

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STINGRAY DIGITAL GROUP INC.,
Petitioner,

v.

MUSIC CHOICE,
Patent Owner.

Case IPR2017-00888
Patent 7,320,025 B1

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

WEATHERLY, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. BACKGROUND

Stingray Digital Group Inc. (“Petitioner”) filed a petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 1, 3, 4, and 8 (the “challenged claims”) of U.S. Patent No. 7,320,025 B1 (Ex. 1001, “the ’025 patent”). 35 U.S.C. § 311. Music Choice (“Patent Owner”) timely filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). On September 21,

2017, based on the record before us at the time, we instituted an *inter partes* review of claims 1, 3, 4, and 8. Paper 7 (“Institution Decision” or “Dec.”).

We instituted the review on the following challenges to the claims:

References	Basis	Claims challenged
International Patent Publication WO 00/19662 (Ex. 1004, “Mackintosh”) and Hallier, J., Multimedia Broadcasting to mobile, portable and fixed Receivers using the Eureka 147 Digital Audio Broadcasting System; Proceedings of the 5th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, The Hague, The Netherlands, Sept. 18–22, 1994 (Ex. 1006, “Hallier”)	§ 103	1, 3, and 4
U.S. Patent Application Publication No. 2002/0078456 A1 (Ex. 1005, “Hudson”)	§ 102(b)	8

After we instituted this review, Patent Owner filed a Patent Owner Response in opposition to the Petition (Paper 19, “PO Resp.”) that was supported by a Declaration from Samuel Russ, Ph.D. (Ex. 2001). Petitioner filed a Reply in support of the Petition (Paper 27, “Reply”) that was supported by a Reply Declaration of Michael Shamos, Ph.D. (Ex. 1010). Patent Owner did not move to amend any claim of the ’025 patent.

We heard oral argument on June 19, 2018. A transcript of the argument has been entered in the record (Paper 36, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). The evidentiary standard is a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons expressed below, we conclude that Petitioner has demonstrated by a preponderance of evidence that claims 1, 3, and 4 are unpatentable, but it has failed to do so for claim 8.

B. RELATED PROCEEDINGS

The parties identified as a related proceeding the co-pending district court litigation of *Music Choice v. Stingray Digital Group, Inc.*, No. 2:16-cv-00586-JRG-RSP (E.D. Tex. June 6, 2016). Pet. 1; Paper 5, 2. Patent Owner identifies a number of other applications, patents, or proceedings as being related to this proceeding, including:

- a. *Stingray Digital Group Inc. v. Music Choice*, IPR2017-01191 (PTAB), involving related U.S. Patent No. 9,351,045;
- b. *Music Choice v. Stingray Digital Group Inc. and Stingray Music USA, Inc.*, Case No. 2:16-cv-00586-JRG-RSP (E.D. Tex.);
- c. U.S. Patent Application Serial Number 10/098,620, issued as U.S. Patent No. 7,783,722 on August 24, 2010;
- d. U.S. Patent Application Serial Number 60/390,312, filed on June 21, 2002 (Expired);
- e. U.S. Patent Application Serial Number 60/395,360, filed on July 12, 2002 (Expired);
- f. U.S. Patent Application Serial Number 10/339,425, issued as U.S. Patent No. 7,325,043 on January 29, 2008;
- g. U.S. Patent Application Serial Number 60/612,618, filed on September 24, 2004 (Expired);
- h. U.S. Patent Application Serial Number 11/963,164, issued as U.S. Patent No. 8,166,133 on April 24, 2012;

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- i. U.S. Patent Application Serial Number 13/453,826, filed on April 23, 2012 (Abandoned);
- j. U.S. Patent Application Serial Number 14/153,872, filed on January 13, 2014 (Abandoned);
- k. U.S. Patent Application Serial Number 14/635,483, issued as U.S. Patent No. 9,351,045 on May 24, 2016;
- l. U.S. Patent Application Serial Number 15/162,259, filed on May 23, 2016 (Abandoned); and
- m. U.S. Patent Application Serial Number 15/485,417, filed on April 12, 2017 (Pending).

Paper 5, 2–3.

C. THE '025 PATENT

The '025 patent relates to “broadcast, on-demand and/or personalized entertainment and information systems.” Ex. 1001, 1:24–25. Figure 1, reproduced at right, is a block diagram illustrating an embodiment of system 100. System 100 may include distribution center 104 with “one or more broadcast

signal receiving systems 120 for receiving signals transmitted from broadcast media source 102,” as well as a “transmission system 122 for combining an output of signal receiving systems 120 and on-demand channels outputted by on-demand system 192 to generate a combined signal 125” for transmission to a plurality of client systems 110. *Id.* at 4:37–46.

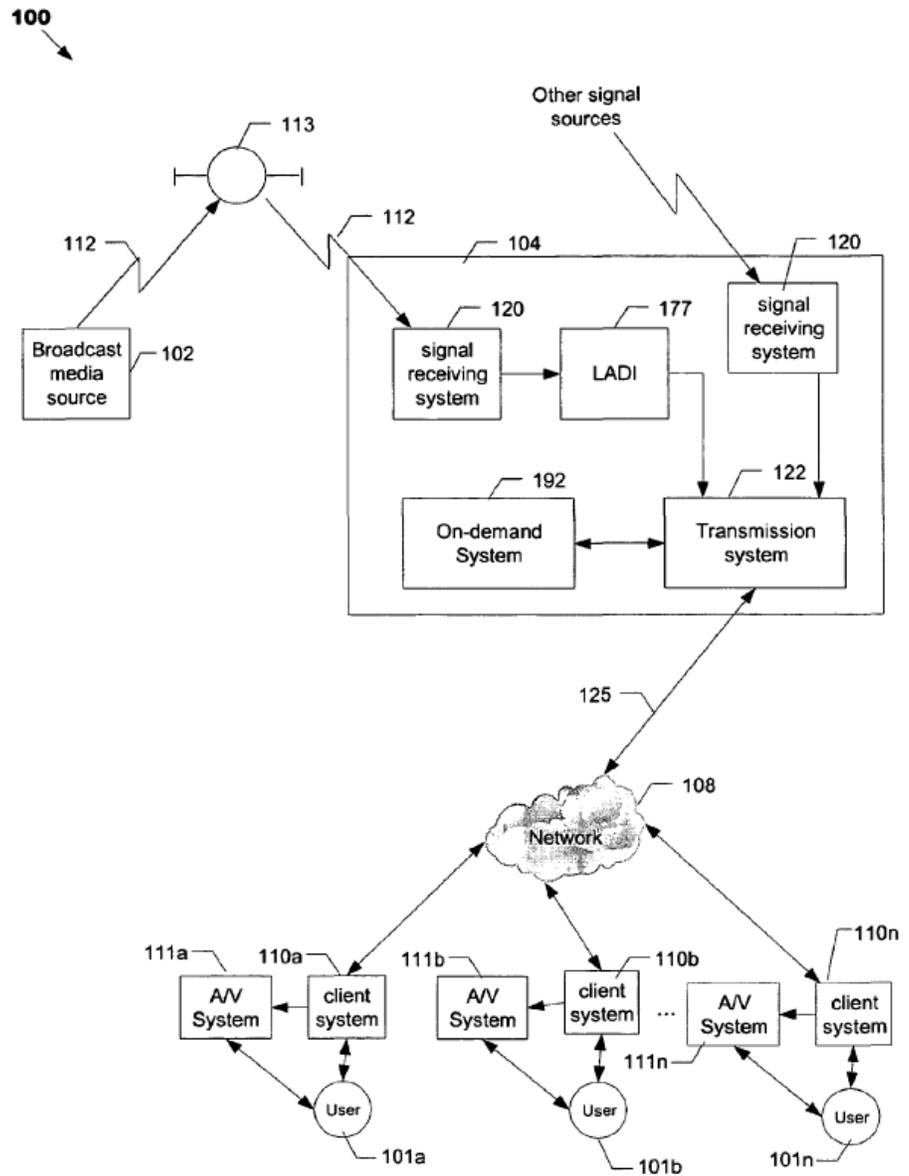


FIG. 1

“[M]edia source 102 transmits to the distribution centers 104 audio data corresponding to a song, video data to complement the audio data, and client application data,” and each “distribution center 104 may retransmit some or all of this data to a plurality of client systems 110.” *Id.*

at 5:45–50. “[T]he client application data may control at least part of the user interface displayed to the user 101,” as shown in Figure 3, which is reproduced at right. *Id.* at 5:57–58. “[V]ideo content” may

correspond to one or more “still images 302, 304 and text 306, 308 . . . all of which may be related to the current audio content of the broadcast channel.” *Id.* at 5:63–66. The “application data” may control the user interface to display one or more buttons, such as buttons 311, 312, 313, and 319, to enable a user to directly “link” from the broadcast content to on-demand content. *Id.* at 6:5–40, 8:26–46. To initiate the on-demand session, the “client system 110 may transmit to on-demand system 192 information identifying the button activated.” *Id.* at 6:38–46. Additionally, “activating a particular button may cause client system 110 to transmit to on-demand system 192 an asset

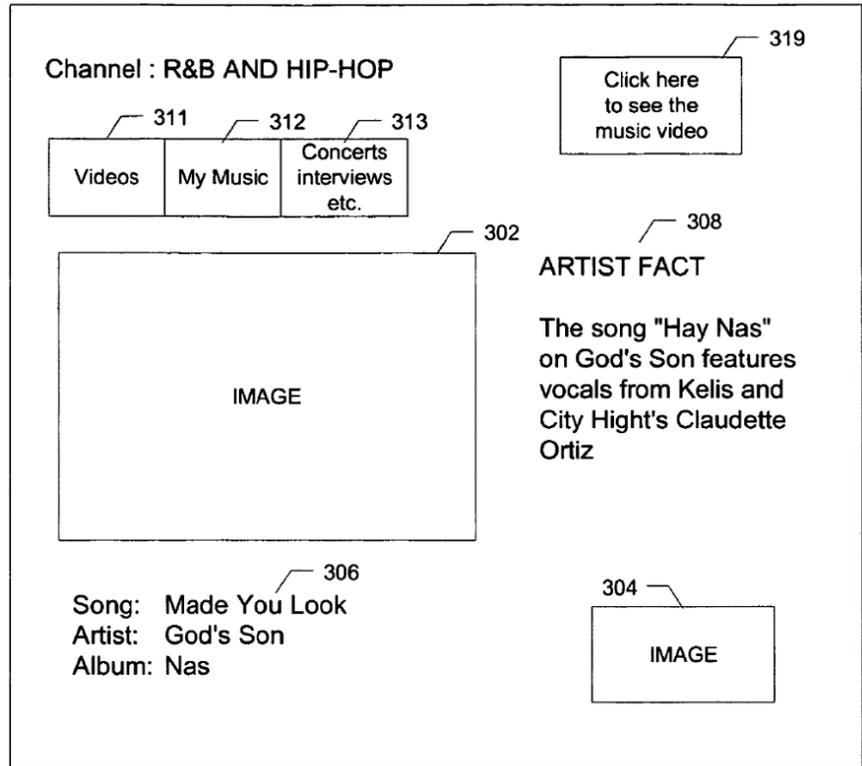


FIG. 3

identifier associated with an asset,” and “[i]n response to receiving the asset identifier, on-demand system 192 may cease the current asset and transmit the asset identified by the identifier.” *Id.* at 8:55–60.

Claims 1 and 8, which are the independent claims among the challenged claims, recite:

1. A method, comprising:

[a] configuring a client system to receive and play music broadcast from a broadcast media source through a broadcast channel;

[b] receiving application data at the client system, the application data including a video identifier identifying a video, wherein the application data is transmitted with the broadcast music;

[c] while the client system is playing the broadcast music, (a) enabling a user of the client system to indicate that the user desires to view the video and (b) receiving an indication that the user desires to view the video;

[d] in response to receiving the indication, [i] automatically ceasing the playing of the broadcast music, [ii] transmitting from the client system to an on-demand system the received video identifier, and establishing an on-demand session between the on-demand system and the client system; and

[e] after establishing the on-demand session, transmitting from the on-demand system to the client system the identified video, receiving the transmitted video at the client system, and automatically playing the received video in response to receiving the transmitted video from the on-demand system.

Id. at 16:41–64 (with the parties’ labeling indicated within square brackets).

8. A video-on-demand method comprising,

[a] receiving at an on-demand system information indicating that a user desires to view a selected video;

- [b] creating a playlist, wherein the playlist includes a plurality of media assets, including one media asset corresponding to the selected video;
- [c] transmitting to a client system a media asset listed in the playlist;
- [d] transmitting to the client system a video identifier while transmitting to the client system the media asset;
- [e] while the client system is playing the media asset, (a) enabling a user of the client system to indicate that the user desires to view the video identified by the video identifier and (b) receiving an indication that the user desires to view the video;
- [f] receiving from the client system a message including the video identifier, wherein the message is received while at least a portion of the media asset is being transmitted to the client system; and
- [g] in response to receiving the message from the client system, ceasing transmitting the media asset and transmitting the video identified by the video identifier.

Id. at 17:19–40 (with the parties’ labeling indicated within square brackets).

II. ANALYSIS

A. CLAIM INTERPRETATION

“A claim in an unexpired patent . . . shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016) (affirming that USPTO has statutory authority to construe claims according to Rule 42.100(b)). When applying that standard, we interpret the claim language as it would be understood by one of ordinary skill in the art in light of the specification, and absent any special definition, we give claim terms their ordinary and customary meaning. *See In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010); *In re*

Translogic Tech., Inc., 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“The ordinary and customary meaning is the meaning that the term would have to a person of ordinary skill in the art in question.” (internal quotation marks omitted)). Only terms which are in controversy need to be construed, and then 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).

We find it necessary only to resolve the parties’ dispute over whether the first two steps recited in claim 8 must be performed in the order in which they appear in the claim.¹ Patent Owner argues that the first two steps recited in claim 8 must be performed in the order recited. PO Resp. 11–12. Petitioner disagrees. Reply 5–6. The parties refer to these two steps as 8a and 8b. Pet. 37, 40; PO Resp. 11; Reply 5. Claim 8 recites these steps as follows:

- [a] receiving at an on-demand system information indicating that a user desires to view a selected video;
- [b] creating a playlist, wherein the playlist includes a plurality of media assets, including one media asset corresponding to the selected video;

Ex. 1001, 17:20–24.

Petitioner argues that we should follow the general rule that “[u]nless the steps of a method [claim] actually recite an order, the steps are not ordinarily construed to require one.” Reply 6 (quoting *Mformation Techs.*,

¹ In the Decision on Institution, we instructed the parties to brief the meaning of “video identifier” as recited in claims 1 and 8, and “a message including the video identifier” and “in response to receiving the message” as recited in claim 8. Dec. 23. The parties agreed upon the express meaning of all three phrases, PO Resp. 7–8; Reply 2, which we adopt for the purposes of this Final Written Decision.

Inc. v. Research in Motion Ltd., 764 F.3d 1392, 1398 (Fed. Cir. 2014)).

“However, a claim ‘requires an ordering of steps when the claim language, as a matter of logic or grammar, requires that the steps be performed in the order written, or the specification directly or implicitly requires’ an order of steps.” *Mformation*, 764 F.3d at 1398.

Here, the step of “creating a playlist” that includes an asset “corresponding to the selected video” logically requires completing the step of “receiving . . . information indicating that a user desires to view a selected video.” The “selected video” that must be included in the playlist created in step 8b is not determined until after step 8a is completed. Therefore, step 8a must be completed before step 8b is started.

Petitioner argues that claim 8 must be interpreted to cover an embodiment in which the user selects videos for a customized playlist, which are sent to the on-demand system and then later played back to the user. Reply 6 (citing Ex. 1001, 8:2–24). The cited portion of the Specification indicates that the selection of videos by user 101 is transmitted to system 192 in step 510 of Figure 5, which precedes step 512 in which “system 192 creates a playlist of media assets.” Ex. 1001, 8:13–16. The Specification also indicates that the “playlist includes the video(s) selected by the user 101 and zero or more other media assets. For example, the playlist may include one or more short advertisements in addition to the video(s) selected by the user 101.” *Id.* at 8:20–24. Although the playlist may include only those videos selected by the user, system 192 creates that playlist only after receiving information from user 101 regarding the selection of videos for inclusion in the playlist. *Id.* at 8:2–24.

For all these reasons, we conclude that steps 8a and 8b of claim 8 must be performed in the order recited.

B. THE PARTIES' POST-INSTITUTION ARGUMENTS

In our Institution Decision, we concluded that the argument and evidence adduced by Petitioner demonstrated a reasonable likelihood that claims 1, 3, 4, and 8 were unpatentable as anticipated or obvious based on the challenges identified in the table in Part I.A above. Dec. 22–23. We must now determine whether Petitioner has established by a preponderance of the evidence that the specified claims are unpatentable over the cited prior art. 35 U.S.C. § 316(e). In this connection, we previously instructed Patent Owner that “any arguments for patentability not raised in the [Patent Owner Response] will be deemed waived.” Paper 8, 6; *see also In re Nuvasive, Inc.*, 842 F.3d 1376, 1381 (Fed. Cir. 2016) (holding that patent owner’s failure to proffer argument at trial as instructed in scheduling order constitutes waiver). Additionally, the Board’s Trial Practice Guide states that the Patent Owner Response “should identify all the involved claims that are believed to be patentable and state the basis for that belief.” Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012).

C. LEGAL STANDARDS

Petitioner challenges the patentability of claims 1, 3, 4, and 8 on the grounds that the claims are either anticipated or obvious in light of various references including: Mackintosh, Hallier, and Hudson. To prevail in its challenges to the patentability of the claims, Petitioner must establish facts supporting its challenges by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it

challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. See *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), reaffirmed the framework for determining obviousness set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). The *KSR* Court summarized the four factual inquiries set forth in *Graham* that we apply in determining whether a claim is reasonably likely to be unpatentable as obvious under 35 U.S.C. § 103(a) as follows:

(1) determining the scope and content of the prior art, (2) ascertaining the differences between the prior art and the claims at issue, (3) resolving the level of ordinary skill in the pertinent art, and (4) considering objective evidence indicating obviousness or nonobviousness. *KSR*, 550 U.S. at 406 (citing *Graham*, 383 U.S. at 17–18). In an *inter partes* review, Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Thus, to prevail, Petitioner must explain how the proposed combinations of prior art would have rendered the challenged

claims unpatentable. With these standards in mind, we address each challenge below.

D. CLAIM 8: ANTICIPATION BY HUDSON

Petitioner contends that Hudson anticipates claim 8. Pet. 29–48. For the reasons stated below, we determine that Petitioner has failed to demonstrate that Hudson anticipates claim 8.

1. *Overview of Hudson*

Hudson relates to “a system and methods for creating and distributing interactive video content.” Ex. 1005 ¶ 6. Hudson describes providing “primary content” and “ancillary content” with the ancillary content being accessed by interacting with an interface link that is displayed while a user is viewing the primary content.

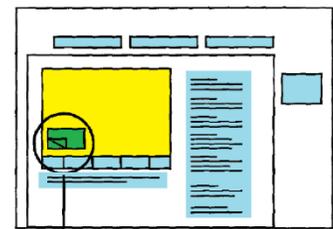
For example, if the user is watching a basketball game, and the user is interested in a particular shoe worn by a basketball player, the user may select the interface link associated with the basketball player’s shoe. Interacting with the interface link associated with the basketball shoe allows the user to access one or more pages of information or media content related to the shoe of interest, including retail information. During the user’s interaction with the interface link, the video stream is paused until the user returns to or continues the video stream delivery.

Id. ¶ 9. The ancillary content may be, for example, another video. *Id.* ¶ 25.

The interface links used to access ancillary content while viewing primary content may be embedded in and streamed with the primary video content.

Id. ¶ 30.

Petitioner describes one manner in which Hudson presents primary video content and the embedded link for accessing ancillary content in the colorized version of a portion of Hudson’s Figure 5, reproduced at right. Hudson



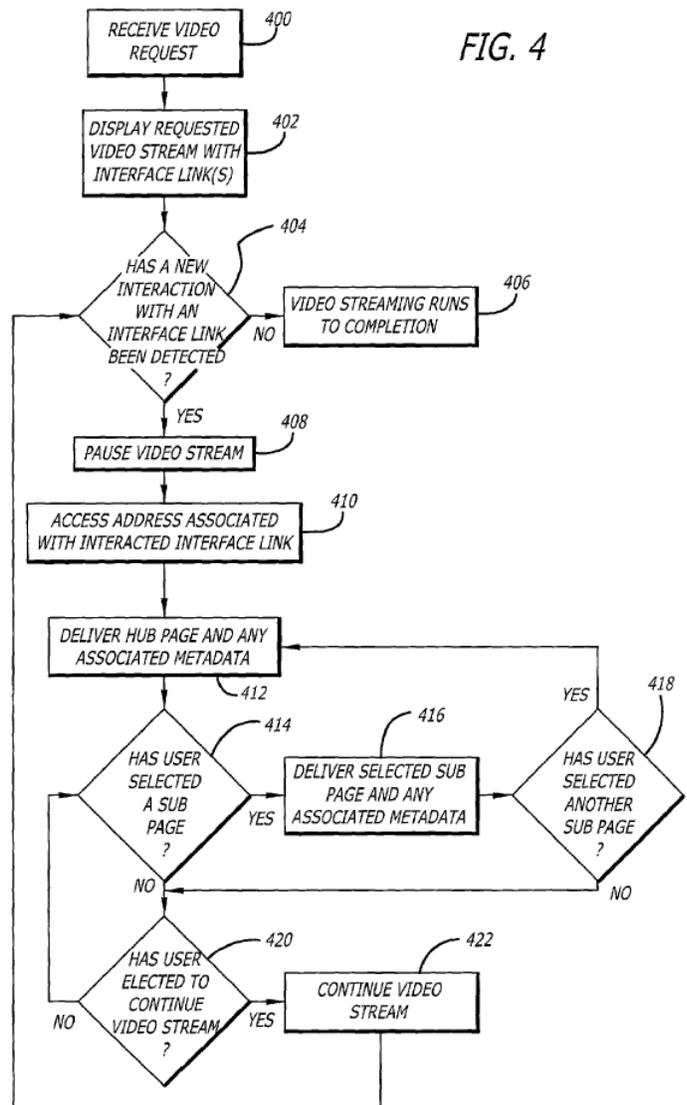
presents primary video content in the yellow rectangle along with an interface link (green) that is displayed as a “floating bug” on top of the primary video content. Pet. 39 (citing Ex. 1005 ¶¶ 24, 37, Figure 5). When the user clicks on the interface link (green), the primary video content is paused and ancillary content is displayed to the user. Ex. 1005 ¶¶ 25, 37, Figure 4.

Hudson explains the manner in which a user watching primary video content can interact with an interface link in connection with the logic flow diagram of Figure 4, which is reproduced below right, as follows:

If the user decides to interact with an interface link in step 404, then the user selects a desired interface link corresponding to an object of interest. . . . Once an interaction with the interface link has been detected, in step 408 the video stream is paused or interrupted.

[0038] In step 410, the IP address associated with the interacted interface link is accessed. . . . In step 412, a hub page and any associated metadata with the accessed address are delivered to the user.

[0039] . . . If the user decides not to select any further pages, then in step 420 the user may decide whether to continue the video stream in step 422.



Id. ¶¶ 37–39.

Hudson organizes its video content into “storyboards,” which are implemented using “hub pages” that include links to the video content. *Id.* ¶¶ 24, 26. Each “hub page” may also include links to “sub-pages” that a user may select to access content related to the primary content shown on the hub page. *Id.* ¶¶ 26, 38, 42. Once the storyboard is created and the hub and sub-pages reflecting the storyboard are generated, a user may navigate the storyboard in any order he desires. *Id.* ¶ 39.

2. *Analysis*

Patent Owner argues that Hudson fails to describe creating a playlist (step 8b) after the on-demand system receives information indicating that a user wishes to view a selected video (step 8a). PO Resp. 62–63. Petitioner contends that a “video (‘primary content’) is requested and played in a first page of a storyboard. Interface links in a storyboard page allow a user to select other videos or content (‘ancillary content’).” Pet. 40–41. Petitioner concludes that an ordinarily skilled artisan would understand that “when a user requests to view a video,” Hudson’s “system creates a playlist (‘storyboard’) for the user.” Pet. 41 (citing Ex. 1003 ¶¶ 51–57).

Patent Owner points out that Hudson distributes the video content associated with its storyboards to servers 106, 206 in step 360 before a user can select and view any primary or ancillary content. PO Resp. 63. Hudson illustrates its “method for creating interactive video content” in Figure 3, reproduced below. Ex. 1005 ¶ 17.

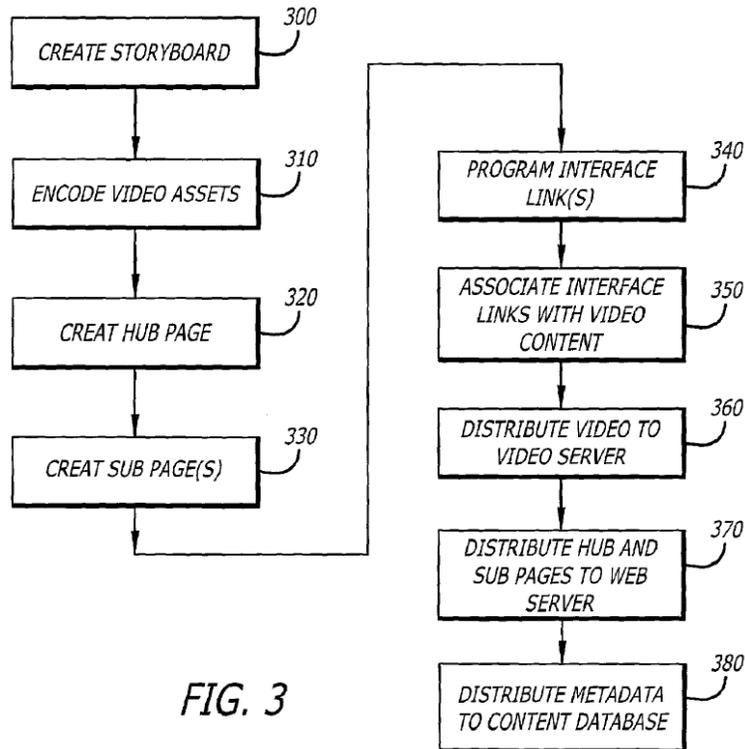


FIG. 3

Hudson's Figure 3 is a logic diagram setting forth the steps for creating interactive video content. *Id.* ¶ 24

Hudson creates a storyboard at step 300 and programs and associates interface links with each storyboard at steps 340, 350. *Id.* ¶ 29. Video content is distributed to video servers 106, 206 in step 360. *Id.* ¶ 35. Corresponding web pages with the interface links associated with the video content are distributed to web servers 108, 208 in step 370. *Id.*; *see also id.* ¶ 28 (“Hub pages and sub-pages may be stored, for example, on web server 108, 208.”) Users access media content by interacting with the interface links. *Id.* ¶ 37; *see also id.* Fig. 4 (illustrating logic for method of delivering interactive video content).

For the reasons expressed in Part II.A above, we conclude that claim 8 requires the first two steps of the claimed method to be performed in the order recited, which means that users select at least one video to view before

playlists are created containing the selected video. Under such an interpretation, Petitioner argues that Hudson describes the required order because Hudson expressly states that the steps illustrated in its Figures 3 and 4 may be performed in any order. Reply 20 (citing Ex. 1005 ¶ 35 (for Figure 3), ¶ 40 (for Figure 4)). However, Hudson's indications that steps can be performed in any order apply only to each of Figures 3 and 4 individually, and not to the combination of the two figures collectively.

In connection with its description of Figure 3, Hudson states “the aforementioned steps need not be performed in a particular order” followed by examples that apply only to steps mentioned in Figure 3. Ex. 1005 ¶ 35. Similarly, while describing Figure 4, Hudson states “the aforementioned steps need not occur in a particular order, or include all steps” followed by examples that apply only to steps mentioned in Figure 4. Ex. 1005 ¶ 40. Hudson never indicates that steps illustrated in Figure 4 may occur before steps illustrated in Figure 3. In Figure 3, Hudson illustrates how its system creates interactive video content, which necessarily must be completed before the steps for delivering interactive video content in Figure 4 are possible. For all these reasons, we determine that Petitioner has failed to establish that Hudson performs the first two steps of claim 8 in the order recited as required. Accordingly, we conclude that Petitioner has not shown by a preponderance of evidence that Hudson anticipates claim 8.

E. CLAIMS 1, 3, AND 4:

OBVIOUSNESS IN VIEW OF MACKINTOSH AND HALLIER

Petitioner contends the combination of Mackintosh and Hallier renders claims 1, 3, and 4 unpatentable as obvious. Pet. 8–29. For the reasons stated below, we determine that Petitioner has demonstrated by a

preponderance of evidence that the combination of Mackintosh and Hallier renders claims 1, 3, and 4 unpatentable as obvious.

1. Overview of Mackintosh

Mackintosh describes a system for delivering music such as a radio broadcast and supplemental content that may include video. Ex. 1004, 3:12–20.² In one embodiment, Mackintosh describes that supplemental materials can be shown on a user’s media player such as the one shown, for example, in Mackintosh’s Figure 7, which we reproduce below right. Mackintosh describes the exemplary player and user interface of Figure 7 as follows:

Data window 302³ provides a place to display supplemental information or materials retrieved from other servers such as data server 116 or supplemental server 120. For the example of the radio station as provided in Figure 5, data window 302 can include an album image 322, artist or album or track information 324, a buy now button 326, and additional information selection area 328. Data window 302 can be implemented to include other or additional information or supplemental materials as well.

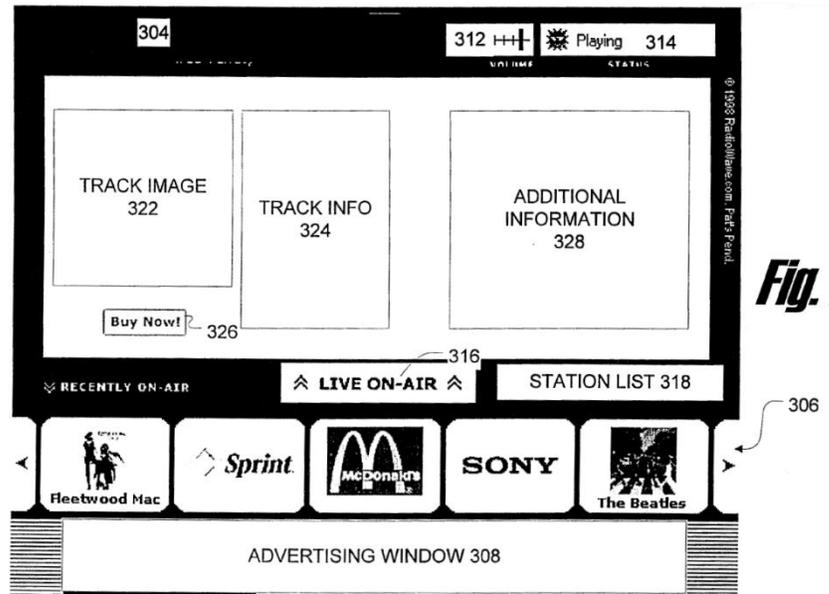


Fig. 7

² Citations to Exhibit 1004 refer to Mackintosh’s original page numbering.

³ Data window 302 is the unlabeled white rectangle in which elements 322, 324, 326, 328 are embedded. Ex. 1004, 16:13–15; Ex. 1003 ¶ 31.

Id. at 16:11–16. Mackintosh’s supplemental materials can include video clips among other types of media. *Id.* at 6:11–13.

2. *Overview of Hallier*

Hallier is a paper describing a digital audio broadcasting (“DAB”) system. Ex. 1006, Abstract. The DAB system simultaneously delivers audio, image, video, and other data content multiplexed into a single data stream of up to 1.728 Mbit/s bandwidth. *Id.* at 794.⁴

3. *Petitioner’s Arguments and Evidence*

Petitioner identifies in detail the portions of Mackintosh and Hallier that describe each limitation of claim 1. Pet. 8–48 (citing Ex. 1004, 3:5–4:1–22, 6:6–13, 7:10–15, 7:20–23, 8:18–24, 10:11–16, 10:31–32, 12:21–28, 13:11–14:5, 15:34–16:15, 17:13–26, 17:31–36, 30:1–8, Figures 7, 12; Ex. 1006, 794). Petitioner also supports its contentions with expert testimony from Dr. Shamos. *Id.* (citing Ex. 1003 ¶¶ 34–37, 44–47, 51–57). Petitioner relies on Mackintosh as describing or suggesting every element of claims 1, 3, and 4, except for the requirement that “the application data [including a video identifier] is transmitted with the broadcast music” as recited in the limitation referenced as 1b. *Id.* at 13, 16–29. Petitioner relies upon Hallier as describing multiplexing data, such as a video identifier, into a broadcast audio stream. *Id.* at 12–14, 17–19. Mackintosh suggests that video identifiers relating to the broadcast music “may be URLs that specify a music video or videos.” *Id.* at 18–19 (citing Ex. 1004, 13:11–27, 13:34–35); Reply 13 (citing Ex. 1003 ¶¶ 33–35).

⁴ Citations to Exhibit 1006 refer to Hallier’s original page numbering.

Petitioner acknowledges that Mackintosh does not expressly describe step 1d(i), “automatically ceasing the playing of the broadcast music,” but contends that an ordinarily skilled artisan would have considered it obvious to do so. *Id.* at 24–25 (citing Ex. 1003 ¶¶ 44–45, Ex. 1004, 13:28–33, 17:24–26). Petitioner also contends that an ordinarily skilled artisan would have found it obvious to modify Mackintosh to incorporate Hallier’s multiplexing method to avoid load-related problems that Mackintosh recognized in connection with its data server 214. *Id.* at 13–15.

Patent Owner summarizes the modifications that Petitioner proposes to Mackintosh based upon Hallier in a modified and annotated version of Mackintosh’s Figure 5, which we reproduce below.

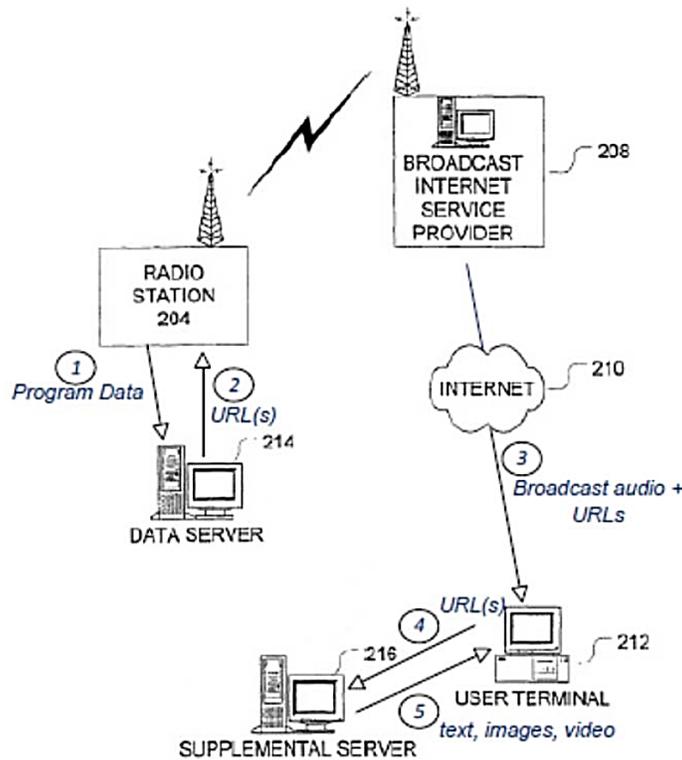


Fig. 5

Patent Owner’s annotated and modified version of Mackintosh’s Figure 5 illustrates the flow of broadcast audio with URLs to user terminals 212. PO Resp. 30; Ex. 2001 ¶ 75.

In the modified version of Mackintosh, radio station 204 retrieves URLs that refer to supplemental content that is related to the broadcast audio from data server 214. Radio station 204 multiplexes the broadcast audio with the URLs and sends the multiplexed data to ISP 208, which broadcasts the multiplexed data over internet 210 to user terminals 212. Pet. 17–19 (citing Ex. 1003 ¶¶ 34–37). Whenever a user indicates, via interaction with Mackintosh’s user interface, that the user wishes to see or hear supplemental content, user terminal 212 retrieves the supplemental content from supplemental server 216 using one of the URLs received in the audio stream.

4. Analysis of Patent Owner’s Counterarguments

Patent Owner argues that Petitioner’s challenges to claims 1, 3, and 4 fail for three reasons. PO Resp. 15–42. First, Patent Owner argues that Petitioner has failed to establish that either Mackintosh or Hallier describes “automatically ceasing the playing of the broadcast music” in response to receiving an indication that a user wants to view a video identified by a video identifier as recited in limitation 1d(i). *Id.* at 15–23. Second, Patent Owner argues that Petitioner has failed to provide a reason why an ordinarily skilled artisan would modify Mackintosh to multiplex a video identifier with the broadcast music as set forth in limitation 1b. *Id.* at 23–38. Third, Patent Owner argues that the proposed combination of Mackintosh and Hallier fails to describe transmitting a video identified by a user “after establishing an on-demand session,” as recited in element 1e. *Id.* at 38–42. We address each argument in turn below.

a) Limitation 1d(i)

Limitation 1d(i) recites: “automatically ceasing the playing of the broadcast music” after the user indicates that he wishes to view the video

identified by the video identifier. Ex. 1001, 16:53–54. Petitioner acknowledges that Mackintosh does not expressly describe ceasing the music playback but contends that Mackintosh suggests it to an ordinarily skilled artisan. Pet. 24–25. Mackintosh states that “supplemental materials [e.g., video] can be coordinated with the broadcast material” (i.e., audio). Ex. 1004, 13:28–33. Dr. Shamos testifies that a user would not want to listen to simultaneous playback of two audio tracks (i.e., broadcast music and a supplemental video with an audio track). Ex. 1003 ¶¶ 44–45.

Patent Owner argues that (1) Mackintosh expressly teaches simultaneously playing the broadcast with supplemental materials, PO Resp. 16, (2) an ordinarily skilled artisan has no motive to modify Mackintosh by preventing simultaneous playback to avoid annoying users, *id.* at 16–18, (3) Mackintosh already describes functionality that could permit a user to manually cease playback of the broadcast, *id.* at 18–20, and (4) modifying Mackintosh to prevent simultaneous playback of audio tracks would require substantial redesign that would lead to unpredictable results, *id.* at 20–23. For the reasons expressed below, none of Patent Owner’s arguments is persuasive.

(1) Simultaneous Playback of Broadcast Audio and Supplemental Materials by Mackintosh

Patent Owner contends that Mackintosh expressly teaches simultaneous playback of two audio tracks as follows:

In a step 234, user terminal 212 provides the retrieved supplemental materials to the user while the user is listening to the broadcast materials. This provision is generally referred to as “playing” the supplemental materials, regardless of whether the played materials are audio, video, still images, text or other data.

Id. at 16 (quoting Ex. 1004, 13:28–31) (emphases by Patent Owner). The next sentence in Mackintosh states: “Because the supplemental materials can be retrieved based on the program data associated with a current segment, the supplemental materials can be coordinated with the broadcast material.” Ex. 1004, 13:31–33. Petitioner relies upon the last quoted sentence as suggesting to an ordinarily skilled artisan that Mackintosh would coordinate playback of supplemental audio with broadcast audio by automatically pausing playback of the broadcast audio so that a user would be able to hear the supplemental audio. Pet. 24–25 (citing Ex. 1003 ¶¶ 44–45); Reply 7–8 (citing Ex. 1010 ¶¶ 11–14).

(2) Motivation to Modify Mackintosh to Pause Broadcast Audio to Permit Playback of Supplemental Audio

Patent Owner argues that, because Mackintosh expressly describes examples in which a user would want simultaneous playback of supplemental material, an ordinarily skilled artisan would not be motivated to pause broadcast audio in favor of supplemental audio. *Id.* at 18 (citing Ex. 1004, 14:6–10 (simultaneous display of “advertising information”), 16:22–29 (simultaneous display of album art), 16:30–34 (displaying “an *image* . . . that the advertiser would like listeners to be able to *view* upon *hearing* the advertisement” (emphasis added)), 17:13–20 (simultaneous display of lyrics)). This argument is not persuasive because none of these examples address simultaneous playback of two audio tracks.

Mackintosh does provide one example that would involve simultaneous playback of two audio tracks. In particular, Mackintosh indicates that if a user “is particularly fond of the selection being played” in the broadcast, then the user may “click to select sample sound tracks from various other artists” so that the user can “hear [the] brief sample.” *Id.*

at 19:13–21. We agree with Dr. Shamos that “even a layperson, would have recognized that playing a video [or sample sound track] . . . while broadcast music was playing at the same time would have been annoying.” Ex. 1003 ¶ 44. Consequently, a person skilled in the art would have understood that viewing supplemental videos or listening to samples of related sound tracks “would take precedence over the broadcast music.” *Id.* “A person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR*, 550 U.S. at 421.

(3) Whether Mackintosh Suggests Automatically Ceasing Playback of Broadcast Material

Patent Owner argues, based solely upon Dr. Russ’s testimony, that an ordinarily skilled artisan would not automatically cease playback of broadcast audio in favor of supplemental audio because Mackintosh’s user would simply use Mackintosh’s volume and mute controls to select which audio to hear. PO Resp. 18–20 (citing Ex. 2001 ¶¶ 58–61). Neither Patent Owner nor Dr. Russ cites any portion of Mackintosh indicating that users of its system would be expected to manually operate volume or mute controls to choose one of two simultaneously playing audio tracks. Patent Owner also fails to cite any evidence that Mackintosh even describes separate sets of volume and mute controls for broadcast and supplemental audio. In fact, Mackintosh expressly describes only one set of such controls. Ex. 1004, 16:4–9 (describing “a volume control 312” and “a mute button”), Figure 7 (depicting single volume control 312). Dr. Russ acknowledges that Mackintosh expressly discloses only one volume button and one mute button. Ex. 1009, 43:9:14.

Dr. Russ’s suggestion that users manually operate multiple volume/mute controls also directly contradicts the process that Mackintosh

describes for listening to related audio samples, namely, “if a user likes a particular sound and wants to hear a brief sample of an album by another artist, this can be accomplished with a simple selection by the [user].”

Ex. 1004, 19:20–21. Listening to such sample tracks merely requires “click to select.” *Id.* at 19:16–19.

For all these reasons, we ascribe little weight to Dr. Russ’s testimony on this point. Instead, we credit Dr. Shamos’s testimony explaining why a person skilled in the art would find Dr. Russ’s hypothetical dual-mute button solution was “not an ‘attractive’ solution for users, content providers, or advertisers.” Ex. 1010 ¶25. In particular, because the “user would be left with the undesirable choice of muting portions of a broadcast track . . . or muting the audio of the supplemental material — meaning the user will miss some portion of content that he or she is interested in, which is both undesirable and ill-conceived.” *Id.* Accordingly, we find Petitioner’s position on this point to be persuasive.

(4) Whether Modifications to Mackintosh Would Require Substantial Redesign and Lead to Unpredictable Results

Relying solely upon testimony from Dr. Russ, Patent Owner argues that modifying Mackintosh’s system to enable its user terminals 212 to automatically cease playback of broadcast audio in favor of supplemental audio “would require substantial redesign that would lead to unpredictable results.” PO Resp. 20 (citing Ex. 2001 ¶ 67). Dr. Russ describes two potential ways for an ordinarily skilled artisan to accomplish automatic switching between broadcast and supplemental audio. Ex. 2001 ¶¶ 64–65. The first solution is a “back-end” solution involving recoding the database to reflect whether a piece of supplemental content contains audio so that the metadata for that content can be read by the user terminal. *Id.* ¶ 64. Without

citing any objective evidence, Dr. Russ opines that such a solution “would likely be a Herculean task.” *Id.* Dr. Russ also describes a “front-end” solution in which the user terminal 212 is altered to permit it to recognize whether a piece of selected supplemental content includes audio. *Id.* ¶ 65. Dr. Russ criticizes this front-end solution, which he opines would be based on filename extensions that are “not a reliable indicator” for the presence of audio in the content. *Id.* Dr. Russ cites no objective evidence to support any of this testimony. *See id.* ¶¶ 64–67.

By contrast, Dr. Shamos testifies that modifying Mackintosh to permit it to pause broadcast audio automatically when supplemental audio has been selected is “trivial” to an ordinarily skilled artisan. Ex. 1010 ¶ 26. Dr. Shamos explains that many, but not all, filename extensions are a reliable indicator of when a particular file includes audio (e.g., .mp3, .avi, and .mp4). *Id.* ¶ 27. When a filename extension cannot be used to determine when a file contains audio, Dr. Shamos explains that “common tools” were available to an ordinarily skilled artisan beginning in 1991 to determine whether a piece of content included audio, specifically an audio utility called “sox” and a tool called ffmpeg. *Id.* ¶¶ 30–31. Dr. Shamos even provides the single line command that an ordinarily skilled artisan would use with the sox utility to determine whether a supplemental audio track was silent. *Id.* ¶ 30. On balance, we credit Dr. Shamos’s specific and detailed testimony over the broad, unsupported testimony from Dr. Russ on this point. For these reasons, we determine that Petitioner has established that an ordinarily skilled artisan would have considered it obvious to modify Mackintosh to automatically cease playback of broadcast audio when a user selected supplemental content with audio.

b) Motivation to Modify Mackintosh in View of Hallier

Petitioner contends that Hallier’s teachings would have motivated an ordinarily skilled artisan to modify Mackintosh’s system to multiplex “application data including a video identifier identifying a video” into Mackintosh’s broadcast music because doing so would improve performance of Mackintosh’s data server 214. Pet. 13–15. Mackintosh identifies a potential problems with its data server 214 responding to demand from multiple user terminals 212 and suggests methods for leveling that demand. Ex. 1004, 14:29–15:10. Petitioner argues that multiplexing video identifiers such as URLs into Mackintosh’s broadcast stream would level the load on Mackintosh’s data server 214 because a relatively small number of radio stations 204 rather than “a multiplicity of user terminals (212)” would be retrieving URLs from data server 214. Pet. 14–15 (citing Ex. 1003 ¶¶ 36–37).

Patent Owner first argues that Petitioner’s proposed combination of Mackintosh and Hallier fails to transmit “application data including a video identifier” as required in limitation 1b. PO Resp. 23–31. Specifically, Patent Owner argues that, in Petitioner’s modified version of Mackintosh, “data server 214 provides supplemental materials to radio station 204, which supplemental materials *include both the supplemental video and URL(s) associated with all the supplemental materials.*” PO Resp. 29 (emphasis added).

Petitioner persuasively argues that it does not propose such a combination. Rather, Petitioner proposes modifying Mackintosh’s system such that radio station 204 retrieves URLs (i.e., video identifiers) from data server 214, multiplexes the URLs with audio data and sends the multiplexed

data to ISP 208 for transmission of audio and URLs (video identifiers) over internet 210 to user terminals 212. Reply 12–13. Only URLs multiplexed with the audio, not the supplemental video itself, are transmitted by ISP 208. *Id.* This proposal is illustrated in the modified version of Mackintosh’s Figure 5 discussed in Part II.E.3 above.

Patent Owner also argues that Petitioner’s rationale for modifying Mackintosh is flawed because Petitioner ignores Mackintosh’s own allegedly superior solutions to the data overload problem on server 214 and simply shifts the server overload problem from Mackintosh’s data server 214 to its supplemental server 216. PO Resp. 31–38. Neither argument is persuasive.

Petitioner acknowledges that Mackintosh recognizes that server 214 may be overloaded by simultaneous requests for URLs from many user terminals. Pet. 13 (citing Ex. 1004, 14:29–36). Petitioner also acknowledges that Mackintosh proposes solutions to reduce the load on server 214 imposed by user terminals requesting URLs that link to supplemental content. *Id.* at 13–14. Patent Owner’s expert, Dr. Russ, concedes that Petitioner’s proposed modification of Mackintosh would reduce the load on server 214. Ex. 1009, 68:23–69:3. Accordingly, the evidence establishes that Petitioner’s proposed modification of Mackintosh would address the problem of overloading server 214.

Patent Owner also argues that Petitioner’s proposed modification of Mackintosh merely shifts the overload problem from server 214 to server 216 and, in fact, likely makes the overload problem on server 216 worse. PO Resp. 32–36 (citing Ex. 2001 ¶¶ 77–81). Patent Owner contends that if radio station 204 were to broadcast its FM signal with URLs

embedded “anyone within range, regardless of whether those recipients had user terminals connected to ISP 208 or not” could receive the URLs and request supplemental materials from supplemental server 216. *Id.* at 36–37 (citing Ex. 2001 ¶ 81).

Patent Owner’s argument relies upon using a public AM or FM radio link to transmit information from radio station 204 to ISP 208. However, Mackintosh also discloses the information can be “downloaded to broadcast Internet service provider 208 via any of a number of communication links and protocols and in any of a number of formats,” as well as copied to disc or memory and physically provided to ISP 208. Ex. 1004, 11:14–18. These passages indicate that Mackintosh contemplates non-public data links between radio station 204 and ISP 208. Moreover, the DAB system to be combined with Mackintosh describes transmitting multiplexed data to mobile subscribers over such non-public data links. Ex. 1006, 795 (tailoring coverage areas to user groups addressed, such as listeners at home or on mobiles). Accordingly, Dr. Russ’s testimony that Petitioner’s modification to Mackintosh would result in “*anyone* within range, regardless of whether those recipients had user terminals connected to ISP 208,” Ex. 2001 ¶ 81, is speculative, at best.

Petitioner also persuasively argues that its proposed modification of Mackintosh’s system may not change the load imposed upon server 216. Reply 14–15. User terminals 212 will receive the same number of URLs regardless of whether they are sent by server 214 (as in Mackintosh’s unmodified system) or ISP 208 (as in the proposed modification of Mackintosh). The load imposed upon server 216 by users clicking on a URL to download supplement content from supplemental server 216, therefore,

does not change. That load always depends upon whether a user clicks a link corresponding to a URL. Ex. 2001 ¶ 79; Ex. 1010 ¶ 40.

Moreover, even if Patent Owner's evidence established that correcting the overload on server 214 as suggested by Petitioner would increase the load on server 216, it would not necessarily nullify Petitioner's case for obviousness. Our reviewing court has recognized that a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate any or all reasons to combine teachings. *See Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n. 8 (Fed. Cir. 2000) ("The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.").

Here, for the reasons discussed above, Patent Owner's argument that the combination of Mackintosh and Hallier necessarily means users other than users of terminals 212 would receive URLs from server 214, and would necessarily increase the load on server 216 is speculative at best. As Petitioner points out, the load on server 216 is a function on the number of users that click on the URLs once they are received, and there is no persuasive evidence in the record to indicate whether or how that number would change when Mackintosh is modified by Hallier in the manner proposed by Petitioner.

For all these reasons, we are persuaded by Petitioner that an ordinarily skilled artisan would have considered it obvious to modify Mackintosh in view of Hallier as suggested by Petitioner.

c) Limitation 1e

Limitation 1e recites: “after establishing the on-demand session, transmitting from the on-demand system to the client system the identified video, receiving the transmitted video at the client system, and automatically playing the received video in response to receiving the transmitted video from the on-demand system.” Ex. 1001, 16:59–64. Patent Owner argues that, in Petitioner’s proposed combination of Mackintosh and Hallier, the identified video is “transmitted to and received by the user terminal 212 along with the broadcast material from radio station 204 via ISP 208” rather than from an on-demand system. PO Resp. 41 (citing Ex. 2001 ¶ 85). On this basis, Patent Owner argues that the modified Mackintosh system does not transmit video “after establishing the on-demand session.” *Id.* (citing Ex. 2001 ¶ 86).

Petitioner responds that Patent Owner’s argument relies upon a faulty premise, namely, that the proposed combination of Mackintosh and Hallier transmits supplemental video along with the broadcast audio. Reply 16. Petitioner correctly points out that its proposed combination of Mackintosh and Hallier reflects multiplexed transmission of a URL along with broadcast audio. *Id.* (citing Pet. 17–19, 24–29). The Petition states: “Mackintosh discloses that the *supplemental materials provided by data server (214) may be URLs* that specify a music video or videos (i.e., ‘a video identifier identifying a video’).” Pet. 18 (emphasis added). Mackintosh describes this process of sending URLs which are later used by user terminal 212 to retrieve the video stream itself as follows:

In a step 232, user terminal 212 uses the information provided by data server 214 to retrieve the supplemental materials from another server such as, for example, supplemental server 216. In

Internet implemented embodiments, a *URL provided by data server 214, for example, can be used by user terminal 212 to retrieve . . . videos . . . from a web server via the Internet.*

Ex. 1004, 13:11–27 (emphasis added). Petitioner proposes a system in which Mackintosh’s radio station 204 accesses server 214 to retrieve URLs relating to supplemental video, multiplexes the URLs with audio data (as suggested by Hallier) and transmits the multiplexed signal to ISP 208, which then transmits that multiplexed stream to user terminals 212. Pet. 19.

Patent Owner agrees with Petitioner’s description of Petitioner’s proposed combination of Mackintosh and Hallier as shown in Dr. Russ’s modified and annotated version of Mackintosh’s Figure 5, which we reproduce at right. PO Resp. 30; Ex. 2001 ¶ 75. Patent Owner relies upon testimony by Dr. Russ to support its argument that the modified version of Mackintosh fails to describe limitation 1e. PO Resp. 38–42 (citing Ex. 2001 ¶¶ 82–86). On cross examination, Dr. Russ concedes that his criticism of Petitioner’s proposed combination of Mackintosh and Hallier does not apply to a system in which ISP server 208 sends audio multiplexed with only URLs as shown in Dr. Russ’s own modified version of Mackintosh’s Figure 5. Ex. 1009, 82:14–83:4.

In Petitioner’s proposed modification of Mackintosh, when user terminal 212 uses a URL transmitted from ISP 108 to retrieve supplemental

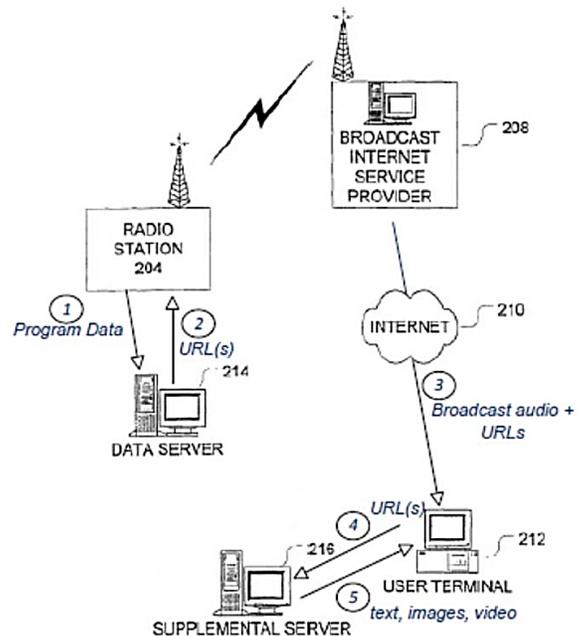


Fig. 5

video data from server 216, it establishes an on-demand session with server 216 resulting in server 216 transmitting video to terminal 212 and terminal 212 playing the received video. Accordingly, we determine that Petitioner's proposed combination of Mackintosh and Hallier teaches limitation 1e.

d) Summary Regarding Claim 1

For the reasons set forth in Parts II.E.1–4 above, we conclude that Petitioner has demonstrated by a preponderance of evidence that the combination of Mackintosh and Hallier renders claim 1 unpatentable as obvious.

e) Claims 3 and 4

Claim 3 depends from claim 1, Ex. 1001, 17:1, and claim 4 depends from claim 3, *id.* at 17:4. Petitioner contends that Mackintosh alone describes the limitations introduced in claims 3 and 4. Pet. 29. Patent Owner does not argue otherwise or identify any reason other than those offered in connection with the challenge to claim 1 that the combination of Mackintosh and Hallier fails to render claims 3 and 4 obvious. *See* PO Resp. 42 (Patent Owner's argument for patentability of claims 3 and 4 resting solely upon its showing regarding claim 1). We adopt as our own the Petitioner's argument and evidence challenging the patentability of claims 3 and 4.

Based on our review of the Petition as it relates to claims 3 and 4, and our evaluation of Petitioner's challenge to claim 1 as set forth above, we are persuaded that Petitioner has demonstrated by a preponderance of evidence that the combination of Mackintosh and Hallier renders claims 3 and 4 unpatentable as obvious.

5. *Conclusion*

Based on our review of the entire trial record, we conclude that Petitioner has demonstrated by a preponderance of evidence that the combination of Mackintosh and Hallier renders claims 1, 3, and 4 of the '025 patent unpatentable as obvious.

III. CONCLUSION

Petitioner has demonstrated by a preponderance of the evidence that the combination of Mackintosh and Hallier renders claims 1, 3, and 4 unpatentable as obvious. Petitioner has not demonstrated by a preponderance of the evidence that Hudson anticipates claim 8.

IV. ORDER

For the reasons given, it is:

ORDERED, based on a preponderance of evidence, that claims 1, 3, and 4 of U.S. Patent 7,320,025 B1 have been shown to be *unpatentable* as obvious under 35 U.S.C. § 103 in view of the combined teachings of Mackintosh and Hallier;

FURTHER ORDERED that claims 1, 3, and 4 of U.S. Patent 7,320,025 B1 shall be *anceled*;

FURTHER ORDERED that, based on a preponderance of evidence, claim 8 of U.S. Patent 7,320,025 B1 has not been shown to be unpatentable as anticipated by Hudson; and

FURTHER ORDERED because this is a final written decision, the 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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Patent 7,320,025 B1

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