

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STINGRAY DIGITAL GROUP, INC.,
Petitioner,

v.

MUSIC CHOICE,
Patent Owner.

Case IPR2017-01450
Patent 9,414,121 B1

Before MITCHELL G. WEATHERLY, GREGG I. ANDERSON, and
JOHN F. HORVATH, *Administrative Patent Judges*.

HORVATH, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

Stingray Digital Group, Inc., (“Petitioner”) filed a Petition (Paper 1, “Pet.”) to institute *inter partes* review of claims 1, 6, 10–12, and 14 (“the challenged claims”) of U.S. Patent No. 9,414,121 B1 (Ex. 1001, “the ’121 patent”). Music Choice (“Patent Owner”) filed a Preliminary Response (Paper 5, “Prelim. Resp.”). Upon consideration of the Petition and Preliminary Response, we instituted review to determine the patentability of claims 1, 6, and 10–12, but did not institute review to determine the patentability of claim 14. See Paper 6, 34 (“Dec. Inst.”).

On March 5, 2018, Patent Owner filed a Response to the Petition, including arguments regarding the patentability of non-instituted claim 14. Paper 16, 27–32 (“PO Resp.”). On May 8, 2018, in response to the Supreme Court’s decision in *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348 (2018), we modified our institution decision to institute review on the patentability of claim 14. Paper 21, 2. We also ordered the parties to meet and confer, and to notify us if they desired additional briefing in view of our modification of the institution decision. *Id.* Neither party requested additional briefing. On May 18, 2018, Petitioner filed a Reply to Patent Owner’s Response, including arguments regarding the patentability of newly instituted claim 14. Paper 22, 22 (“Reply”). An oral hearing was held on July 16, 2018, and a transcript of the hearing is included in the record. Paper 36 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b). This is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth below, we find Petitioner has shown by a preponderance of the evidence that claims 1, 6, and 10–12 are unpatentable, but has failed to show

by a preponderance of the evidence that claim 14 is unpatentable on the grounds asserted.

B. Related Matters

Petitioner identifies the following as matters that could affect, or be affected by, a decision in this proceeding: *Music Choice v. Stingray Digital Group, Inc.*; Case No. 2:16-cv-00586-JRG-RSP (E.D. Tex.); *Stingray Digital Group, Inc. v. Music Choice*, Case No. IPR2017-01191 (challenging the patentability of U.S. Patent No. 9,351,045); and *Stingray Digital Group, Inc. v. Music Choice*, Case No. IPR2017-00888 (challenging the patentability of U.S. Patent No. 7,320,025). Pet. 1. Patent Owner identifies the same matters, as well as U.S. Patent App. No. 15/231,152, which is a continuation of the application that issued as the '121 patent, and the following patents from which the '121 patent descends: U.S. Patent Nos. 7,325,043; 7,617,295; 7,783,722; and 7,962,572. Paper 4, 2–3.

C. Evidence Relied Upon

Reference		Publication Date	Exhibit
Dunn	US 5,752,160	May 12, 1998	1004
McElhatten	US 7,073,189 B2	July 4, 2006 ¹	1005

Petitioner also relies upon the Declaration of Michael Shamos, Ph.D.
Ex. 1003. Patent Owner relies upon the Declaration of Samuel H. Russ, Ph.D.

¹ McElhatten was filed on November 22, 2002, and is 102(e) art to the claims of the '121 patent.

D. Instituted Grounds of Unpatentability

Ground	Reference(s)	Basis	Claims Challenged
1	Dunn	§ 102(b)	1, 6, and 14
2	Dunn and McElhatten	§ 103(a)	10–12

II. ANALYSIS

A. The '121 Patent

The '121 patent is directed toward systems and methods for supplementing a broadcast media service with a personalized on-demand media service. Ex. 1001, 1:51–53. A personalized on-demand media service is a service that allows a user to select the precise content or type of content that is transmitted by the service to the user. *Id.* at 1:53–61.

Figure 1 of the '121 patent is reproduced below.

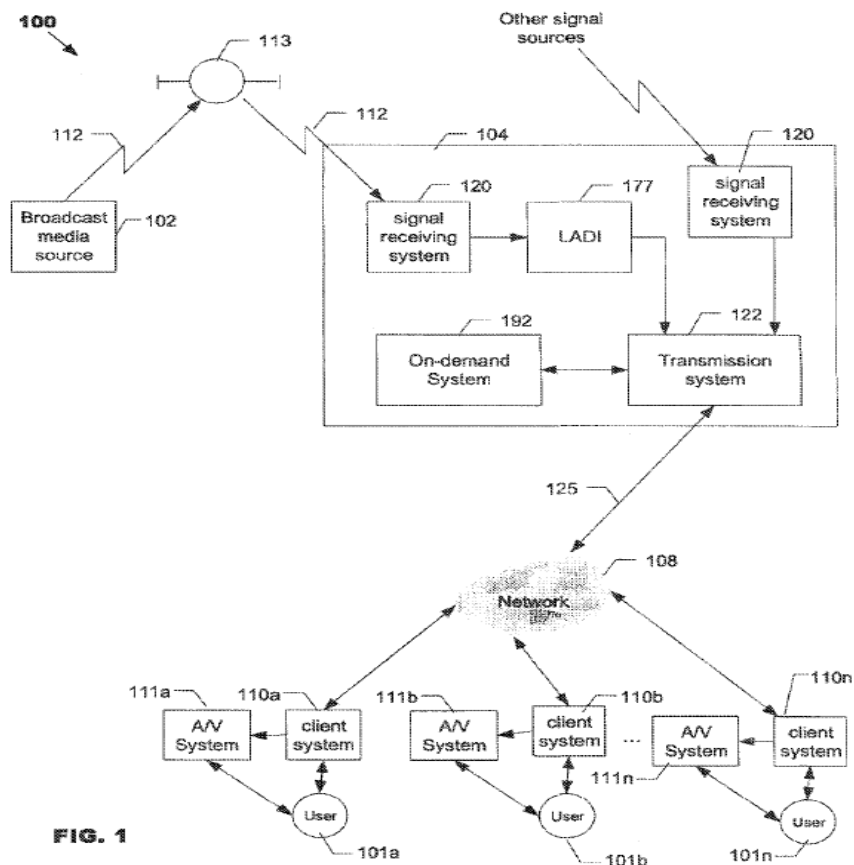


Figure 1 is a block diagram of system 100 for providing both a broadcast service and a personalized on-demand media service to a plurality of users. *Id.* at 3:41–43. System 100 includes one or more broadcast media sources 102, and one or more signal distribution centers 104 coupled to a plurality of client systems 110 via network 108. *Id.* at 4:10–14.

Broadcast media sources 102 transmit broadcast signals 112 to signal distribution centers 104. Ex. 1001, 4:15–16. Broadcast signals 112 contain a plurality of channels, each of which is associated with a particular format or category of media. *Id.* at 4:20–21. For example, one channel can be associated with Jazz and another with Alternative Rock. *Id.* at 4:22–26. Each channel can contain audio, video, and application data. *Id.* at 4:26–29.

Distribution center 104 includes one or more receiving systems 120 for receiving broadcast signals 112, local ad insertion system (LADI) 177, on-demand system 192, and transmission system 122. Ex. 1001, 4:35–56. Distribution center 104 may be, for example, a cable headend system. *Id.* at 4:35–36. Transmission system 122 combines the signals from receiving systems 120, local ad insertion system 177, and on-demand system 192 into combined signal 125, and transmits combined signal 125 to client systems 110 over network 108. *Id.* at 4:39–45.

Client systems 110 can tune to a particular channel in combined signal 125 and provide the audio and video data from that channel to audio/video systems 111 for reproduction. Ex. 1001, 5:46–49. Client systems 110 can be “conventional unidirectional or bi-directional set-top box[es].” *Id.* at 5:8–9. The signal reproduced from a selected broadcast music channel and displayed on audio/video systems 111 is shown in Figure 3, which is reproduced below.

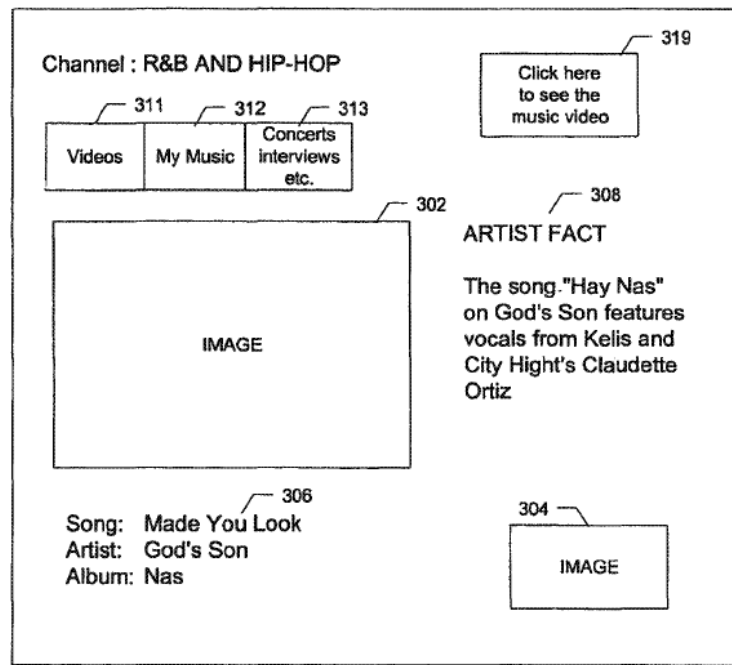


Figure 3 is an illustration of the content that may be displayed to a user whose client system 110 is tuned to a broadcast music channel. *Id.* at 3:45–47. The displayed content may include still images 302/304 (e.g., album cover and artist images) and text 306/308 (e.g., song title, artist, and album) related to the audio content of the broadcast music channel. *Id.* at 5:59–65. The displayed content may also include one or more user selectable buttons 311–314² that allow the user to select related videos (311), music (312), and supplemental information (313), as well as the music video for the broadcasted song (314). *Id.* at 6:1–12. When a user selects a button 311–314, client system 110 initiates a session with on-demand system 192 to retrieve the requested selection, e.g., by sending information to on-demand system 192 identifying the selected button, the broadcast channel to which client system 110 was tuned when the button

² Button 314 is incorrectly labelled button 319 in Figure 3.

was selected, and the name of the artist or title of the song that was playing when the button was selected. *Id.* at 6:34–42. Client system 110 may also send an asset identifier identifying the asset associated with the selected button. *Id.* at 8:42–44.

Claims 1, 6, and 14 of the '121 patent are independent claims. Other challenged claims depend directly or indirectly from claims 1, 6, and 14.

Claims 1 is reproduced below.

1. A system for providing an on-demand, personalized media service and a broadcast service to a set-top-box, comprising:

a distribution network, wherein the set-top-box is connected to the distribution network; and

a distribution system including a transmission system operable to transmit via the distribution network a media channel comprising a stream of audio and video data, wherein the set-top-box is operable to:

(1) receive the media channel via the distribution network,

(2) reproduce the stream of audio data included in the received media channel for a user of the client system to hear,

(3) display video corresponding to the stream of video data included in the received media channel on a display device for the user to see,

(4) receive via the distribution network video identifier information comprising an identifier for identifying an available on-demand video while displaying on the display device the video corresponding to the stream of video data included in the received media channel,

(5) display a user selectable element for requesting the available on-demand video on the display device so that the user selectable element is displayed on the display device together with at least a portion of the video corresponding to the stream of video data as a result of receiving the video identifier information transmitted to the set-top-box using the distribution network, the user selectable element being associated with the available on-demand video, and

(6) in response to the user of the set-top-box selecting the user selectable element, causing an on-demand video system to transmit to the set-top-box the available on-demand video by transmitting to the on-demand video system an on-demand request message.

Ex. 1001, 16:8–44. Claim 6 is similar in scope to claim 1, but recites a method for providing on-demand service to a user using a set-top box having the functionality of the set-top box recited in claim 1. *Compare id.* at 16:8–44, *with id.* at 16:59–17:25.

Claim 14 is similar in scope to claim 6, and recites a method for using a set-top box to provide on-demand service to a user. However, whereas claim 6 requires displaying a selectable element to allow a user to request a particular on-demand video, claim 14 requires displaying a selectable element to allow the user to request a menu displaying a set of available on-demand videos. *Compare* Ex. 1001, 16:59–17:25, *with id.* at 18:28–55.

Claim 14 is reproduced below.

14. A method for providing an on-demand service to a user of a set-top-box, comprising:

receiving at the set-top-box via a cable connected to a network a media channel comprising a stream of audio and video data;

the set-top-box displaying on a display device video corresponding to the video data stream;

while displaying said video, the set-top-box receiving on-demand video information transmitted via the cable connected to the network;

the set top box displaying on the display device, as a result of receiving the on-demand video information, a user selectable element for requesting information identifying a set of available on-demand videos while also displaying the video corresponding to the video data stream so that the user can see the user selectable element while also seeing the displayed video corresponding to the video data stream, the user selectable element being associated with the set of available on-demand videos;

in response to the user of the client system selecting the user selectable element, the set-top-box transmitting to an on-demand system an on-demand request message for causing the on-demand system to transmit to the set-top-box the information identifying the set of available on-demand videos;

the set-top-box receiving [sic] displaying a menu of the available on-demand videos as a result of receiving the information.

Id. at 18:28–55.

B. Claim Construction

The Board interprets claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2016); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Consistent with the rule of broadest reasonable interpretation, claim terms are generally given their plain and ordinary meaning, as would be understood by one of ordinary skill in the art in the context of the entire patent disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Only those terms that are in controversy need to be construed and only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

1. A format associated with the broadcast media channel

In our Institution Decision, we noted an ambiguity in the term “a format associated with the broadcast media channel” recited in claims 10 and 12 due to a lack of antecedent basis for “the broadcast media channel.” Dec. Inst. 10–11. We, therefore, construed the term to mean “a format that is associated with the format of (a) the media channel that was isolated when the set-top box was tuned to the media channel or (b) a broadcast media channel that is isolated when a user selects the second element.” *Id.* at 12. Patent Owner, in its Response, argues interpretation (a) is the correct interpretation. PO Resp. 9. Petitioner does not dispute this, but argues the precise construction is not pertinent to resolve any dispute between the parties. Reply 2–3. We adopt interpretation (a) for purposes of this Final Written Decision.

2. *A stream of audio and video data*

All of the independent claims require receiving a media channel comprising “a stream of audio and video data.” Ex. 1001, 16:13–19, 16:61–63, 18:30–32. Prior to institution, both parties agreed this term should have its plain and ordinary meaning. See Dec. Inst. 10. However, neither party provided that meaning, or requested express construction of this term. *Id.* In its Response, Patent Owner proposes the term be construed to mean “a stream of *digital* audio and video content,” and provides numerous arguments in support of its proposed construction. PO Resp. 12–26. Petitioner counters that the plain and ordinary meaning of this term is not *limited* to digital audio and video content, that Patent Owner’s proposed construction “improperly tries to import a ‘digital’ limitation into the Streaming Terms,” and that the term should be construed to mean “a stream of audio and video content.” Reply 3–4, 7. Petitioner sets forth numerous arguments in support of its proposed construction and in opposition to Patent Owner’s proposed construction. *Id.* at 4–21.

We consider Petitioner’s and Patent Owner’s numerous arguments below, and for the reasons discussed there, find the broadest reasonable construction of the term “a stream of audio and video data” is “a stream of audio and video content” as proposed by Petitioner.

a. *Intrinsic Evidence*

“[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc).

(1) The '121 patent

The '121 patent does not define the term “a stream of audio and video data.” It does, however, disclose that client systems 110 recover “audio and video data” from broadcast signal 125 by isolating a “broadcast channel” in broadcast signal 125. Ex. 1001, 4:39–45, 4:62–66. The '121 patent further discloses that client systems 110 can be *conventional* cable system set-top boxes. *Id.* at 5:8–9. Patent Owner admits that traditional cable television systems transmit analog content. See PO Resp. 13 (“Analog content . . . includes traditional forms of AM and FM radio, of VHF and UHF and cable television (e.g., NTSC standard).”). This supports Petitioner’s proposed construction for “audio and video data.”

Notwithstanding the foregoing, Patent Owner contends certain disclosures in the '121 patent support its proposed construction of the term “a stream of audio and video data” to mean “a stream *digital* audio and video content.” In particular, Patent Owner argues the '121 patent discloses broadcasting a signal that “contain[s] 40 broadcast media channels, and that the audio and video streams must be part of a media channel.” PO Resp. 18 (citing Ex. 1001, 4:15–16). Relying on the testimony of Dr. Russ, Patent Owner argues a person skilled in the art would have understood these broadcast media channels to be digital channels because “40 broadcast music channels would never be transmitted over analog, because that . . . might use 40% to 100% of the cable network.” *Id.* at 18–19 (citing Ex. 2002 ¶ 26). Dr. Russ cites no evidence to support this opinion. Ex. 2002 ¶ 26.

Petitioner counters that at the time of the invention,³ a person skilled in the art would have known that “cable operators typically provided 60–90 analog channels.” Reply 17 (citing Ex. 1029). Therefore, Petitioner argues, the “reference to 40 channels in the ’121 Patent does not suggest . . . that the channels must be ‘digital,’” because “well more than 40 analog channels were provided to cable users around the priority date of the ’121 Patent.” *Id.* Moreover, Petitioner argues the claims of the ’121 patent do not require broadcasting 40 music channels, and that Dr. Russ conceded this point in his deposition testimony. *Id.* at 16–17 (citing Ex. 1019, 16:3–12).

Exhibit 1029 is the Federal Communications Commissions’ Eleventh Annual Report (“FCC Report”), released February 4, 2005. Ex. 1029, 1. Table 3 of the FCC Report shows that in January 2004, the average cable operator provided a total of 74.7 analog channels and 157.7 digital channels. *Id.* at 18. This evidence supports Petitioner’s contention that cable operators at the time of the invention could have broadcast more than 40 analog music channels or a combination of more than 40 analog and digital music channels. Moreover, as Dr. Russ conceded, the claims do not require the ability to broadcast any particular number of media channels, let alone the exemplary 40 media channels described in the ’121 patent. Thus, we are not

³ Petitioner contends the priority date of the ’121 patent is December 3, 2004. Pet. 4–5. Patent Owner has not sought to show the claims of the ’121 patent are entitled to claim priority to any earlier-filed application. See PO Resp.; see also *Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 Fed. Cir. 2008) (finding the patentee “has the burden of going forward with evidence . . . [that] the asserted claim is entitled to the benefit of [an earlier] filing date” by showing “not only the existence of [an] earlier application, but why the written description in the earlier application supports the claim”).

persuaded that the '121 patent's disclosure of broadcasting 40 media channels limits the broadcast to "a stream of digital audio and video content" as Patent Owner contends.

(2) *The '722 patent*

The '121 patent incorporates by reference U.S. Patent No. 7,783,722 ("the '722 patent"). Ex. 1001, 1:17–23. The '722 patent discloses "a system and method for creating personalized audio channels." Ex. 1017, 1:46–47. The system includes music broadcaster 102 and consumer device 202. *Id.* at 4:14–18, Fig. 2. Consumer device 202 includes receiver 210, which is "operable to tune to a particular broadcast audio or audio/video channel." *Id.* "Receiver 210 can be any device that can receive a data stream," including "*a cable-tv receiver for receiving signals transmitted through an analog or digital cable-tv system.*" *Id.* at 4:27–32 (emphasis added).

Petitioner argues these disclosures in the '722 patent, incorporated by reference into the '121 patent, support its proposed construction of "a stream of audio and video data" to mean "a stream of audio and video content," regardless of whether that content is analog or digital. Reply 4–5 (citing Ex. 1016 ¶ 4; *Harari v. Lee*, 656 F.3d 1331, 1334 (Fed. Cir. 2011)). Patent Owner contends these disclosures do not support Petitioner's proposed construction because the '722 patent describes cable-tv receivers as "receiving *signals*, not data streams." Tr. 58:14–59:9 (emphasis added).

The '722 patent discloses:

Receiver 210 can be *any device that can receive a data stream*. For example, *it can be any one . . . of the following*: a radio frequency (RF) receiver for receiving data streams broadcast by radio waves, *a cable-tv receiver* for receiving signals transmitted through an analog or digital cable-tv system, a satellite

receiver for receiving signals transmitted by a satellite,
a network receiver for receiving data streams
transmitted through a network (e.g., the Internet), etc.

Ex. 1017, 4:27–35 (emphases added). Thus, the '722 patent discloses that a cable-tv receiver that receives “signals transmitted through an *analog or digital* cable-tv system” is a “*device that can receive a data stream.*” *Id.* As Patent Owner admits, an analog cable-tv system transmits analog audio and video content. See PO. Resp. 13 (“Analog content . . . includes traditional forms of . . . cable television (e.g., NTSC standard)”). This evidence, therefore, also supports Petitioner’s proposed construction that “audio and video data” means “audio and video content.”

(3) The '256 patent

The '121 patent also incorporates by reference U.S. Patent No. 7,275,256 (“the '256 patent”). Ex. 1001, 5:35–44. The '256 patent discloses “an audio/video system for providing audio/video programming to consumers.” Ex. 1018, 2:50–52, Fig. 1. The system includes transmission system 170 that “creates a video image . . . and transmits the video image . . . to subscribers’ audio/video receivers 180.” *Id.* at 5:62–65. “The video image may be encoded according to Moving Picture Expert Group (MPEG) standard, the National Television Standards Committee (NTSC) video signal standard, or other video signal standards.” *Id.* at 6:7–10.

Petitioner argues these disclosures in the '256 patent are incorporated by reference into the '121 patent and “expressly disclose[] the transmission of digital content (e.g., video in MPEG format) *and* analog content (e.g., video in NTSC format).” Reply 6 (citing Ex. 1001, 5:35–44; Ex. 1018, 6:7–13; Ex. 1016 ¶¶ 5, 6). Patent Owner contends the '121 patent does not

incorporate the entire disclosure of the '256 patent by reference, only the disclosure for creating video. Tr. 60:13–61:4. Patent Owner further contends the '256 patent's disclosure of encoding video using the NTSC standard relates to transmitting the video rather than creating it. *Id.* at 61:5–20. Therefore, Patent Owner argues, “encoding [the video] is not incorporated by reference into the '121 patent.” *Id.* at 62:9–11.

We agree with Patent Owner that the '121 patent incorporates by reference only the '256 patent's disclosure of creating video. See Ex. 1001, 5:35–40. However, the '256 patent discloses transmission system 170 “*creates a video image corresponding to [a] video image specification and transmits the video image . . . to subscribers' audio/video receivers 180.*” Ex. 1018, 5:62–65 (emphases added). It does this by “*receiv[ing] the video image specification and generat[ing] a video image that conforms to the video image specification.*” *Id.* at 1:51–53 (emphasis added). The '256 patent further explains “*[t]he video image may be encoded according to . . . the National Television Standards Committee (NTSC) video signal standard.*” *Id.* at 6:7–10 (emphasis added). Thus, the '256 patent discloses creating the video prior to transmitting it by encoding the video according to the NTSC standard. As noted above, Patent Owner admits the NTSC standard is used to stream *analog* audio and video content. See PO Resp. 13 (“Analog content . . . includes traditional forms of AM and FM radio, of VHF and UHF and cable television (e.g., NTSC standard). . . .”). This evidence, therefore, also supports Petitioner's proposed construction.

(4) Claims 1, 3, 7, 8, 10, and 12

Patent Owner argues various claims of the '121 patent support its proposed construction of “a stream of audio and video data” to mean “a

stream of *digital* audio and video content.” See PO Resp. 17, 18, 20. We address each of Patent Owner’s arguments below, and explain why they do not support Patent Owner’s proposed construction.

Claim 1 requires “reproduc[ing] the stream of audio data . . . for a user of the client system to hear.” Ex. 1001, 16:20–23. Patent Owner, relying on the testimony of Dr. Russ, argues “[a]udio that is transmitted digitally must be ‘reproduced’ from digital back to analog format in order to be sent to audio speakers for playing.” PO Resp. 18 (citing Ex. 2002 ¶ 45). Petitioner, relying on the testimony of Dr. Shamos, argues that reproducing audio data “is not limited to digital audio.” Reply 15 (citing Ex. 1016 ¶ 14). For example, Petitioner argues a person skilled in the art “would describe a phonograph playing a record as ‘reproducing’ analog sound.” *Id.* (citing Ex. 1016 ¶ 14; Ex. 1026, 634).

We agree with Petitioner that “reproducing” audio data for a user to hear does not limit the audio data to “digital” data as Patent Owner contends. A phonograph is “[a] machine that reproduces sound recorded on a grooved disk.” Ex. 1026, 634. A phonograph stores audio data in analog format as surface variations in the phonograph’s grooves. See Ex. 1020 (describing analog data as “data [that] is stored in physical media, whether that’s the surface of grooves on a vinyl record, the magnetic tape of a VCR cassette, or other non-digital media”).

Claim 3 requires the audio data of claim 1 to be “associated with an artist and music format, and the meta information^[4] comprises information

⁴ We note there is no antecedent basis for “the meta information” recited in claim 3.

for identifying the artist and/or music format.” Ex. 1001, 16:48–51. Patent Owner argues claim 3 requires the audio data of claim 1 to include digital content; namely, the meta information for identifying the artist or music format.⁵ PO Resp. 17 (citing Ex. 1001, 2:9–12, 4:26–34, 6:51–56). Relying on the testimony of Dr. Russ, Patent Owner argues a person skilled in the art “would understand that ‘audio data’ that includes associated ‘meta information’ would not be analog. This indicates that the stream of audio data in claim 1 is digital.” *Id.* at 18 (citing Ex. 2002 ¶ 44). Petitioner counters that Patent Owner’s argument is contradicted by the intrinsic record of the ’121 patent. Reply 13. In particular, Petitioner argues the ’121 patent incorporates the ’722 patent by reference, as discussed above, and the ’722 patent indicates that meta data can be included in both analog and digital broadcasts. *Id.* (citing Ex. 1001, 1:17–23; Ex. 1017, 24:30–32).

We agree with Petitioner. The disclosure of the ’722 patent is incorporated by reference in its entirety into the disclosure of the ’121 patent, and discloses “[i]n *digital and analog* broadcasting systems it is possible to transmit meta-data along with sound recordings.” Ex. 1001, 1:8–23; Ex. 1017, 24:30–32 (emphasis added).

Claim 7 depends from claim 6, and requires claim 6’s “media channel comprising a stream of audio and video data” to be “a digital music channel.” Ex. 1001, 16:59–63, 17:26–27. Petitioner argues that “the use of the term ‘digital’ in a dependent claim shows that independent claim 6, from

⁵ Patent Owner makes a similar argument with respect to claim 8, which limits claim 6 in the same manner claim 3 limits claim 1. Like the “meta information” recited in claim 3, the “meta information” recited in claim 8 lacks antecedent basis. Ex. 1001, 16:59–63, 17:28–31.

which claim 7 depends, is not limited to ‘digital’ content (in particular not to a ‘*digital* music channel’).” Reply 18 (citing *Phillips*, 415 F.3d at 1315). Relying on the deposition testimony of Petitioner’s expert, Dr. Shamos, Patent Owner argues that claim 7’s recitation of a “digital music channel” does not differentiate claim 6’s recitation of a “media channel” because it recites a “digital *music* channel” rather than a “digital *media* channel.” PO Resp. 20 (citing Ex. 2003, 17:19–18:04) (emphasis added).

The term “media channel” appears only three times in the ’121 patent, which explains that “broadcast media channels” are “associated with a format,” “associated with one or more formats or categories of music,” and part of a “combined signal” that is transmitted to a plurality of client systems. Ex. 1001, 1:64–66, 4:20–22. The ’121 patent, therefore, does not expressly limit “broadcast media channels” to analog or digital channels. Claim 7 does, however, expressly limit the “media channel” of claim 6 to a particular type of media channel, namely, to a “media channel [that] is a *digital* music channel.” *Id.* at 17:26–27. This implies that the “media channel” of claim 6 is broader than the “media channel” of claim 7, and can include, for example, non-music channels as well as non-digital (i.e., analog) channels. This supports Petitioner’s proposed construction that claim 6’s “stream of audio and video data” is “a stream of audio and video content,” and is not limited to a “stream of digital audio and video content” as Patent Owner contends. *See Phillips*, 415 F.3d at 1314 (finding “[d]ifferences among claims can also be a useful guide in understanding the meaning of particular claim terms”).

Claim 10 depends from claim 6, and requires the on-demand system of claim 6 to transmit to a client system information identifying a set of

videos having “a format associated with the broadcast media channel isolated by the client system when [a] user selected [a] second element” displayed on the client system. Ex. 1001, 17:49–54. Claim 12 depends from claim 6, and requires the on-demand system to transmit to the client system information identifying a set of sub-categories having “a format associated with the broadcast media channel isolated by the client system when the user selected the second element” displayed on the client system. *Id.* at 18:12–17.

Patent Owner, relying on the testimony of Dr. Russ, argues “digital video . . . must be ‘isolated,’ that is, removed from the digital packet overhead and from the other television, audio, and video channels that are multiplexed with the desired digital video.” PO Resp. 18 (citing Ex. 2002 ¶ 45). Patent Owner, therefore, argues claims 10 and 12 “make clear that the broadcast media channel containing the stream of video data is in fact a digital signal that is ‘isolated.’” *Id.* Petitioner responds that claims 10 and 12 “do not recite **video data** being ‘isolated.’ To the contrary, both claims require that a ‘**broadcast media channel** [is] isolated’— not video data.” Reply 15. Petitioner contends the ’121 patent “uses the term ‘isolate[d] five times, each of which is in the context of isolating a channel, such as a broadcast media channel, and not video data.” *Id.* (citing Ex. 1001, 2:8–16, 4:62–66). Relying on the testimony of Dr. Shamos, Petitioner argues that a person skilled in the art “would understand that ‘isolating’ a channel means tuning to a particular channel, which tuning requires ‘isolating’ a particular frequency band.” *Id.* at 15–16 (citing Ex. 1016 ¶ 15).

We agree with Petitioner. The ’121 patent uses the term “isolated” five times, and discloses the client system is “operable to *isolate at least one*

of the channels within combined signal 125 and then provide the audio and video data contained in the channel to an audio/video system 111.”

Ex. 1001, 4:62–65 (emphasis added). As discussed in § II.B.1, *supra*, our Institution Decision noted an ambiguity in the term “a format associated with the broadcast media channel” recited in claims 10 and 12 due to a lack of antecedent basis for “the broadcast media channel.” *See* Dec. Inst. 10–11. We, therefore, construed the term to mean “a format that is associated with the format of (a) the media channel that was *isolated when the set-top box was tuned to the media channel* or (b) a broadcast media channel that is isolated when a user selects the second element.” *Id.* at 12 (emphasis added). Patent Owner, in its Response, argued interpretation (a) is the correct interpretation. PO Resp. 9. That is, Patent Owner admits that what is “isolated” in claims 10 and 12 is the particular “media channel” received by the set-top box of claim 6, not any “digital video data” that may be contained in that media channel.

b. Extrinsic Evidence

Extrinsic evidence is “all evidence external to the patent prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman v Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995). Although “extrinsic evidence can shed useful light on the relevant art . . . it is less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1318 (internal quotations and citations omitted).

(1) Dictionary Definitions

Patent Owner cites numerous dictionary definitions of “data” in support of its contention that the “streams of audio and video data” recited in

independent claims 1, 6, and 14 refer to “streams of digital audio and video content.” See PO Resp. 25–26 (citing Ex. 2005, 163; Ex. 2006, 11; Ex. 2007, 160; Ex. 2008, 130; Ex. 2009, 48).

We acknowledge that some of the dictionary definitions cited by Patent Owner support its contention that “data” means information in “digital” form. However, some of the dictionary definitions do not. For example, the Illustrated Dictionary of Electronics defines “data” as (1) “[a] collection of digital bits . . . with informational content,” and (2) a “[g]eneral expression for information, especially in encoded or written form.” Ex. 2005, 163. The first definition clearly supports Patent Owner’s contention, the second does not. A doctor’s prescription, written on a prescription pad, is “data” because it is information in written form identifying a medicine and a dosage; but it is not “digital” data.

Moreover, as explained above, the intrinsic record of the ’121 patent, including the disclosures incorporated by reference from the ’256 and ’722 patents, demonstrate that a “media channel comprising a stream of audio and video data” is not limited to a “media channel comprising a stream of *digital* audio and video content” as Patent Owner contends. Although extrinsic evidence can be considered to illuminate our understanding of the patent, the claims of the patent must ultimately be construed based on “the patent and prosecution history,” and we may reject “extrinsic evidence to the extent it contradict[s] [our] construction of the claims based on the specification and prosecution history.” *Markman*, 52 F.3d at 981. This is so because “there is a virtually unbounded universe of potential extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question.” *Phillips*, 415 F.3d at 1318. This is especially

true with dictionary definitions, which tend to focus “the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent,” thereby “transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification.” *Id.* at 1321.

(2) Expert Opinion and Testimony

Patent Owner and Petitioner make additional arguments for the meaning of “a stream of audio and video data” based on both Dr. Russ’s and Dr. Shamos’s opinions and testimony. Although we need not consider that testimony for the reasons explained above, we briefly address it here for completeness.

Patent Owner argues “a stream of audio and video data” means “a stream of digital audio and video content” because both experts opine that a person skill in the art would have had “two years of experience in the distribution of *digital* audio and video via networks,” and neither opined that such a person would have had any experience in *analog* audio or video distribution. PO Resp. 15 (quoting Ex. 1003 ¶ 6; citing Ex. 2002 ¶ 39) (emphasis added). Patent Owner further argues that both experts agree that a person skilled in the art would understand the term “audio or video data” to refer to *digital* “audio or video data.” *Id.* at 16 (citing Ex. 2003, 17:9–23; Ex. 2002 ¶ 40). Petitioner contends that Dr. Russ’s testimony on the latter point is not credible because Dr. Russ is a named inventor on U.S. Patent No. 7,499,822 (“the ’822 patent”), and the ’822 patent discloses a cable set-top box that receives and processes analog or digital video data. Reply. 10–11 (citing Ex. 1023, (75), 10:30–43).

Although neither Dr. Russ nor Dr. Shamos opined that a person skilled in the art would have needed experience with *analog* audio and video distribution systems, that fact, by itself, is insufficient to overcome the ample evidence from the intrinsic record, discussed above, that the '121 patent does not limit audio and video data to *digital* audio and video data. First, the '121 patent does not expressly characterize or limit audio and video data to *digital* audio and video data. Second, the '121 patent incorporates by reference the '722 patent and certain disclosures from the '256 patent, both of which contemplate distributing audio and video data via analog or digital networks. Third, the claims of the '121 patent are expressly directed toward “a media channel comprising a stream of audio and video data” rather than a media channel comprising a stream of *digital* audio and video data. Fourth, dependent claim 7 narrows the broad recitation of “audio and video data” in claim 1 to “digital music data,” which implies that the “audio and video data” of claim 1 broadly encompasses both digital and analog forms of data. “Had the patentees intended to limit the disputed claim terms to [digital] technology, they could have easily done so by explicitly modifying the disputed claim language with the term [digital].” *SuperGuide Corp. v. DirectTV Enterprises, Inc.*, 358 F.3d 870, 881 (Fed. Cir. 2004). Patent Owner did precisely this in dependent claim 7, not independent claim 1.

Moreover, Dr. Russ’s own patent discloses that it was well known to persons skilled in the art at the time of the invention that audio and video data can be streamed as either digital or analog data. For example, Figure 3 of the '822 patent discloses “a block diagram illustrating . . . a multi-tuner *analog* STT [Set Top Terminal],” such as a cable set-top box. Ex. 1023,

1:22–25, 4:48–50 (emphasis added). The STT “includes a receiver 314 and an RF input system 316 that may be configured to communicate with media network 100.” *Id.* at 4:52–54. Figure 14 of the ’822 patent discloses “a functional flow diagram illustrating an exemplary process for testing at least one component of an STT, such as the analog STT from FIG. 3.” *Id.* at 10:20–22. The RF front end of the tested STT “can receive modulated data, which may include a transport stream,” send the modulated data to one or more tuners that tune to a baseband frequency, and “send the received data to one or more of the analog to digital converters 1406a.” *Id.* at 10:24–29. The ’822 patent further discloses that “[i]f the data in tuners 1410 includes *data in the analog domain*, the analog to digital converters 1406 can send *analog data* to analog decoder 1405, which can decode the data.” *Id.* at 10:30–33. (emphases added). Conversely, “[i]f the data in . . . the tuners 1410 includes *data in the digital domain*, the analog to digital converters 1406 can send the *digital data* to digital demodulator and decryptor 1408, which can demodulate and/or decrypt the received data.” *Id.* at 10:36–39. Thus, Dr. Russ’s own ’822 patent is evidence that persons of skill in the art at the time of the invention knew that audio and video data can be streamed as either analog or digital data.

c. Conclusion

For all of the reasons described above, we construe the phrase “a stream of audio and video data,” recited in each of independent claims 1, 6, and 14, to mean “a stream of audio and video content.”

C. Patentability of Claims 1, 6, and 14

Petitioner asserts that claims 1, 6, and 14 are anticipated by Dunn. Pet. 14–60.

1. Overview of Dunn

Dunn discloses an interactive entertainment network that supplies preview videos in a video-on-demand (VOD) mode. Ex. 1004, 2:51–53. The system includes a headend connected to multiple user interface units (e.g., set-top boxes) via a distribution network such as a cable, satellite, or RF (radio frequency) network. *Id.* at 2:59–65. Figure 1 of Dunn is reproduced below.

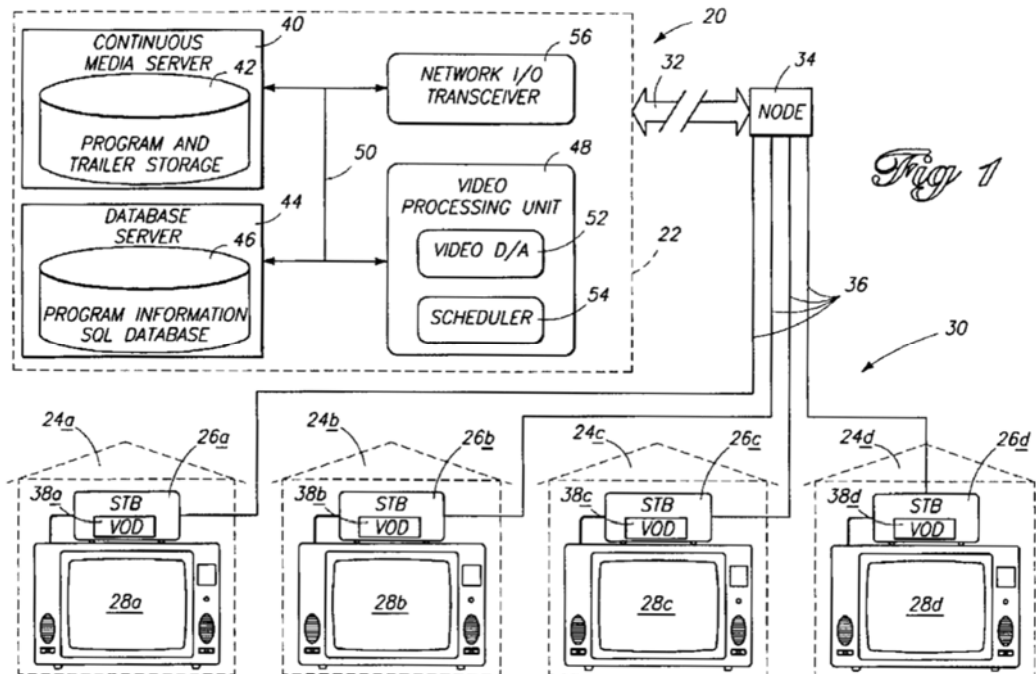


Figure 1 is a block diagram of Dunn’s interactive entertainment network. *Id.* at 3:52–53. The network includes headend server 22 connected via multi-tier network or distribution structure 30 to a plurality of user interface units 26 or set-top boxes (STBs). *Id.* at 4:14–48.

Headend server 22 provides video content to STBs 26, including broadcast and cable TV shows, on-demand movies, video games, and other commonly provided services. *Id.* at 4:20–24. Headend server 22 includes continuous media server (CMS) 40, which stores each video program and trailer served by headend server 22 as an independent file. *Id.* at 4:59–61. Unique monikers are assigned to the video programs and trailers that are stored on CMS 40 to allow for their retrieval. *Id.* at 5:1–4. Headend server 22 also includes database server 44, which stores programming information about each video program and trailer stored on CMS 40. *Id.* at 5:25–26. The programming information can include each video’s title, category, length, director, actors, rating, and program ID or trailer ID. *Id.* at 5:27–34, 5:39–42. Database server 44 establishes relational ties between the program IDs, trailer IDs, and unique monikers that point to the locations where the programs and trailers are stored on CMS 40. *Id.* at 5:39–53.

STBs 26 receive digital video signals from headend 22, and allow a user to select and display programming channels on TVs 28. Ex. 1004, 4:26–30. STBs 26 include a video-on-demand (VOD) application that can be initiated by tuning to a VOD channel. *Id.* at 3:22–26, 4:49–56. The VOD application allows users to browse movies, videos, games, and TV shows, and to select the programs they want to see. *Id.* The VOD application displays a graphical user interface (GUI) when a user first tunes to the VOD channel as shown in Figure 4 of Dunn, which is reproduced below.

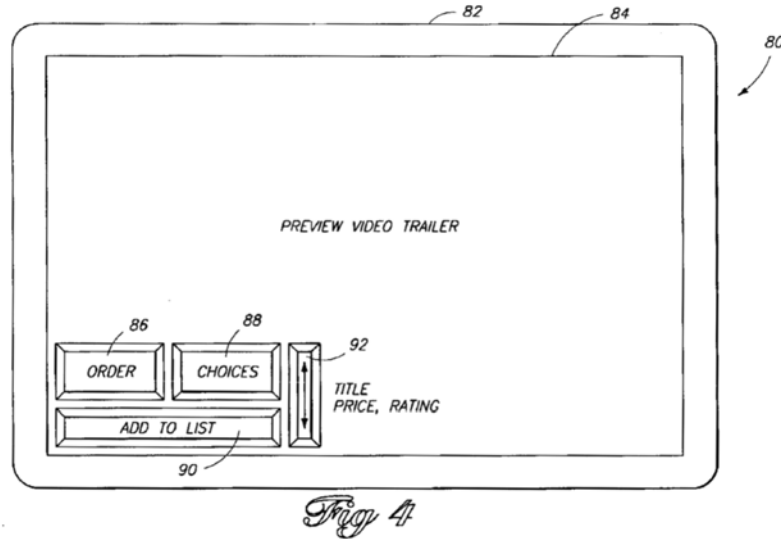


Figure 4 is an illustration of the “screen display 80 of the preview browse UI” of Dunn’s VOD channel. *Id.* at 8:46–54. The preview browse UI simultaneously displays in screen area 82 preview video trailers and selectable icons, including “order” 86, “choices” 88, “add to list” 90, and “up/down” 92. *Id.* at 8:55–62.

Order 86 allows a user to order a video whose trailer is currently shown in screen area 82. *Ex. 1004*, 8:63–65. When order 86 is selected, STB 26 sends a message to headend server 22 containing a descriptor of the video associated with the trailer, such as the video’s program ID or the unique moniker that points to the video’s location in CMS 40. *Id.* at 9:1–5. Headend server 22 retrieves the selected video, and sends it to STB 26. *Id.* at 9:8–12.

Choices 88 allows a user to use different search criteria to search for on-demand videos, and to group responsive videos into different sets. *Ex. 1004*, 9:13–20. The search criteria can include video category (e.g., westerns or foreign films), actors, directors, or user selections. *Id.* When a user selects “choices” 88, the VOD application displays additional icons on

screen 82 indicating the search criteria that can be used to group videos into different sets as shown in Figure 5 of Dunn, which is reproduced below. *Id.* at 10:20–30.

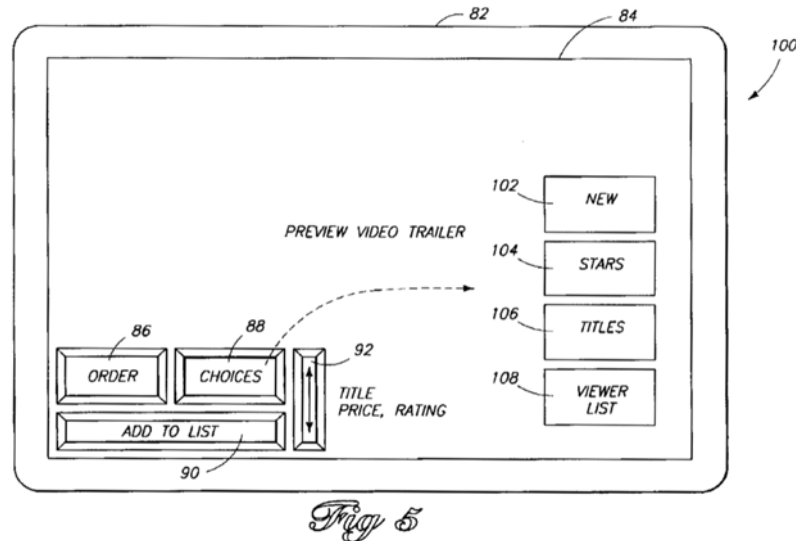


Figure 5 is an illustration of the VOD application’s “screen display 100 that is depicted when a viewer selects the ‘choices’ button 88 to pull up possible search criteria for different sets of [on-demand video] programs.” *Id.* at 10:20–22. For example, the VOD application can display the icons “new” 102 to allow the user to search for newly released videos, “stars” 104 to allow the user to search for videos having the same actors as the currently previewed video, “titles” 106 to provide the user with a list of all available on-demand videos, and “viewer list” 108 to provide the user with a list of on-demand videos the user had previously added to the list by selecting “add to list” 90 when the video’s preview trailer was previously shown. *Id.* at 9:21–28, 10:22–30.

When the user selects “viewer list” 108, STB 26 sends a message containing the user’s “viewer ID” to headend 22, and headend 22 responds by sending to STB 26 a list of videos the user had previously selected and

added to the viewer list. Ex. 1004, 9:21–28, 10:31–41. The VOD application displays this user customized video list as shown in Figure 6 of Dunn, which is reproduced below.

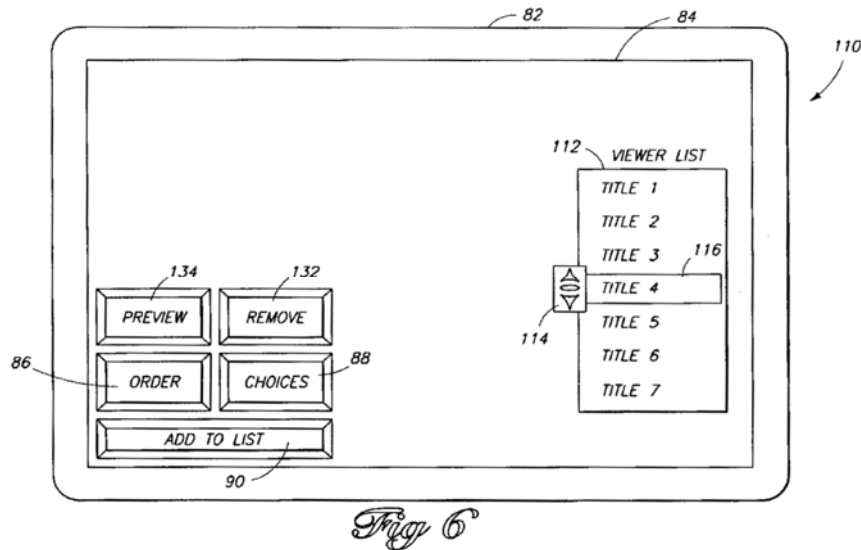


Figure 6 is an illustration of the VOD application's "screen display 110 following selection of . . . the 'viewer list' button 108 to bring up a customized list of movies 112 which the viewer has assembled." *Id.* at 10:31–36.

2. Claim 1

Claim 1 recites a system for providing an on-demand, personalized media service and broadcast service to a set-top box, and requires a set-top box connected to a distribution network. Ex. 1001, 16:8–12. Petitioner demonstrates where Dunn discloses this limitation. See Pet. 16–17. Dunn discloses a plurality of user interface units or STBs 26 connected to multi-tier distribution network 30 that provides user selected on-demand videos. Ex. 1004, 2:59–65, 4:14–38, Fig. 1. Patent Owner does not contest Dunn discloses this limitation. See PO. Resp. 27–32.

Claim 1 further requires the distribution system to include a transmission system to transmit a media channel comprising a stream of audio and video data through the distribution network. Ex. 1001, 16:13–15. Petitioner argues Dunn discloses this limitation by disclosing transmitting a stream of preview videos on a video-on-demand channel. Pet. 17–19 (citing Ex. 1004, 2:50–58, 3:12–35, 4:14–24, 4:33–38, 4:49–56, 5:24–37, Fig. 1). Patent Owner argues Dunn discloses the preview videos are transmitted as an analog stream rather than a digital stream of audio and video data on the video-on-demand channel. See PO Resp. 29 (citing Ex. 1004, [57], 3:26–28, 3:33–35, 3:45–47, 6:13–15, Fig. 10; Ex. 2002 ¶ 61). Therefore, Patent Owner argues, “[b]ecause each independent claim of the ’121 patent requires that the ‘stream of audio and video data’ be digital, and because Dunn’s previews are analog instead of digital, Dunn’s preview video trailers cannot meet the limitation for the stream of audio and video data.” *Id.* at 29–30 (citing Ex. 2002 ¶ 67).

We are not persuaded by Patent Owner’s argument, which is premised on construing “a stream of audio and video data” to be “a stream of *digital* audio and video content.” As discussed in § II.B.2, *supra*, we construe “a stream of audio and video data” to mean “a stream of audio and video content,” which does not require that stream to be a digital stream. Although we agree with Patent Owner that Dunn discloses transmitting analog preview videos on the video-on-demand channel, claim 1 does not require the transmitted “media channel comprising a stream of audio and video data” to be a digital media channel, and does not preclude Dunn’s transmission of analog preview videos on the video-on-demand channel.

Therefore, we find Dunn discloses this limitation. *See* Ex. 1004, 2:50–58, 3:12–18, 4:14–24, 4:33–38, 4:49–56, Fig. 1.

Claim 1 further requires the set-top box to receive the media channel via the distribution network. Ex. 1001, 16:18–19. Petitioner demonstrates where Dunn discloses this limitation. *See* Pet. 19–22. In particular, Dunn discloses STB 26 tunes to and receives the video-on-demand channel that is broadcast by headend 22 over multi-tier network 30. Ex. 1004, 4:25–31, 4:49–56, Figs. 1, 10. Patent Owner does not contest Dunn discloses this limitation. *See* PO. Resp. 27–32.

Claim 1 further requires the set-top box to reproduce the stream of audio data in the received media channel for a user to hear. Ex. 1001, 16:20–22. Petitioner demonstrates where Dunn discloses this limitation. *See* Pet. 22–23. In particular, Dunn discloses STB 26 receives and plays the audio component of preview videos on a TV or other video display device. Ex. 1004, 2:59–65, 3:22–32, 4:25–32, 6:19–30, Fig. 1. According to Dr. Shamos, a television program (e.g., a preview video) contains both audio and video data, and when the video portion is displayed on the television, the corresponding audio portion is simultaneously played for a user to hear. *Id.* at 22 (citing Ex. 1003 ¶ 39). We agree. Patent Owner does not contest Dunn discloses this limitation. *See* PO. Resp. 27–32.

Claim 1 further requires the set-top box to display the stream of video data in the received media channel for the user to see. Ex. 1001, 16:23–25. Petitioner demonstrates where Dunn discloses this limitation. *See* Pet. 23. In particular, Dunn’s STB 26 receives and plays the video component of preview videos on a TV or other video display device. Ex. 1004, 2:59–65,

3:22–32, 4:25–32, 6:19–30, Fig. 1. Patent Owner does not contest Dunn discloses this limitation. *See* PO. Resp. 27–32.

Claim 1 further requires the set-top box to receive an identifier for an on-demand video while displaying the stream of video data included in the received media channel. Ex. 1001, 16:26–30. Petitioner demonstrates where Dunn discloses this limitation. Pet. 23–27. In particular, Dunn’s STB 26 receives a program data record from database 46 in headend 22 that includes the program IDs or monikers of on-demand videos corresponding to previewed videos. Ex. 1004, 3:35–41, 4:49–56, 5:24–52, 6:31–46, 6:62–65, 8:63–9:12, Figs. 1, 2, 4. Patent Owner does not contest Dunn discloses this limitation. *See* PO. Resp. 27–32.

Claim 1 further requires the set-top box to display, as a result of receiving the on-demand video identifier, a user selectable element for requesting the on-demand video together with a portion of the video corresponding to the stream of video data. Ex. 1001, 16:31–39. Petitioner argues Dunn discloses this limitation. Pet. 27–32 (citing Ex. 1004, 7:35–8:35, 8:55–9:12, Fig. 4). In particular, Petitioner argues Dunn’s “order” button for ordering an on-demand video is a user selectable element for requesting an on-demand video that is displayed together with a preview video (i.e., a portion of the video corresponding to the stream of video data). *Id.* Petitioner argues Dunn’s “order” button is displayed as a result of receiving the on-demand video identifier because it is configured to order the on-demand video that corresponds to the currently displayed preview video. *Id.* Patent Owner does not contest Dunn discloses this limitation. *See* PO. Resp. 27–32.

We are persuaded that Petitioner has demonstrated that Dunn discloses displaying a user selectable element for requesting an on-demand video together with a preview of the video as a result of receiving the identifier of the on-demand video. Dunn discloses a user activates a video-on-demand application by tuning to the video-on-demand channel. Ex. 1004, 6:66–7:2. Upon doing so, the STB or “user interface unit . . . receives the schedule of previews that has been computed by video processing unit 48 [of headend 22], as well as other information pertaining to the previews, such as title, run length, rating, price, and so forth.” *Id.* at 4:25–30, 5:54–66, 7:12–15. The “other information” received by the STB includes the program IDs of the preview videos, including the currently previewed video, which are “initially supplied to the STB as part of the schedule information obtained . . . when the VOD application is initiated.” *Id.* at 9:2–8. Consequently, “[w]hen a particular [preview] trailer is displayed, the STB simultaneously displays some of the information pertaining to the program. For instance, the title and pricing can be overlaid on the video clip.” *Id.* at 7:16–21. This is shown, for example, in Figure 4 of Dunn, where the preview video is shown simultaneously with “title, price, and rating” 92, and “order” button 86. *Id.* at 8:55–59, Fig. 4. “The ‘order’ button 86 enables the user to order a video content program that corresponds to the displayed analog preview video trailer.” *Id.* at 8:63–65. When the “order” button is selected, STB 26 sends a message to headend 22 that includes the program ID of the on-demand video corresponding to the currently displayed preview video. *Id.* at 8:66–9:5.

Lastly, claim 1 requires the set-top box to transmit a request message to the on-demand video system in response to the user selecting the user

selectable element, thereby causing the on-demand video system to transmit the on-demand video to the set-top-box. Ex. 1001, 16:40–44. Petitioner demonstrates where Dunn discloses this limitation. See Pet. 32–33. In particular, as discussed above, when a user selects “order” button 86, STB 26 sends a message to headend 22 that includes the program ID of the on-demand video corresponding to the currently displayed preview video. Ex. 1004, 8:66–9:5. Headend 22 uses the program ID “to retrieve the full length video content program,” and “transmits the full length video content program . . . to the STB that ordered the program.” *Id.* at 9:8–9:12. Patent Owner does not contest Dunn discloses this limitation. See PO Resp. 27–32.

On the record before us, having considered all of the evidence and arguments presented by Petitioner and Patent Owner, we find for the reasons discussed above that Petitioner has demonstrated, by a preponderance of evidence, that Dunn discloses all the limitations of claim 1, and that claim 1 is unpatentable as anticipated by Dunn.

3. Claim 6

As discussed in § II.A, *supra*, claim 6 is similar in scope to claim 1, and recites a method for providing an on-demand service using a set-top box having the functionality of the set-top box recited in claim 1. *Compare* Ex. 1001, 16:8–44, *with id.* at 16:59–17:25. Petitioner maps the functional limitations required by method claim 6 to the functions performed by the set-top box required by claim 1, and relies on its analysis of the functions performed by the set-top box of claim 1, as discussed above, to argue Dunn anticipates claim 6 for the same reasons Dunn anticipates claim 1. See Pet. 33–43.

Patent Owner argues Petitioner has failed to demonstrate Dunn discloses “receiving a media channel comprising a stream of audio and video data,” as required by claim 6, for the same reasons discussed above with respect to claim 1. PO Resp. 27–32. We find Patent Owner’s argument unpersuasive for the same reasons discussed above with respect to claim 1.

Accordingly, on the record before us and for the reasons explained in § II.C.2.a, *supra*, we find Petitioner has demonstrated, by a preponderance of evidence, that claim 6 is unpatentable as anticipated by Dunn for the same reasons Petitioner has demonstrated that claim 1 is unpatentable as anticipated by Dunn.

4. Claim 14

As discussed in § II.A, *supra*, claims 6 and 14 are similar in scope. Claim 6 requires a set-top box to display, as a result of receiving on-demand video information that includes a video identifier, a selectable element that allows a user to request an on-demand video. Ex. 1001, 16:59–17:25. Claim 14 differs in scope from claim 6 by requiring the selectable element displayed by the set-top box as a result of receiving on-demand video information to instead allow a user to request information identifying a set of on-demand videos. *Id.* at 18:28–55.

Petitioner fails to show, by a preponderance of evidence, that Dunn discloses this limitation. Petitioner argues Dunn does so by displaying “viewer list” 108 in Dunn’s video-on-demand user interface screen 100. Pet. 45–48 (citing Ex. 1004, 9:13–10:48, Figs. 5–6). Petitioner argues that when “viewer list” 108 is selected, Dunn displays “a user’s personalized list of available on-demand videos.” *Id.* at 47. Petitioner, however, ignores claim 14’s requirement that the selectable element must be displayed in

response to receiving on-demand video information. Dunn discloses displaying user interface screen 80, which contains the selectable elements “order” 86, “choices” 88, “add to list” 90, and “up/down” 92, when a user first tunes to the video-on-demand channel. Ex. 1004, 8:46–9:35, Fig. 4. These elements are displayed upon initialization of user interface screen 80, when Dunn’s STB receives video information from headend 22 in the form of scheduling information. *Id.* at 9:2–10. By contrast, Dunn displays user interface screen 100, which contains the selectable element “viewer list” 108, when a user selects “choices” 88 in user interface screen 80. *Id.* at 10:20–30, Figs. 4–5. Thus, Dunn displays the selectable element “viewer list” 108 as a result of receiving a user’s selection of selectable element “choices” 88, rather than as a result of receiving on-demand video information as required by claim 14.

Accordingly, for the reasons discussed above, we find Petitioner has failed to demonstrate, by a preponderance of evidence, that claim 14 is unpatentable as anticipated by Dunn.

D. Patentability of claims 10–12

Petitioner argues claims 10–12 are unpatentable as obvious over the combination of Dunn and McElhatten. *See* Pet. 60–74.

1. Overview of McElhatten

McElhatten discloses a broadband cable communications system that includes a cable headend and set-top box capable of running an interactive programming guide (IPG) that allows users to access entertainment programs stored at the headend. Ex. 1005, 1:12–16, Abstract.

McElhatten’s IPG allows a user to select an “on-demand” feature, which causes a user interface (UI) to be displayed that allows the user to

select any of a number of on-demand channels, including “premium movie channels . . . specialized channels (such as music, music videos, weather, and the like) and ‘Free’ channels (such as CNN, A&E, and the like).” *Id.* at 24:60–25:7, Fig. 22. When a user selects a “Music On Demand” channel, the IPG displays a UI that allows the user to search for music videos by categories including title, recording artist, type of music (e.g., jazz, rock, classical), time period (e.g., 60’s, 70’s, 80’s), and associated subcategories. *Id.* at 33:31–37, Fig. 32. When the user selects and plays an on-demand music video, the UI displays interactive elements that allow the user to buy or rent the video, the song for which the video was made, the compact disc (CD) on which that song appears, and so forth. *Id.* at 33:37–42, Fig. 32.

McElhatten’s IPG also allows a user to select a “What’s Hot” feature that presents the user with a list of programs, products, or services that are currently in high demand. Ex. 1005, 32:1–5, Fig. 30.

2. Rationale for Combining Dunn and McElhatten

Petitioner argues Dunn discloses an interactive entertainment system that allows a user to preview, search for, select, and order videos in an on-demand video channel using GUI elements or icons, but doesn’t explicitly disclose the on-demand videos can be music videos, the on-demand channel can be a music video channel, or searching for videos by category and sub-category. Pet. 55–58. However, relying on the testimony of Dr. Shamos, Petitioner argues it was well known to persons of ordinary skill in the art that a catalog of resources such as books and music could be organized and subsequently searched for by category and sub-category. *Id.* at 56 (citing Ex. 1003 ¶¶ 70–71). For example, Petitioner argues this was a well-known way to organize and search for books in a book store, videos in a video store,

or records in a record store. *Id.* Therefore, Petitioner argues, it would have been a simple and obvious design choice to modify Dunn to allow for videos to be organized and searched for by category and subcategory as shown, for example, by McElhatten. *Id.* at 58.

Petitioner argues McElhatten discloses an interactive entertainment system in which on-demand videos are first organized into separate channels (e.g., music, music video, weather, and HBO channels) within which the videos can be searched for by category and sub-category. Pet. 58. Petitioner argues a person of ordinary skill in the art would have found it obvious to incorporate these teachings of McElhatten into Dunn in order to provide additional levels of organizing and categorizing Dunn's on-demand videos. *Id.* Relying on the testimony of Dr. Shamos, Petitioner argues a person of ordinary skill in the art would have modified Dunn in this manner, based on the teachings of McElhatten, to provide an efficient way to navigate through and make selections in a large catalog of content. *Id.*

Patent Owner does not challenge Petitioner's rationale for combining the teachings of Dunn and McElhatten. See PO Resp. 32–33. We find Petitioner has set forth sufficient reasoning to combine the teachings of Dunn and McElhatten as described above.

3. Claim 10

Claim 10 depends from claim 6, and requires “causing the client system to display a second selectable element” and “providing information to the client system that causes the client system to transmit to the on-demand system information indicating that the second element was selected.” Ex. 1001, 17:41–47.

Petitioner demonstrates that the combination of Dunn and McElhatten teaches these limitations. See Pet. 60–63 (citing Ex. 1004, 9:21–28, 10:20–47, Figs. 4–6). In particular, Figures 4–6 of Dunn disclose displaying a first selectable element (e.g., “order” 86) and a number of second selectable element (e.g., “choices” 88, “add to list” 90, “viewer list” 108), and sending information to the on-demand system when a second selectable element is selected. Ex. 1004, 9:21–28, 10:20–47, Figs. 4–6. For example, when a user selects “add to list” 90, “the program ID of the video content program associated with the presently displayed trailer is added to the customized view list. The list is kept at the headend in the program information database.” Ex. 1004, 9:23–28. Thus, selecting “add to list” 90 results in the client system sending the program ID to Dunn’s headend, thereby indicating that “add to list” 90 has been selected. *Id.* at 11:61–65.

Relying on the testimony of Dr. Shamos, Petitioner contends it would have been obvious to modify Dunn, based on the teachings of McElhatten, “to use different selectable elements than those shown in FIG. 4 [of Dunn] to facilitate selection of various on-demand media . . . as well as categories within each type” of media (e.g., movies or music videos). Pet. 60 (citing Ex. 1003 ¶¶ 83–84). Patent Owner does not dispute that the combination of Dunn and McElhatten discloses these limitations. See PO Resp. 32–33.

Claim 10 further requires the on-demand system to transmit to the client system, in response to selection of the second selectable element, information identifying a set of videos that are associated with a format associated with the broadcast media channel isolated by the client system when the user selected the second element. Ex. 1001, 17:48–54. As discussed in § II.B.1, *supra*, the meaning of this limitation is ambiguous

because “the format associated with the broadcast media channel” can refer to (a) the format of the media channel to which the client system is currently tuned, or (b) the format of the media channel that is isolated when the second selectable element is selected. Patent Owner argues interpretation (a) is the correct interpretation and Petitioner does not dispute this. PO Resp. 9; Reply 2–3.

Petitioner demonstrates the combination of Dunn and McElhatten teaches this limitation at least under interpretation (a). In particular, Petitioner demonstrates that Dunn teaches allowing the user to select and receive a set of videos from the headend that are associated with a category (e.g., “westerns”) by selecting a second selectable element (e.g., “choices” 88). Pet. 66 (citing Ex. 1004, 9:13–20). Relying on the testimony of Dr. Shamos, Petitioner argues that although Dunn does not disclose broadcasting different types of content on different channels, doing so would have been obvious because it would have been a simple, well-known, design choice. *Id.* at 66 (citing Ex. 1003 ¶ 89). For example, McElhatten teaches providing different types of content on different channels. *Id.* at 66–67 (citing Ex. 1005, 24:60–25:7, Fig. 22). Therefore, Petitioner argues, a person skilled in the art would have modified Dunn, based on the teachings of McElhatten, so that a user searching for a category of videos (e.g., Madonna videos) would have performed the search using a second selectable element while tuned to an on-demand “pop” music video channel, and Dunn’s headend would have returned a set of Madonna videos having a format associated with that “pop” music video channel. *Id.* at 67 (citing Ex. 1003 ¶ 90). Patent Owner does not dispute Petitioner’s contentions. PO Resp. 32–33.

We agree with and adopt Petitioner's contentions regarding claim 10, and find Petitioner has demonstrated by a preponderance of evidence that claim 10 is unpatentable over the combination of Dunn and McElhatten.

4. Claim 11

Claim 11 depends from claim 6, and like claim 10 requires “causing the client system to display a second selectable element” and “providing information to the client system that causes the client system to transmit to the on-demand system information indicating that the second element was selected.” *Compare* Ex. 1001, 17:41–46, *with id.* at 17:55–61. Petitioner relies on its analysis of claim 10 to demonstrate the combination of Dunn and McElhatten teaches these limitations. *See* Pet. 68–69. We agree for the reasons discussed above regarding claim 10.

Claim 11 further requires the on-demand system to transmit to the client system, in response to selection of the second selectable element, information indicating a set of popular music videos within an area in which the client system is located. Ex. 1001, 17:62–18:3. Petitioner demonstrates how the combination of Dunn and McElhatten teaches this limitation. *See* Pet. 69–71. In particular, Petitioner demonstrates that McElhatten teaches a “What’s Hot” icon that “offers users convenient access to programs, products, and services that are or [are] expected to be in popular demand.” *Id.* at 69 (quoting Ex. 1005, 32:3–13). Relying on the testimony of Dr. Shamos, Petitioner argues that a person skilled in the art would have known that selecting the “What’s Hot” icon when tuned to a particular type of media channel (e.g., a “pop” music channel) would have resulted in Dunn’s headend providing a set of the most popular videos having the format of that media channel. *Id.* at 70 (citing Ex. 1003 ¶¶ 93–95).

Moreover, the received set of videos would have been most popular in an area in which the user is located, such as the area covered by the media service provider. *Id.* at 70–71. Patent Owner does not dispute Petitioner’s contentions. *See* PO Resp. 32–33.

We agree with and adopt Petitioner’s contentions regarding claim 11, and find Petitioner has demonstrated by a preponderance of evidence that claim 11 is unpatentable over the combination of Dunn and McElhatten.

5. *Claim 12*

Claim 12 depends from claim 6, and like claim 10 requires “causing the client system to display a second selectable element” and “providing information to the client system that causes the client system to transmit to the on-demand system information indicating that the second element was selected.” *Compare* Ex. 1001, 17:41–46, *with id.* at 18:4–10. Petitioner relies on its analysis of claim 10 to demonstrate the combination of Dunn and McElhatten teaches these limitations. *See* Pet. 68–69. We agree for the reasons discussed above regarding claim 10.

Claim 12 further requires the on-demand system to transmit to the client system, in response to the selection of the second selectable element, information identifying a set of sub-categories associated with a format associated with the broadcast media channel isolated by the client system when the user selected the second selectable element. Ex. 1001, 18:11–17.

As discussed in §§ II.B.1 and II.D.3, *supra*, the meaning of this limitation is ambiguous, but the parties agree the meaning includes identifying a set of sub-categories associated with the format of the media channel to which the client system is currently tuned. *See* PO Resp. 9; Reply 2–3. Petitioner demonstrates the combination of Dunn and

McElhatten teaches this limitation under at least this construction. Relying on the testimony of Dr. Shamos, Petitioner contends a person skilled in the art would have found it obvious to use different selectable elements than those shown in Figure 4 of Dunn to facilitate the selection of on-demand media. Pet. 72 (citing Ex. 1003 ¶¶ 99–105). Thus, Petitioner argues, a person skilled in the art would have modified Dunn per the teachings of McElhatten to make additional controls available to users to allow users to “select a type of on-demand content, such as movies, TV shows, music videos, and the like, then be presented with further sub-options in a categorical manner.” *Id.* at 73. In this way, a user tuned to McElhatten’s music video channel (i.e., “Music on Demand”) could be presented with a selectable element to select a “musical category” (e.g., “pop”), and upon selecting that musical category could be presented with a set of “sub-categories,” such as the names of “pop” artists (e.g., Madonna) whose content has a format associated with the format of the musical video channel (i.e., music videos). *Id.* at 73–74. Patent Owner does not dispute Petitioner’s contentions. See PO Resp. 32–33.

We agree with and adopt Petitioner’s contentions regarding claim 12, and find Petitioner has demonstrated by a preponderance of evidence that claim 12 is unpatentable over the combination of Dunn and McElhatten.

E. Patent Owner’s Motion to Exclude

Patent Owner moves to exclude certain portions of Exhibit 2003, the deposition transcript of Dr. Shamos, namely, portions of Dr. Shamos’s redirect testimony. Paper 30 (“Mot”), 1 (seeking exclusion of Ex. 2003, 49:11–15, 50:3–6). Patent Owner argues these portions of Dr. Shamos’s testimony should be excluded pursuant to Fed. R. Evid. § 611(c) because

they were provided in response to questions from Petitioner’s counsel that followed up on an earlier leading question. *Id.* at 4 (“Counsel for Petitioner admitted that he led the witness with his original question, and then he ‘corrected’ the question. But the damage was done; the toothpaste was already out of the tube.”).

We dismiss Patent Owner’s motion to exclude as moot because our analysis of the patentability of the challenged claims does not rely upon the portions of Dr. Shamos’s testimony that Patent Owner seeks to exclude.

III. CONCLUSION

We have reviewed the Petition, Patent Owner’s Response, and Petitioner’s Reply. We have considered all of the evidence and arguments presented by Petitioner and Patent Owner, and have weighed and assessed the entirety of the evidence as a whole. We find, on this record, Petitioner has demonstrated by a preponderance of evidence that claims 1 and 6 of the ’121 patent are unpatentable as anticipated by Dunn, and that claims 10–12 of the ’121 patent are unpatentable as obvious over the combination of Dunn and McElhatten. Petitioner, however, has not demonstrated by a preponderance of evidence that claim 14 of the ’121 patent is unpatentable as anticipated by Dunn.

IV. ORDER

It is hereby:

ORDERED that claims 1 and 6 of the '121 patent have been shown to be unpatentable under 35 U.S.C. § 102(b) as anticipated by Dunn;

FURTHER ORDERED that claims 10–12 of the '121 patent have been shown to be unpatentable under 35 U.S.C. § 103(a) as obvious over Dunn and McElhatten;

FURTHER ORDERED that claim 14 of the '121 patent has not been shown to be unpatentable under 35 U.S.C. § 102(b) as anticipated by Dunn;

FURTHER ORDERED that claims 1, 6, and 10–12 of the '121 patent are *cancelled*;

FURTHER ORDERED that Patent Owner's motion to exclude is *dismissed as moot*; and

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

IPR2017-01450
Patent 9,414,121 B1

For PETITIONER:

Heath J. Briggs
Joshua L. Raskin
GREENBERG TRAURIG, LLP
briggsh@gtlaw.com
raskinj@gtlaw.com

For PATENT OWNER:

Brian S. Rosenbloom
Martin M. Zoltick
Michael V. Battaglia
Jennifer B. Maisel
ROTHWELL, FIGG, ERNST, & MANBECK, P.C.
brosenbloom@rfem.com
mzoltick@rfem.com
mbattaglia@rfem.com
jmaisel@rfem.com