” and “permit a viewer to more easily and conveniently navigate through the large number of programming choices.” *Id.* at 54 (Ex. 1005, 1:12–58; Ex. 1003 ¶ 254).

Independent claim 29 includes essentially the same limitations as independent claim 17. *Compare* Ex. 1001, 36:51–37:5, *with id.* at 37:48–38:2. Apart from being a method claim, independent claim 37 also includes essentially the same limitations as independent claim 17. *Compare id.* at 36:51–37:5, *with id.* at 38:42–64. Dish presents essentially the same arguments and evidence above with respect to independent claim 17 to support its explanation as to how the combined teachings of Niijima and Devaney render the subject matter of independent claims 29 and 37 obvious. *See* Pet. 54–62; Ex. 1003 ¶¶ 345–381, 383–405.

During trial, the only limitation that Contemporary disputes is “wherein each multi-window video display is associated with a programming category and the reduced size video displays contained in different multi-window video displays are in different categories respectively,” which we address below. *See* PO Resp. 17–19; PO Sur-reply 17.

a. “wherein each multi-window video display is associated with a programming category and the reduced size video displays contained in different multi-window video displays are in different categories respectively”

In its Patent Owner Response, Contemporary essentially repeats verbatim the arguments it initially presented in the Preliminary Response. *Compare* PO Resp. 17–19, *with* Prelim. Resp. 10–12. That is, Contemporary recognizes that Devaney discloses multiple category-based surfing channels (i.e., news, sports, kids, education, etc.), but argues that Devaney fails to teach or suggest that each surfing channel includes “a multi-window video display.” PO Resp. 18 (emphasis omitted) (citing Ex. 1006, 6:63–66). As a result, Contemporary asserts that Devaney fails to

teach or suggest “wherein each multi-window video display is associated with a programming category and the reduced size video displays contained in different multi-window video displays are in different categories respectively,” as recited in independent claim 17. *Id.* at 18–19; *see also id.* at 19 (further arguing that “[i]ndependent claim 37 includes features that are analogous to the features of independent claim 1[7]” and Dish “has failed to meet its burden . . . for independent claim 37”).

In its Reply, Dish contends that we should disregard Contemporary’s argument because “it is solely attorney argument, unsupported by any expert testimony; it attacks the references in isolation, ignoring what the [person of ordinary skill in the art] would have considered obvious in the combination of [Niijima and Devaney]; and is technically incorrect.” Pet. Reply 19. Dish argues that it explained, in its Petition, how “the multi-window display corresponds to the application of Devaney’s category-based preview to the multi-screens of Niijima.” *Id.* at 19–20 (citing Pet. 51–52; Ex. 1003 ¶¶ 250–254). Dish argues that Contemporary does not dispute that Niijima’s display of multi-screens teaches or suggests a “multi-window display” and, therefore, “it is irrelevant whether Devaney alone discloses a ‘*multi-window display*’ because” the combined teachings of Niijima and Devaney account for this feature. *Id.* at 20. Alternatively, Dish contends that Devaney’s multiple category-based surfing channels are capable of being displayed in a “matrix format.” *Id.* at 20–21 (quoting Ex. 1006, 3:45–46) (citing Pet. 51; Ex. 1006, 7:59–63, Fig. 3). Dish argues that Contemporary fails to explain how Devaney’s matrix of programs associated with a particular category does not teach or suggest a “*multi-window display*.” *Id.* at 21.

Based on the fully developed trial record, there are two reasons we agree with Dish that the combined teachings of Nijima and Devaney account for “wherein each multi-window video display is associated with a programming category and the reduced size video displays contained in different multi-window video displays are in different categories respectively,” as recited in each of independent claim 17, 29, and 37. First, Contemporary’s argument that Devaney fails to teach or suggest that each surfing channel includes “a multi-window video display” amounts to an individual attack on Devaney. *See* PO Resp. 18–19. It is well-settled that “non-obviousness [cannot be established] by attacking references individually,” when, as here, the asserted ground of obviousness is based upon the combined teachings of Nijima and Devaney. *In re Keller*, 642 F.2d 413, 426 (CCPA 1981). Instead, the test is what the combined teachings of these references would have taught or suggested to one with ordinary skill in the art. *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991). Dish’s asserted obviousness ground relies on Nijima—not Devaney—to teach or suggest a “multi-window video display.”

That is, Dish contends that each of Nijima’s multi-screens includes a plurality of reduced size screens arranged in a 3x3 matrix and, therefore, teaches or suggests the “reduced size video displays contained in . . . [a] multi-window video display.” Pet. 56 (citing Ex. 1005, 10:41–54). Dish turns to Devaney’s disclosure of multiple category-based surfing channels to teach or suggest the “programming categories.” *Id.* (citing Ex. 1006, 6:63–66, 7:5–6). Dish then asserts that, in the combined system of Nijima and Devaney, it would have been obvious to a person of ordinary skill in the art to modify Nijima’s broadcasting station to generate sets of multi-screens

based on different categories, as taught by Devaney. *Id.* For example, relying on the testimony of Mr. Wechselberger, Dish asserts that “one multi-screen set contains reduced screens associated with a first category (e.g., news), one multi-screen set contains reduced screens associated with a second category (e.g., sports), and so on based on the number of available category-based preview channels.” *Id.* at 56–57 (emphasis omitted) (citing Ex. 1003 ¶ 287). We credit Mr. Wechselberger’s testimony in this regard because it is consistent with the teachings of Niijima and Devaney. *See* Ex. 1005, 10:41–54; Ex. 1006, 6:63–66, 7:5–6.

Second, Figure 3 of Devaney and its corresponding description serve as additional evidence supporting Mr. Wechselberger’s testimony that it would have been obvious to a person of ordinary skill in the art to combine Niijima’s multi-screen video display with Devaney’s category-based preview channels to account for the “multi-window video display” required by independent claims 17, 29, and 37. *See* Pet. Reply 20–21; *see also* Pet. 51 (arguing that Devaney’s “surfing channel displays each channel segment in a matrix format so that ‘the user can view scenes from a number of different channels at one time’”). When providing a general overview of its channel surfing process, Devaney discloses that “the user can view scenes from a number of different channels at one time” “using a matrix screen format.” Ex. 1006, 3:45–46. Devaney’s Figure 3, reproduced below, illustrates an exemplary screen format. *Id.* at 2:65–67, 7:58–59.

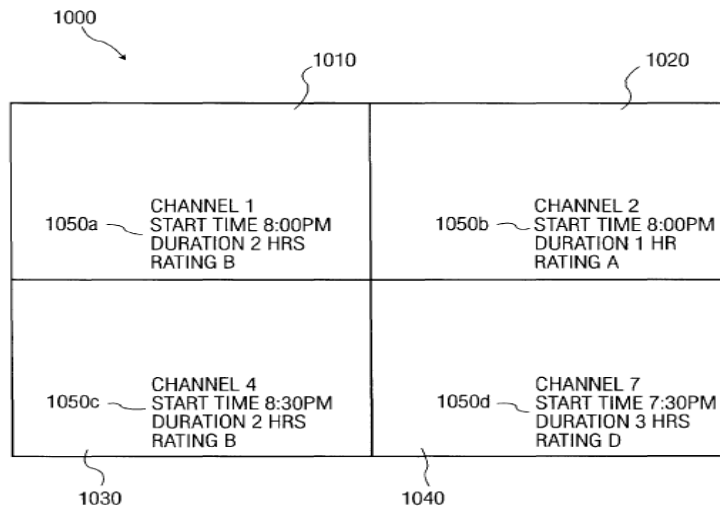


FIG. 3

Figure 3, reproduced above, illustrates display 1000 that includes surfing channels displayed in “a matrix of four programs 1010 through 1040 simultaneously providing program information 1050a through 1050d for each of the four programs.” *Id.* at 7:59–63. Based on these disclosures in Devaney, we agree with Dish that Devaney’s matrix of programs associated with a particular category (e.g., news, sports, kids, education, etc.) also teaches or suggests the “multi-window video display,” as recited in each of independent claims 17, 29, and 37.

b. Summary

In summary, Dish has demonstrated by a preponderance of the evidence that the subject matter of independent claims 17, 29, and 37 would have been obvious over the combined teachings of Nijjima and Devaney.

3. Claims 10, 11, 13–15, 18–28, and 38–43

Dish also contends that dependent claims 10, 11, 13–15, 18–28, and 38–43 of the ’997 patent are unpatentable under § 103(a) as obvious over the combined teachings of Nijjima and Devaney. Pet. 62–70. Dish explains

how this proposed combination teaches or suggests the subject matter of each dependent claim, and provides reasoning as to why one of ordinary skill in the art would have been prompted to modify the teachings of Nijima with those of Devaney. Pet. 62–70; Ex. 1003 ¶¶ 255–272, 304–343, 406–426.

As one example, claim 10 depends from independent claim 1, and further recites “a plurality of multi-window video signals and wherein the multi-window video displays are organized by programming category and wherein the reduced size video displays contained in the multi-window video display are in one category.” Ex. 1001, 36:20–24. Dish contends that the combined system of Nijima and Devaney teaches or suggests this limitation because it would have been obvious to a person of ordinary skill in the art to modify Nijima’s broadcasting station to generate sets of multi-screens based on different categories, as taught by Devaney. Pet. 62 (citing Ex. 1003 ¶¶ 246–254). For example, relying on the testimony of Mr. Wechselberger, Dish asserts that “one multi-screen set contains reduced screens associated with a first category (*e.g.*, news), one multi-screen set contains reduced screens associated with a second category (*e.g.*, sports), and so on based on the desired number of preview channels.” *Id.* (citing Ex. 1003 ¶ 256). Dish then asserts that “[e]ach of these sets of multi-screens is transmitted on a separate transmission channel” (*i.e.*, the “multi-window video signal”) and “displayed as a separate preview screen” (*i.e.*, the “multi-window display”). *Id.*

As another example, claim 11 depends indirectly from independent claim 1, and further recites “wherein the cell quantity data value is equal to the number of reduced size video displays contained in the multi-window

video display.” Ex. 1001, 36:25–27. Dish contends the combined system of Nijima and Devaney teaches or suggests this limitation because Nijima’s Figure 20 illustrates that “the reduced screens of the multi-screen preview are displayed within the cells of the overlay grid.” Pet. 63 (citing Ex. 1005, Fig. 20). Dish argues that “Nijima provides EPG data associated with a multi-screen on the same transmission channel carrying the multi-screen.” *Id.* (citing Ex. 1005, 11:18–23; Ex. 1003 ¶¶ 129, 145, 260). Relying on the testimony of Mr. Wechselberger, Dish further argues that, “[i]n the combined system of Nijima and Devaney, each category-based multi-screen is provided on a different transmission channel.” *Id.* at 63–64 (citing Ex. 1003 ¶¶ 251, 252, 260). Dish then argues that “[e]ach category-based multi-screen therefore also has its own EPG data including the position data.” *Id.* at 64 (citing Ex. 1005, 11:18–23; Ex. 1003 ¶ 260). Lastly, Dish asserts that, “because the selection area does not change during viewer interaction with the preview channels, each multi-screen displayed on a preview channel has the same number of reduced size screens and that number corresponds to the received ‘cell quantity data value.’” *Id.* (emphasis omitted) (citing Ex. 1003 ¶ 261).

During the oral argument, Dish clarified that it is relying on a more narrow teaching from Nijima to account for the limitation of dependent claim 11. More specifically, Dish argues that, in Nijima, the largest position value is “the cell quantity data value that is equal to the number of reduced size video displays contained in the multi-window video display.” *See* Tr. 54:19–22 (explaining that Dish is relying on Nijima’s disclosure of “the position in the multi-screen” for purposes of dependent claim 11).

As yet another example, claim 14 depends indirectly from independent claim 1, and further recites “wherein the multi-window video displays are organized by programming category, and wherein the reduced size video displays contained in different multi-window video display are in different categories.” Ex. 1001, 36:36–39. Dish presents essentially the same arguments and evidence cited above with respect to dependent claim 10 to explain how the combined teachings of Nijima and Devaney render the subject matter of dependent claim 14 obvious. *Compare* Pet. 62, *with id.* at 65.

During the course of trial, Contemporary does not address separately Dish’s explanations and supporting evidence as to how the combined teachings of Nijima and Devaney account for the additional limitations of dependent claims 10, 11, 13–15, 18–28, and 38–43. *See* PO Resp. 17–19; PO Sur-reply 17. We have reviewed Dish’s explanations and supporting evidence as to how the combined teachings of Nijima and Devaney account for the additional limitations of these dependent claims, and we agree with and adopt Dish’s analysis. *See* Pet. 62–70. Accordingly, Dish has demonstrated by a preponderance of the evidence that the subject matter of dependent claims 10, 11, 13–15, 18–28, and 38–43 would have been obvious over the combined teachings of Nijima and Devaney.

D. Obviousness Over the Combined Teachings of Matthews and Schein

Dish contends that claims 30 and 32–36 of the ’997 patent are unpatentable under § 103(a) as obvious over the combined teachings of Matthews and Schein. Pet. 70–83. In support of its contentions, Dish explains how this proposed combination teaches or suggests the subject matter of each challenged claim, and provides reasoning as to why one of

ordinary skill in the art would have been prompted to modify the teachings of Matthews with those of Schein. *Id.* Dish also relies on the Declaration of Mr. Wechselberger accompanying the Petition and the Rebuttal Declaration of Mr. Wechselberger accompanying the Reply to support its positions. Ex. 1003 ¶¶ 444–476; Ex. 1028 ¶¶ 41–54.

During trial, Contemporary presents a number of arguments, most of which focus on whether the combined teachings of Matthews and Schein account for “receiving a multi-window real time video signal representing a multi-window video display,” and “receiving a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal,” as recited independent claim 30. *See* PO Resp. 19–32; PO Sur-reply 18. Contemporary relies upon the Declaration of Dr. Brogioli to support its positions. Ex. 2001 ¶¶ 79–96.

We begin our analysis with brief overviews of Matthews and Schein, and then we address the parties’ contentions with respect to the challenged claims.

1. Overview of Matthews

Matthews generally relates to “providing programming information to viewers of an interactive television . . . system” and, in particular, to “programming information [that] includes . . . a multi-frame video segment of or relating to the programming on at least one channel.” Ex. 1007, 2:6–11. Figure 1 of Matthews, reproduced below, illustrates a block diagram of one embodiment of the interactive television system. *Id.* at 2:48–49.

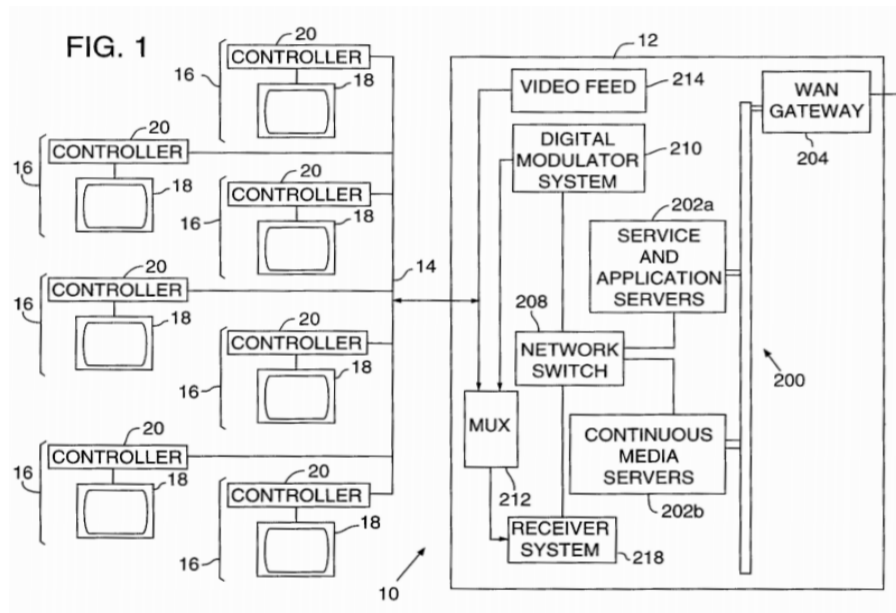


Figure 1, reproduced above, illustrates interactive television system 10 that includes central control node 12 transmitting programming information over network 14 to multiple viewer stations 16. *Id.* at 3:16–19. Each viewer station 16 includes video display set 18 (e.g., a television receiver) and interactive controller 20 (e.g., set-top box). *Id.* at 3:24–27.

Figure 4 of Matthews, reproduced below, illustrates a video program guide rendered on a video display screen. Ex. 1007, 2:56–57.

FIG. 4

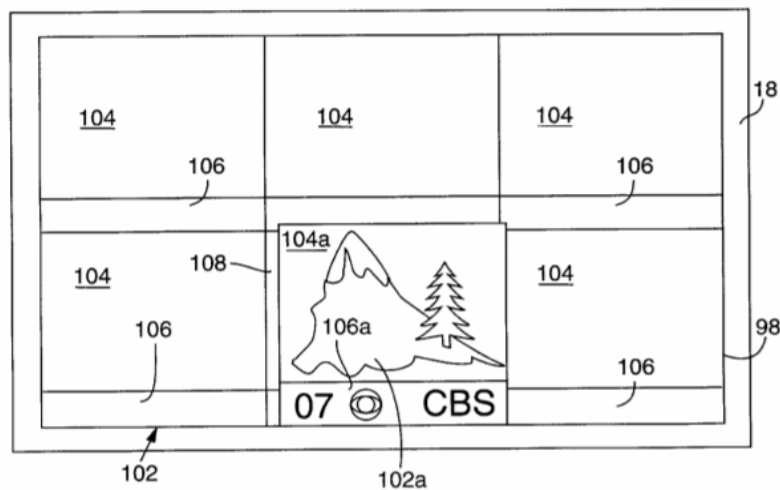


Figure 4, reproduced above, illustrates video program guide 100 rendered on display screen 98 of at least one video display set 18. *Id.* at 4:44–46. Video program guide 100 includes multiple video programming tiles 102 each corresponding to programming available on a selected channel during a scheduled period. *Id.* at 4:46–49; *see also id.* at 9:66–10:3 (“Video programming tiles 102 corresponding only to a few (e.g., six) of the potentially hundreds of tiles 102 in video programming guide space 150 can be rendered simultaneously on the video display screen 98.”). Each video programming tile 102 includes single frame images 104 relating to available programming on a selected channel and channel identification panel 106 that identifies the corresponding channel. *Id.* at 4:52–58. For example, video programming tile 102a includes multi-frame video segment 104a relating to available programming and channel identification panel 106a (i.e., CBS). *Id.* at 4:49–52.

2. Overview of Schein

Schein generally relates to “providing information to television viewers” and, in particular, to “allowing [a] viewer to retrieve, search, select and interact with television schedule information located in a remote database.” Ex. 1008, 1:19–25. According to Schein, “[a] powerful feature of the database is the ability to group shows by theme[s].” *Id.* at 10:61–62. The database stores television information according to a category, one example being movies. *Id.* at 10:66–11:1. When a viewer initiates a search for a particular type of show according to a theme (e.g., comedy movie), Schein discloses that it inspects each channel and compares it against the selected theme. *Id.* at 11:15–20. Information about shows matching the

selected theme are then stored in the database and, subsequently, displayed in time order. *Id.* at 11:20–22, 11:45–46.

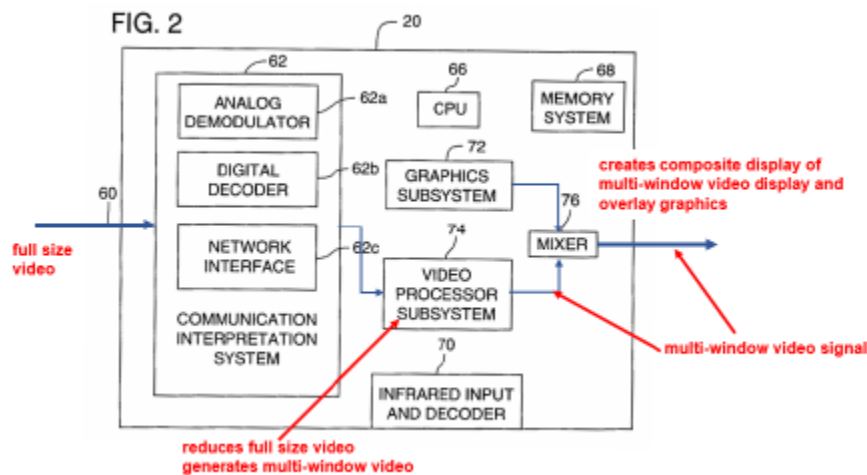
3. Claim 30

Dish contends that Matthews teaches or suggests all of the limitations of independent claim 30, except that the user selects channels “in accordance with a category.” Pet. 71–80. Dish turns to Schein as teaching or suggesting this limitation. *Id.* at 76 (citing Ex. 1008, 10:60–11:5; Ex. 1003 ¶¶ 456–459). Dish also provides several reasons as to why one of ordinary skill in the art would have been prompted to modify the teachings of Matthews with those of Schein. *Id.* at 70–71.

The preamble of independent claim 30 recites “[a] method for presenting an interactive multi-window video display.” Ex. 1001, 38:3–4. To the extent the preamble is treated as limiting, Dish contends that Matthews teaches or suggests the features recited in the preamble because Matthews’s Figure 4 illustrates video program guide 100 that includes multiple video programming tiles 102. Pet. 71–72 (citing Ex. 1007, 1:7–9, 4:46–52, 9:56–61, Fig. 4). Dish asserts that Matthews’s video program guide 100 amounts to the “multi-window video display.” *Id.* at 72 (Ex. 1003 ¶¶ 446, 447). Dish further argues that Matthews’s video program guide 100 is interactive because a viewer navigates between and selects video programming tiles 102 using directional control keypad 90 on interactive controller 20. *Id.* (citing Ex. 1007, 4:62–64; Ex. 1003 ¶¶ 448–450).

Independent claim 30 recites “receiving a multi-window real time video signal representing a multi-window video display corresponding to channels selected by a user in accordance with a category,” wherein the multi-window real time video signal further includes “one or more reduced

size video displays.” Ex. 1001, 38:6–10. Dish contends that Matthews teaches or suggests “receiving a multi-window real time video signal” because it discloses that interactive controller 20 “receive[s] programming from central control node 12 and control[s] the associated video display sets 18 in accordance with the programming.” Pet. 73 (quoting Ex. 1007, 3:31–33). Dish relies on an annotated version of Figure 2 of Matthews, reproduced below, to explain how interactive controller 20 generates and sends a multi-window video signal to video display set 18. *Id.*



Id. at 74. According to Dish, the annotated version of Figure 2, reproduced above, illustrates how various components located within interactive controller 20, including CPU 66, graphics subsystem 72, video processor subsystem 74, and mixer 76, work together to generate and send a multi-window video signal to video display set 18. *Id.* at 73. Dish asserts that the signal received by mixer 76 and the signal sent by mixer 76 to video display set 18 are both “multi-window” signals because they include multiple reduced size video programming tiles 102, and these signals are “real time” because each reduced size video programming tile 102 relates to live

programming available on the associated channel. *Id.* at 74–75 (citing Ex. 1007, 4:44–49, Fig. 4; Ex. 1003 ¶¶ 454, 455); *see also id.* at 77 (arguing that Matthews’s Figure 4 illustrates reduced size video programming tiles 102 and, therefore, teaches or suggests “one or more reduced size video displays” (citing Ex. 1007, 4:22–25, Fig. 4; Ex. 1003 ¶ 460)).

Dish further argues that, although Matthews teaches or suggests the “multi-window display corresponding to channels selected by a user” because it discloses allowing a viewer to “select which channels are displayed and, in a preferred embodiment, control which channels are displayed together,” Matthews does not disclose explicitly that the viewer selects channels “in accordance with a category.” Pet. 75–76 (quoting Ex. 1007, 2:35–40) (citing Ex. 1007, 6:6–9, 10:42–46). Relying on the testimony of Mr. Wechselberger, Dish argues that a person of ordinary skill in the art would have recognized that, based on Matthews’s teaching alone, it would have been obvious for a viewer to select channels “in accordance with a category.” *Id.* at 76 (Ex. 1003 ¶ 457). Alternatively, Dish relies on Schein’s disclosure of selecting programs by category to teach this limitation. *Id.* (citing Ex. 1008, 10:60–11:11). For example, Dish argues that Schein states that “a viewer may want to see a listing of all comedy movies.” *Id.* (quoting Ex. 1008, 10:64–65).

Independent claim 30 further recites “receiving a cell quantity data value corresponding to the number of reduced size video displays in the multi[-]window video signal.” Ex. 1001, 38:10–12. Dish contends that Matthews teaches or suggests this limitation because numeric keypad 92 on control unit 71 permits a viewer to modify the number of reduced size video programming tiles 102 in video programming guide space 150. Pet. 77

(citing Ex. 1007, 10:42–46, 10:53–55; Ex. 1003 ¶ 461). Dish further argues that CPU 66 located within interactive controller 20 “receiv[es] a cell quantity data value” because CPU 66 retrieves video guide format information that includes, “for example, an array format indicating the number and arrangement of video programming tiles 102 in video program guide 100.” *Id.* at 78 (emphasis omitted) (quoting Ex. 1007, 5:62–6:6) (citing Ex. 1003 ¶ 462).

Independent claim 30 next recites “generating an overlay grid having a number of cells equal to the cell quantity data value.” Ex. 1001, 38:13–14. Dish contends that Matthews teaches or suggests this limitation because it discloses that the number and arrangement of video programming tiles 102 in video program guide 100 constitute the claimed “cell quantity data value” received by interactive controller 20 and retrieved by CPU 66 during operation. Pet. 78–79 (citing Ex. 1007, 4:46–57, 5:62–6:6, 7:37–39, Fig. 4). More specifically, Dish argues that Matthews’s CPU 66 provides information to graphics subsystem 72 that results in “generating an overlay grid having a number of cells equal to the cell quantity data value.” *Id.* at 79 (citing Ex. 1007, 4:19–21; Ex. 1003 ¶¶ 463, 464).

Lastly, independent claim 30 recites “presenting the multi-window display together with the overlay grid so that the reduced size video displays are visible within the cells allowing selection of one of the plurality of the reduced size video displays.” Ex. 1001, 38:16–19. Dish contends that Matthews teaches or suggests “presenting the multi-window display together with the overlay grid so that the reduced size video displays are visible within the cells” because it discloses that “video program guide 100 is rendered by cooperation between [CPU] 66, graphics subsystem 72, and

video processor subsystem 74, which functions to size and position the display imagery within each of the video programming tiles 102.” Pet. 79–80 (quoting Ex. 1007, 7:9–14). Dish argues that Matthews’s mixer 76 receives a video display signal from video processor subsystem 74 and graphics image signals from graphics subsystem 72, and then delivers a composite signal to video display set 18 resulting in, for example, video program guide 100 illustrated in Figure 4. *Id.* (citing Ex. 1007, 4:22–29; Ex. 1003 ¶ 465). Dish also contends that Matthews teaches or suggests “allowing selection of one of the plurality of the reduced size video displays” because it discloses that a viewer uses directional control keypad 90 on control unit 71 to navigate between and select one of the reduced size video programming tiles 102 in video program guide 100. *Id.* at 80 (citing Ex. 1007, 4:11–13, 4:38–40, 4:62–64; Ex. 1003 ¶ 466).

Turning to the rationale to combine, Dish contends that a person of ordinary skill in the art would have been motivated “to integrate Schein’s category/theme based selection into Matthews to provide a more efficient technique for selecting channels for display in” Matthews’s video program guide 100. Pet. 71 (citing Ex. 1003 ¶¶ 445, 446). According to Dish, a person of ordinary skill in the art would have recognized that “the integration of this type of selection permits a viewer to more efficiently review and select programs because the viewer can narrow the viewing options to those associated with a specific type of program.” *Id.*

During trial, Contemporary contends that Matthews does not teach or suggest “receiving a multi-window real time video signal representing a multi-window video display” and “receiving a cell quantity data value . . . in the multi[-]window video signal,” as recited in independent claim 30,

because (1) there is no indication in Matthews that any of the components that make up its interactive controller 20 ever combine reduced-size images into a multi-window video signal; and (2) Dish's declarant, Mr.

Wechselberger, creates an annotated version of Matthews's Figure 2 that is not supported by Matthews's actual disclosure nor the knowledge of a person of ordinary skill in the art. *See* PO Resp. 23–32; PO Sur-reply 18.

We address these arguments below.

- a. *“receiving a multi-window real time video signal representing a multi-window video display” and “receiving a cell quantity data value . . . in the multi[-]window video signal”*

Contemporary disagrees with Dish's position that the components that make up Matthews's interactive controller 20 illustrated in Figure 2, such as graphics subsystem 72, video processor subsystem 74, and mixer 76, receive a multi-window video signal. PO Resp. 23–24. More specifically, Contemporary takes issue with Dish's argument that Matthews's video process subsystem 74 generates the 2x3 matrix of reduced size screens illustrated in Figure 4 by, among other things, “sizing and positioning a video display window.” *Id.* at 24 (quoting Ex. 1007, 4:22–25) (citing Ex. 1003 ¶ 452). According to Contemporary, the “sizing and positioning” discussed in relation to Matthews's video process subsystem 74 only applies to an individual frame or programming tile and not the entire 2x3 array of reduced size screens illustrated in Figure 4. *Id.* at 24–25 (citing Ex. 1007, 4:9–5:56; Ex. 2001 ¶¶ 79, 80).

Contemporary further contends that Matthews teaches away from receiving a multi-window video signal because the method of providing a video program guide illustrated in Matthews's Figure 5 only discloses examining “one [programming] tile of the video program guide at a time to

determine whether to retrieve a new video segment and/or new static images to populate that specific [programming] tile of the video program guide.” PO Resp. 25–26 (emphasis omitted) (citing Ex. 1007, 2:58–59, 5:23–28, 5:37–39; Ex. 2001 ¶¶ 81, 82). Contemporary asserts that “[t]here is nothing in Matthews to suggest that images intended for multiple [programming] tiles are somehow combined and communicated” in a multi-window video signal. *Id.* (citing Ex. 2002 ¶ 83).

Lastly, Contemporary contends Dish relies on an annotated version of Matthews’s Figure 2 created by its declarant, Mr. Wechselberger, that is not supported by Matthews’s actual disclosure nor the knowledge of a person of ordinary skill in the art. PO Resp. 27. To support this argument, Contemporary identifies multiple disclosures in Matthews cited in the Petition and proceeds to argue how each of these disclosures does not support the annotations to Matthews’s Figure 2 added by Mr. Wechselberger. *Id.* at 28–30 (citing Ex. 1007, 2:8–11, 3:60–64, 4:21–29, 9:56–61). Contemporary then reiterates that Matthews’s Figure 5 and its corresponding description disclose an interactive program guide that “just updates the individual [programming] tiles whenever a user indicates that the channel associated with the individual [programming] tile is one of interest to the user,” and this provisioning of video to an individual programming tile is not a multi-window video signal. *Id.* at 30–31 (emphasis added) (citing Ex. 1007, 5:23–28; Ex. 2001 ¶¶ 91, 92).

In its Reply, Dish counters that Contemporary recognizes that Matthews’s Figure 4 illustrates a “multi-window video display” that is rendered on video display set 18, but disputes whether Matthews teaches or suggests the existence of any signal that carries this multi-window video

display. Pet. Reply 24. Dish contends that, contrary to Contemporary's argument that programming tiles 102 illustrated in Figure 4 are only updated one at a time, Matthews's Figure 5 explicitly teaches that, "after retrieving a video segment, the system must render the entire video program guide for display." *Id.* at 24–25 (citing Ex. 1028 ¶ 52). According to Dish, Matthews's Figure 5 and its corresponding description teach or suggest that "video program guide 100, including all of the programming tiles [102], is rendered into a single signal for display on the screen." *Id.* at 26 (citing Ex. 1007, 4:46–49, 7:9–14, Fig. 5). Dish further contends that rendering a video program guide with multiple programming tiles into a single signal for display on a screen was known to a person of ordinary skill in the art, as evidenced by the disclosure in the '997 patent. *Id.* at 27 (citing Ex. 1001, 27:23–34).

In its Sur-reply, Contemporary contends the claimed "multi-window video signal" "must be something other than a standard television signal" and "[n]othing in [Dish's] Reply changes . . . that Matthews does not disclose a multi-window video signal." Sur-reply 18 (emphasis omitted).

Based on the fully developed trial record, we agree with Dish that Matthews teaches or suggests "receiving a multi-window real time video signal representing a multi-window video display" and "receiving a cell quantity data value . . . in the multi[-]window video signal," as recited in independent claim 30. Beginning with "receiving a multi-window real time video signal representing a multi-window video display," Matthews's Figure 2 illustrates interactive controller 20 that includes CPU 66, which controls, among other things, graphics subsystem 72 and video processor subsystem 74. *See* Ex. 1007, 4:9–25. Graphics subsystem 72 "form[s]

graphic images, including interactive system user interface images, on video display set 18,” whereas video process subsystem 74 “provides control in the rendering of video imagery, including decompressing digital video signals and sizing and positioning a video display window.” *Id.* at 4:19–25.

Interactive controller 20 also includes mixer 76 that “receives a video display signal from video processing subsystem 74 and graphics image signals from graphics subsystem [72]⁶ and delivers a mixed image signal to video display set 18,” which, in turn, displays “video program guide 100” with “multiple programming tiles 102,” as illustrated in Figure 4 of Matthews. *Id.* at 4:26–29, 4:44–49.

Based on these cited disclosures in Matthews, we agree with Dish that CPU 66 controls the operations of video processor subsystem 74 to generate a video signal that is received by mixer 76, which, in turn, combines the video signal received from video processor subsystem 74 and the graphics image signal received from graphics subsystem 72 to generate a composite signal that it transmits to video display set 18 to create a multi-window display and overlay graphics. *See* Pet. 73–75. Mr. Wechselberger testifies that the signal received by mixer 76 and the composite signal sent by mixer 76 to video display set 18 both teach or suggest “‘a multi-window . . . video signal’ because both signals contain multiple videos (referred to in Matthews as [programming] tiles) that have been reduced in size by video processor subsystem 74.” Ex. 1003 ¶ 454. Mr. Wechselberger further testifies that

⁶ At column 4, lines 26 through 29, Matthews identifies graphics subsystem as item “70.” We understand this to be a typographical error because graphics subsystem corresponds to item 72, whereas infrared input and decoder corresponds to item 70. Ex. 1007, Fig. 2.

video programming tiles 102 in video program guide 100, as illustrated in Matthews's Figure 4, amounts to "a 'multi-window video display'" because "the [video] signal received by mixer 76 and the [composite] signal received by" video display set 18 represent a multi-window video display. *Id.* ¶ 455. We credit Mr. Wechselberger's testimony in this regard because it is consistent with the disclosures in Matthews identified above.

Matthews's Figure 5 and its corresponding description further supports our understanding of how mixer 76 and video display set 18 both receive a multi-window video signal representing a multi-window video display. Figure 5, reproduced below, illustrates a method of providing a video program guide on video display set 18. Ex. 1007, 2:58–59, 5:46–49.

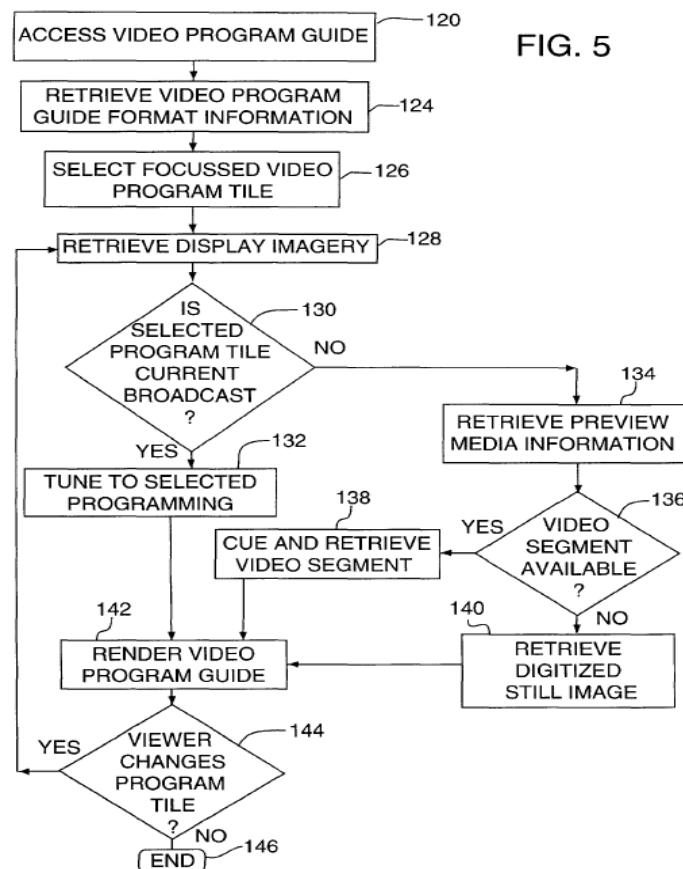


Figure 5, reproduced above, illustrates steps 120 through 146 that, when followed, render a video program guide on a selected video display set based on programming that is available on interactive television system 10. *See id.* at 5:46–7:20. Notably, Matthews discloses that, at step 142, “video program guide 100 is rendered by cooperation between [CPU] 66, graphics subsystem 72, and video processor subsystem 74, which functions to size and position the display imagery within each of the video programming tiles 102.” *Id.* at 7:9–14. This description of Figure 5 and, in particular, step 142 supports our view that the multiple programming tiles 102 of video programming guide 100 illustrated in Figure 4 are rendered on video display set 18 based on the composite signal it receives from mixer 76.

Turning to “receiving a cell quantity data value . . . in the multi[-] window video signal,” Matthews discloses that a viewer may use numeric keypad 92 on control unit 71 to “modify video programming guide space 150 to include different numbers of rows (e.g., 1, 3, or 4) or video program tiles 102.” Ex. 1007, 10:53–55. When describing the method of providing a video program guide on video display set 18 illustrated in Figure 5, Matthews discloses that CPU 66 retrieves video guide format information that includes, “for example, an array format indicating the number and arrangement of video programming tiles 102 in video program guide 100.” *Id.* at 5:62–6:6. Based on these disclosures in Matthews, we agree with Dish that a viewer is capable of using numeric keypad 92 on control unit 71 to modify the video programming tiles 102 in video program guide 100 by entering an array format with a different number of rows and, therefore, Matthews teaches or suggests “receiving a cell quantity data value” that

ultimately is incorporated “in the multi-window video signal” generated, at least in part, by CPU 66. *See* Pet. 77–78; Ex. 1003 ¶¶ 461, 462.

We do not agree with Contemporary’s argument that the signal generated by the various components of Matthews’s interactive controller 20 (i.e., graphics subsystem 72, video processor subsystem 74, and mixer 76) applies only to one of the multiple programming tiles 102 in video program guide 100. *See* PO Resp. 23–25, 30–31. Contemporary’s argument in this regard is misplaced because it conflates how Matthews’s interactive controller 20 transmits a multi-window video signal to video display set 18 to render multiple programming tiles 102 in video program guide 100 for display, with how a user specifically focuses on only one programming tile 102 after video program guide 100 has been rendered.

As we explained above, Matthews discloses that the components of interactive controller 20 first generate and then transmit a multi-window video signal to video display set 18 and, upon receipt of the multi-window video signal, video display set 18 uses that signal to render multiple programming tiles 102 in video program guide 100 for display. Ex. 1007, 4:9–29, 4:44–49. Only after video display set 18 uses the multi-window video signal to render multiple programming tiles 102 in video program guide 100 for display may a user employ cursor 108 to select or focus on one individual video programming tile 102. *Id.* at 5:6–15. Matthews discloses that “[t]he video programming tile 102 focused upon by a [user] is referred to herein as the focused video programming tile 102a for which a multi-frame video segment 104a is rendered, if available.” *Id.* at 5:16–19. Stated differently, Matthews does not disclose that video display set 18 receives a video display signal for only one programming tile 102 in video program

guide 100 at a time and then constructs video program guide 100, but rather Matthews discloses that video display set 18 receives a multi-window video signal that allows it to render multiple individual programming tiles 102 in video program guide 100 together at the same time, thereby permitting a user to select focused video programming tile 102a.

We also do not agree with Contemporary's argument that Matthews teaches away from receiving a multi-window video signal, which, similar to Contemporary's first argument discussed above, is predicated on the notion that Matthews receives a video signal for only one programming tile 102 of the video program guide 100 at a time. *See* PO Resp. 25–26. It is well-settled that a reference teaches away from a claimed invention if it “criticize[s], discredit[s], or otherwise discourage[s]” modifying the reference to arrive at the claimed invention. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). We will not, however, “read into a reference a teaching away from a process where no such language exists.” *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1364 (Fed. Cir. 2006). As we explained above, contrary to Contemporary's teaching away argument, Matthews discloses that video display set 18 receives a multi-window video signal that allows it to render multiple individual programming tiles 102 in video program guide 100 together at the same time—the video display set 18 does not receive a video display signal for only one programming tile 102 at a time and then construct video program guide 100. In essence, Contemporary attempts to read into Matthews a teaching away where no such language exists. *See DyStar*, 464 F.3d at 1364.

Finally, we do not agree with Contemporary's argument that Dish's reliance on an annotated version of Matthews's Figure 2 created by its declarant, Mr. Wechselberger, is not supported by Matthews's actual disclosure nor the knowledge of a person of ordinary skill in the art. *See* PO Resp. 27–31. As we explained above, there is a sufficient basis in the teachings of Matthews to support the annotations to Figure 2 added by Mr. Wechselberger. *See* Ex. 1007, 3:58–63, 4:9–29, 4:44–49.

b. Summary

In summary, Dish has demonstrated by a preponderance of the evidence that the subject matter of independent claim 30 would have been obvious over the combined teachings of Matthews and Schein.

4. Claims 32–36

Dish also contends that dependent claims 32–36 of the '997 patent are unpatentable under § 103(a) as obvious over the combined teachings of Matthews and Schein. Pet. 80–84. Dish explains how this proposed combination teaches or suggests the subject matter of each dependent claim, and provides reasoning as to why one of ordinary skill in the art would have been prompted to modify the teachings of Matthews with those of Schein. Pet. 80–84; Ex. 1003 ¶¶ 467–474.

As one example, claim 33 depends from independent claim 30, and further recites “automatically presenting an audio signal corresponding to a selected reduced size video display.” Ex. 1001, 38:29–31. Dish contends that Matthews teaches or suggests this limitation because it discloses retrieving a digitized audio segment “from the EPG database” and playing that digitized audio segment “with each digital video segment or still image.” Pet. 80 (quoting Ex. 1007, 7:21–23). Dish further argues that the

digitized audio segment includes an audio portion of the selected programming. *Id.* (citing Ex. 1007, 7:23–27).

As another example, claim 36 depends from independent claim 30, and further recites “indicating on the overlay grid which one of the plurality of reduced size video displays is selected.” Ex. 1001, 38:39–41. Dish contends that Matthews teaches or suggests this limitation because it discloses changing “the graphic characteristics of the video programming tiles 102 where the cursor is positioned.” Pet. 83 (Ex. 1007, 5:6–9). Dish also directs us to Matthews’s Figure 4 as one exemplary technique for indicating that reduced size video programming tile 102a has been selected. *Id.* at 83–84 (citing Ex. 1007, Fig. 4; Ex. 1003 ¶ 474).

During the course of trial, Contemporary does not address separately Dish’s explanations and supporting evidence as to how the combined teachings of Matthews and Schein account for the additional limitations of dependent claims 32–36. *See* PO Resp. 19–32; PO Sur-reply 18. We have reviewed Dish’s explanations and supporting evidence as to how the combined teachings of Matthews and Schein account for the additional limitations of these dependent claims, and we agree with and adopt Dish’s analysis. *See* Pet. 80–84. Accordingly, Dish has demonstrated by a preponderance of the evidence that the subject matter of dependent claims 32–36 would have been obvious over the combined teachings of Matthews and Schein.

III. CONCLUSIONS

Dish has demonstrated by a preponderance of the evidence that (1) claims 1–9, 12, 16, and 30–36 are unpatentable under § 103(a) as

obvious over the teachings of Niijima; (2) claims 10, 11, 13–15, 17–29, and 37–43 are unpatentable under § 103(a) as obvious over the combined teachings of Niijima and Devaney; and (3) claims 30 and 32–36 are unpatentable under § 103(a) as obvious over the combined teachings of Matthews and Schein. A summary of our conclusions is set forth in the table below.

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–9, 12, 16, 30–36	103(a)	Niijima	1–9, 12, 16, 30–36	
10, 11, 13– 15, 17–29, 37–43	103(a)	Niijima, Devaney	10, 11, 13–15, 17–29, 37–43	
30, 32–36	103(a)	Matthews, Schein	30, 32–36	
Overall Outcome			1–43	

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 1–43 of the '997 patent are held to be unpatentable; and

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

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