

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

SAFECAST LIMITED LLC,
Patent Owner

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 9,392,302**

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LIST OF EXHIBITS

Exhibit	Description
Ex-1001	U.S. Patent No. 9,392,302
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Ex-1003	Curriculum Vitae of Dr. Henry Houh
Ex-1004	Prosecution History of U.S. Patent No. 9,392,302
Ex-1005	U.S. Patent Application Publication No. US 2002/0144262 (Plotnick)
Ex-1006	U.S. Patent App. No. 09/742,852 (“’852 Application”), published as U.S. Patent Application Publication No. US 2002/0083439
Ex-1007	U.S. Patent No. 8,413,189 (Parekh)
Ex-1008	[omitted]
Ex-1009	[omitted]
Ex-1010	[omitted]
Ex-1011	[omitted]
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Ex-1014	[omitted]
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Ex-1016	[omitted]
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Ex-1020	Claim Mapping Table
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Ex-1022	Plaintiff's Preliminary Infringement Contentions, (W.D. Tex. 6:22-cv-00678), as served on September 20, 2022
Ex-1023	Plaintiff SafeCast Limited's Response to Google LLC's Motion to Dismiss For Failure to State A Claim, No. 6:22-cv-00678-ADA (W.D. Tex., Oct. 13, 2022). ECF No. 26
Ex-1024	U.S. Patent Application Publication No. US 2009/0070414 (Singal)
Ex-1025	U.S. Patent Application Publication No. US 2009/0031390 (Rajakarunanayake)

Exhibit	Description
Ex-1026	U.S. Patent Application Publication No. US 2008/0181301 (Kim)
Ex-1027	U.S. Patent Application Publication No. US 2008/0281592 (McKoen)
Ex-1028	Appeals Court Upholds Indecency Safe Harbor Rules, Television Digest (July 12, 1995)
Ex-1029	Cable TV Rule Targets Adults-Only Flash; FCC Wants Tighter Control of Programming Signals, Chicago Tribune (Apr. 25, 1997)
Ex-1030	Brooks Boliek, FCC Narrows ‘Safe Harbor’; Court Says U.S. Can Restrict Adult Broadcast Fare to 10p.m.-6a.m., The Hollywood Reporter (July 5, 1995)
Ex-1031	Jonathan D. Salant, FCC Head Wants Bigger Fines for Profanity, Associated Press (Jan. 15, 2004)
Ex-1032	Bill Holland, Stations Get Lump of Coal From FCC, Billboard (Jan. 16, 1993)
Ex-1033	Obscene, Profane and Indecent Broadcasts : Notices of Apparent Liability – OBINN, Federal Communications Commission Enforcement Bureau, https://www.fcc.gov/enforcement/orders/1833 (last accessed on Feb. 27, 2023)
Ex-1034	Commission Proposes Statutory Maximum Forfeiture Of \$55,000 Against AMFM Radio Licenses For Apparent Violations Of Indecency Rules, Federal Communications Commission, News (October 2, 2003)

Exhibit	Description
Ex-1035	U.S. Patent Application Publication No. US 2002/0015093 (Dureau)
Ex-1036	U.S. Patent Application Publication No. US 2003/0208560 (Inoue)
Ex-1037	U.S. Patent Application Publication No. US 2008/0098423 (Malik)
Ex-1038	U.S. Patent Application Publication No. US 2009/0070414 (Singal)
Ex-1039	U.S. Patent No. 8,752,087 (Begeja)

I. Introduction

Google LLC (“Petitioner”) requests *inter partes* review (“IPR”) of Claims 1–4, 6–9, and 12–15 of U.S. Patent No. 9,392,302 (“’302 Patent”) (Ex-1001), currently assigned to SafeCast Limited, LLC (“Patent Owner”).

The ’302 Patent describes a system for automating compliance with local broadcasting time regulations by controlling when advertisements are shown during playback of a recorded program. At the time of the patent, Personal Video Recorders (PVRs), which enable recording broadcasts for later viewing, were known. The ’302 Patent sought to improve on PVRs to “enable the automatic exclusion of advertisements that should not be shown at the time the programme is being viewed when time-shifted.” The ’302 Patent applies well-known techniques—applying rules relating to local broadcasting time regulations based on information in the header of each file and time information—to control whether an ad will be shown at the time of playback. As the prior art in this Petition demonstrates, this alleged improvement would have been obvious to a person of ordinary skill in the art (“POSITA”) at the time of the ’302 Patent.

None of the prior art in this Petition was cited or relied on during the prosecution of the ’302 Patent. This Petition thus presents non-cumulative grounds of unpatentability that were not addressed during prosecution. These grounds are reasonably likely to prevail, this Petition should be granted, a trial should be

instituted, and the challenged claims should be canceled.

II. Mandatory Notices Under 37 C.F.R. § 42.8

Real Parties-in-Interest: Petitioner identifies the following real party-in-interest: Google LLC.

Related Matters: Patent Owner has asserted the '302 Patent against Google in *SafeCast Limited v. Google LLC f/k/a Google Inc.*, Case No. 6-22-cv-00678 (W.D. Tex. June 27, 2022). Patent Owner has also asserted the '302 Patent against defendants in *SafeCast Limited v. Microsoft Corp.*, Case No. 6-22-cv-00983 (W.D. Tex. Sept. 19, 2022); *SafeCast Limited v. AT&T Corp.*, Case No. 6-22-cv-00676 (W.D. Tex. June 27, 2022); *SafeCast Limited v. DISH Network Corp.*, Case No. 6-22-cv-00677 (W.D. Tex. June 27, 2022); *SafeCast Limited v. Home Box Office, Inc.*, Case No. 6-22-cv-00679 (W.D. Tex. June 27, 2022); *SafeCast Limited v. NBC Universal, Inc.*, Case No. 6-22-cv-00680 (W.D. Tex. June 27, 2022); *SafeCast Limited v. Paramount Global d/b/a Paramount, Inc.*, Case No. 6-22-cv-00682 (W.D. Tex. June 27, 2022); and *SafeCast Limited v. Verizon Communications Inc.*, Case No. 6-22-cv-00683 (W.D. Tex. June 27, 2022).

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III. Fee Authorization

The Office is authorized to charge an amount in the sum of \$41,500 to Deposit Account No. 50-0639 for the fee set forth in 37 C.F.R. § 42.15(b) for this Petition, and any additional fees that might be due in connection with this Petition.

IV. Grounds for Standing

Petitioner certifies that the '302 Patent is available for IPR, this Petition is timely filed, and Petitioner is not barred or estopped from requesting IPR review on the grounds presented.

V. Precise Relief Requested

Petitioner requests cancellation of Claims 1–4, 6–9, and 12–15 of the '302 Patent under 35 U.S.C. § 103 on the following grounds:

- **Ground 1:** Claims 1–4, 6–9, and 12–15 are rendered obvious by U.S. Patent No. U.S. Patent App. Pub. No. 2002/0144262 (“Plotnick,” Ex-1005) in view of U.S. Patent No. 8,413,189 (“Parekh,” Ex-1007).
- **Ground 2:** Claims 1–4, 6–9, and 12–15 are rendered obvious by Plotnick (Ex-1005).¹

VI. The Challenged Patent

The '302 Patent discloses a system for controlling which advertisements are played in a recorded program during later playback. Ex-1001, Abstract. The patent describes that Set Top Boxes (“STBs”) with recording capabilities are Personal Video Recorders (“PVRs”). *Id.*, 1:48–58. The ability to record a program meant that the recorded advertisements may be unsuitable for the time of day at playback. *Id.*, 1:30–40, 2:50–52. The claimed invention is directed to automatically excluding advertisements that should not be shown at playback time. *Id.*, 2:59–62.

¹ Ground 1 maps the plain and ordinary meaning of the claims to Plotnick and Parekh. Ground 2 maps the claims to the Plotnick reference based on how Patent Owner appears to apply the claims in its Preliminary Infringement Contentions, attached as Ex-1022, and as it has argued in the district court, *see* Ex-1023. Petitioner does not concede that any of Patent Owners’ implicit claim construction positions in Ex-1022 or Ex-1023 are correct. Rather, as explained in this Petition, the claims are invalid under any construction.

The patent describes a PVR 60 with connections to a TV aerial 20, modem 22, the Internet 24, and viewer's TV set 68. *Id.*, 4:43–55; *see* FIG. 4 (labels added based on lines 4:43–55).

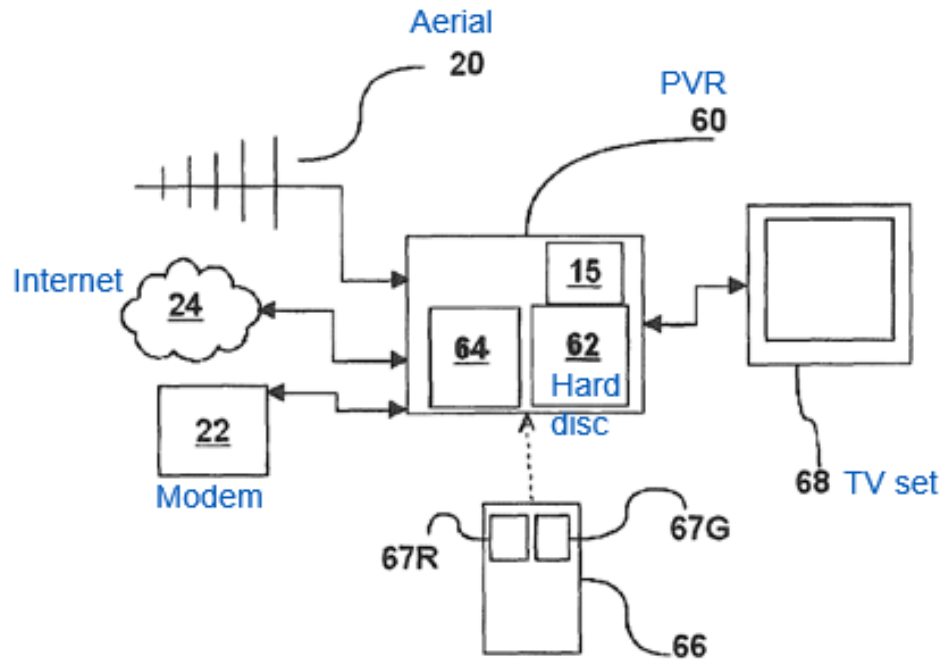


Fig 4

PVR 60 has an advertisement database 70, programme database 80, and rules database 90 for storing, respectively, advertisements, broadcast programme segments, and rules that apply to the advertisements. *Id.*, 4:57–62; *see* FIG. 5 (labels added based on lines 4:57–62).

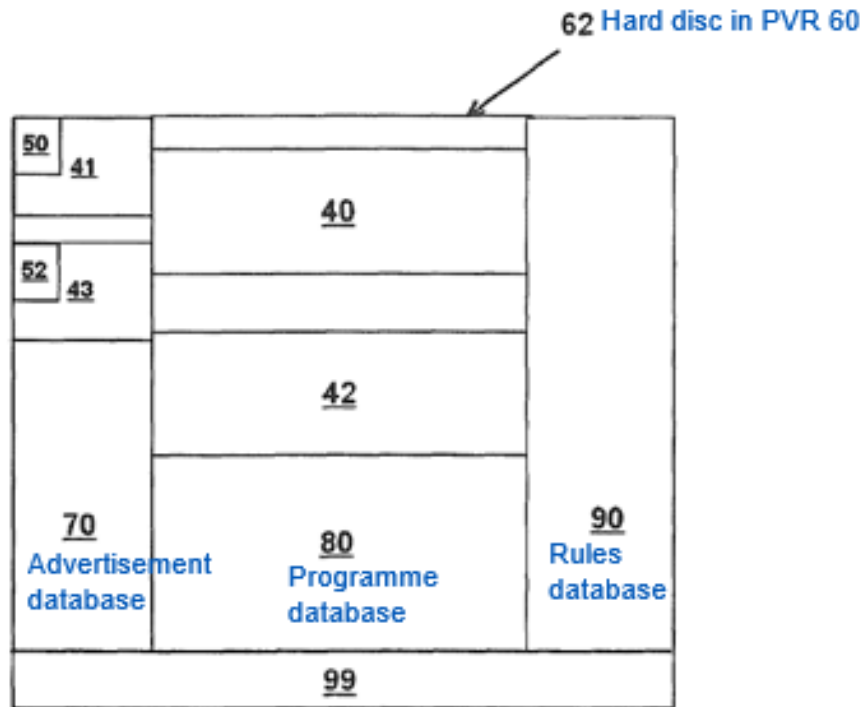


Fig 5

Each advertisement has a header that can include metadata regarding various characteristics of, data about, and other information relevant to the advertisement. *Id.*, 3:63–4:41.

PVR 60 ensures that advertisements shown with a recorded program are legally acceptable. *Id.*, 6:33–37. PVR 60 checks the Real Time of day signal, the rules database 90, and selects an advertisement. *Id.*, 6:40–53 (Step 102). PVR 60 reads the header information associated with the advertisement and checks for restrictions against playing the advertisement at the current time. *Id.*, 6:54–62. If there are time restrictions, PVR 60 selects the next advertisement in the database

and checks that advertisement, repeating until a suitable advertisement is found. *Id.* Once it finds a suitable advertisement, PVR 60 checks other information from the advertisement header. *Id.* 6:63–7:16. PVR 60 then shows the queued advertisements to the viewer and records button depressions from the viewer. *Id.*, 7:17–22. It informs the broadcaster which advertisements were shown and whether the viewer pressed keys in response to interactive advertisements. *Id.*, 7:22–27.

Figure 8 below depicts this process:

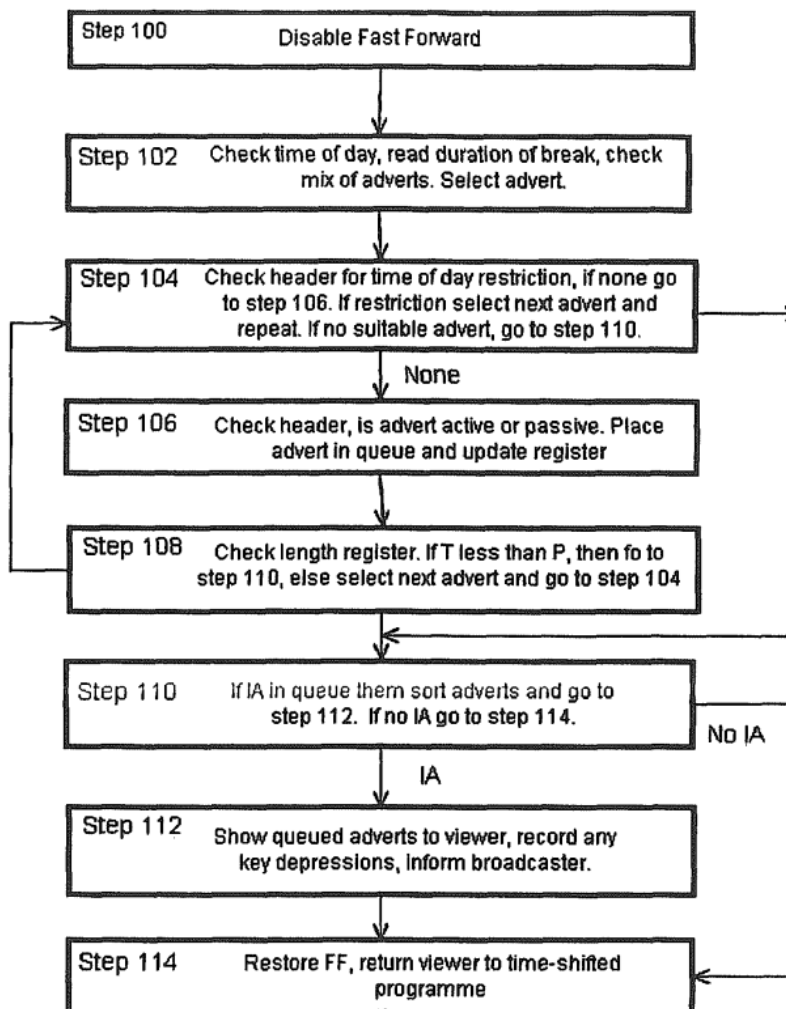


Fig 8

VII. Prosecution History

The '302 Patent issued from U.S. Patent Application No. 13/990,372 filed on May 29, 2013, which was based on International Application No. PCT/GB2011/052259 filed on November 18, 2011. Ex-1001, Cover. The '302 Patent claims priority to foreign application GB1020361.0 filed on December 1, 2010. *Id.*, Cover.

On April 28, 2014, the Examiner issued a Non-Final Rejection, rejecting the claims under §§ 102, 103 based on GB 2464630 (“Poel”), U.S. Patent App. No. 2004/0205829 (“Hane”), and U.S. Patent App. No. 2002/0015093 (“Dureau”). Ex-1004, 182–191. The Examiner found that Poel disclosed selecting stored advertisements to insert into advertising slots according to time and date indicators. *Id.*, 184. In response, the Applicant amended the claims to specify that the broadcasting regulation is a “local broadcasting time regulation” “which restricts the time of day at which said advertisement may be shown.” *Id.*, 203. The Applicant argued that Poel’s headers are not related to broadcasting regulations, but rather are time and date limitations set by advertisers. *Id.*, 205–206.

On August 18, 2014, the Examiner issued a Final Rejection finding that Poel discloses “local broadcasting regulations” under the broadest reasonable interpretation of the claims, which the Examiner proposed was “general rules/criteria utilized/implemented upon local broadcasting content.” *Id.*, 215. On

October 6, 2014, the Applicant amended the claims to add that the “local broadcasting time regulation” is “laid down by a broadcasting authority.” *Id.*, 238. The Applicant identified FCC regulation 47 C.F.R. § 73.3999 regarding times of day when indecent material may not be broadcast as “exactly the kind of regulation that the Applicant wishes to refer to.” *Id.*, 240. On November 18, 2014, the Applicant amended the claims to add that the header comprises “a second field related to the number of times said advertisement has previously been shown during time-shifted viewing” in an attempt to further distinguish Poel. *Id.*, 260, 264.

In response to further rejections, the Applicant amended the claims to add (1) “control means is further arranged to update the second field in the header of said advertisement when said advertisement is again shown during time-shifted viewing,” and (2) dependent claims reciting additional control means functions. *Id.*, 380–383. A Notice of Allowance issued on March 31, 2016. *Id.*, 466.

VIII. Priority Date

The prior art references relied upon in this Petition predate December 1, 2010, the earliest priority date on the face of the ’302 Patent. Petitioner thus takes no position on the proper priority date for the challenged claims.

IX. Level of Ordinary Skill in the Art

One of ordinary skill in the art would have had at least a bachelor’s degree in

computer science, electrical or computer engineering, or equivalent education or work experience, and at least two years of work or research experience in multimedia systems. Ex-1002, ¶¶41-45.

X. Claim Construction

Petitioner interprets the claims of the '302 Patent according to the *Phillips* claim construction standard. 83 Fed. Reg. 51340, 51340–44 (Oct. 11, 2018). The challenged claims recite elements that use the word “means,” creating a rebuttable presumption that they are means-plus-function elements under 35 U.S.C. § 112, ¶6. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). For the purposes of this Petition and pursuant to 37 C.F.R. § 42.104(b)(3), Petitioner’s proposed constructions for these terms are below.²

A. Proposed Constructions

Figure 5 of the '302 Patent is shown below with labels from the specification to provide a reference for the terms “programme supply means,” “advertisement supply means,” “rules database means,” and “data storage means.” Ex-1001, 4:57–62.

² For each means-plus-function term below, Petitioner has identified the closest disclosed structure in the '302 Patent that relates to the recited function, but by doing so, Petitioner does not intend to, and does not, waive any argument that the structure for performing the claimed function of each term is not sufficiently disclosed in the '302 Patent.

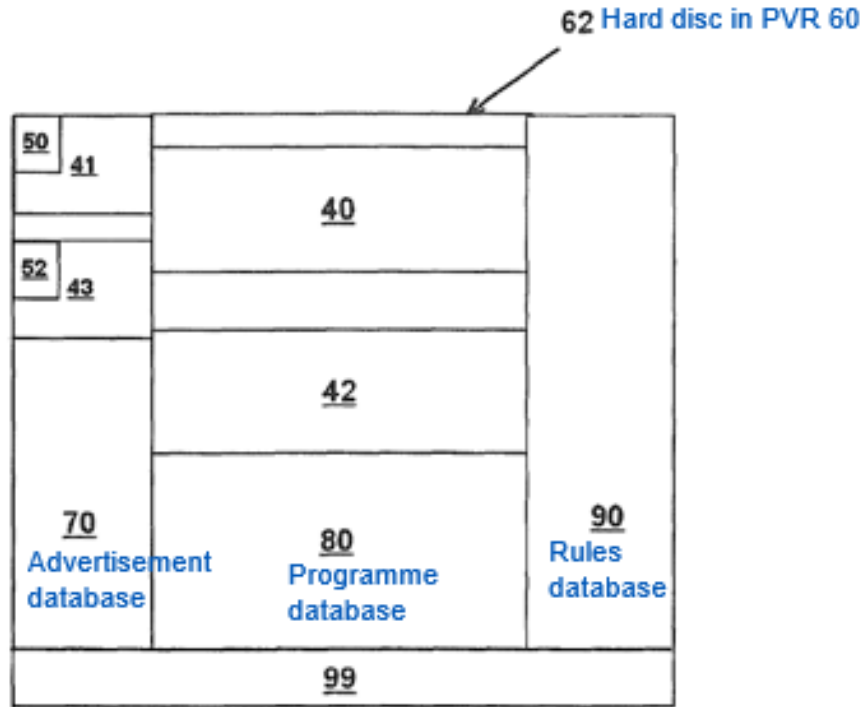


Fig 5

1. Programme Supply Means (Cl. 1)

Recited Function: “to supply broadcast digital video/audio programmes.”

Corresponding Structure: “hard disc 62 in PVR 60, containing programme database 80.” Ex-1002, ¶82. The specification states that “FIG. 5 shows in detail the *hard disc 62 in the PVR 60*. It has three parts, an advertisement database 70 which stores advertisements from the broadcast programme; *a programme database 80*, which stores the broadcast programme segments; and a rules database 90 which stores the rules which apply to broadcast advertisements.” Ex-1001, 4:57–62 (emphasis added).

2. Advertisement Supply Means (Cl. 1)

Recited Function: “to supply advertisements within the periodic breaks.”

Corresponding Structure: “hard disc 62 in PVR 60, containing advertisement database 70.” Ex-1002, ¶83. The specification states that “FIG. 5 shows in detail the *hard disc 62 in the PVR 60*. It has three parts, *an advertisement database 70* which stores advertisements from the broadcast programme; a programme database 80, which stores the broadcast programme segments; and a rules database 90 which stores the rules which apply to broadcast advertisements.” Ex-1001, 4:57–62.

3. Rules Database Means (Cl. 1)

Recited Function: “containing rules relating to said local broadcasting time regulation.”

Corresponding Structure: “hard disc 62 in PVR 60, containing rules database 90.” Ex-1002, ¶84. The specification states that “FIG. 5 shows in detail the *hard disc 62 in the PVR 60*. It has three parts, an advertisement database 70 which stores advertisements from the broadcast programme; a programme database 80, which stores the broadcast programme segments; and a *rules database 90* which stores the rules which apply to broadcast advertisements.” Ex-1001, 4:57–62.

4. Data Storage Means (Cl. 12)

Recited Function: “storing a programme episode database, an advertisement database, and a rules database.”

Corresponding Structure: “hard disc 62 in PVR 60.” Ex-1002, ¶85. The

specification states that “FIG. 5 shows in detail the *hard disc 62 in the PVR 60. It has three parts*, an advertisement database 70 which stores advertisements from the broadcast programme; a programme database 80, which stores the broadcast programme segments; and a rules database 90 which stores the rules which apply to broadcast advertisements.” Ex-1001, 4:57–62.

B. Proposed Constructions of “Clock Means,” “Input Connection Means,” and “Output Means”

Figure 4 of the '302 Patent is shown below with labels from the specification to provide a reference for the terms “clock means,” “input connection means,” and “output means.” *Id.*, 4:43–55.

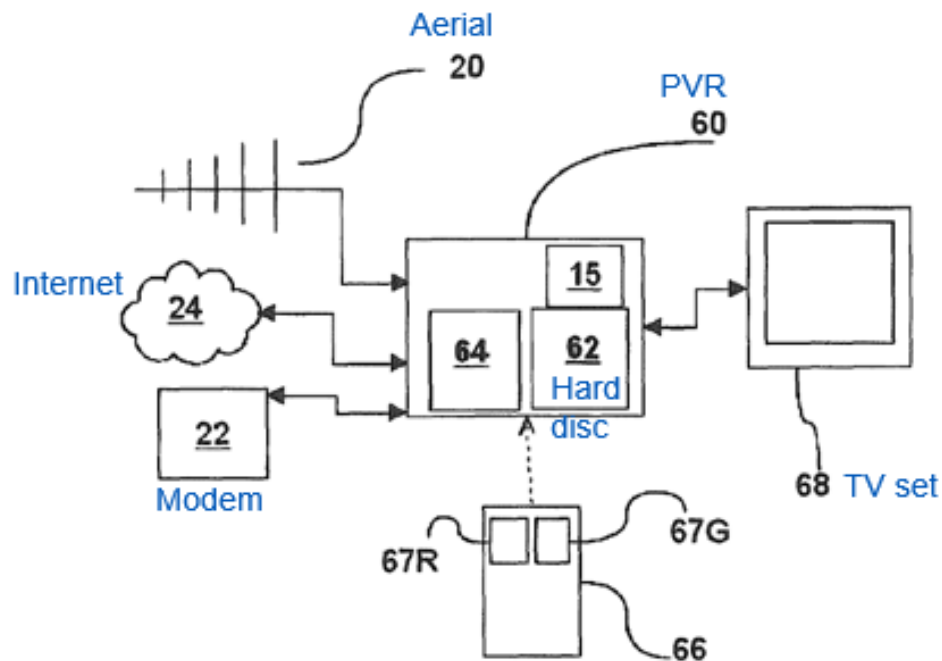


Fig 4

1. Clock Means (Cl. 1)

Recited Function: “to supply a real-time clock signal.”

Corresponding Structure: “backchannel in Internet connection 24 or modem 22 of PVR 60.” Ex-1002, ¶86. The specification states that the PVR of the invention comprises “input connection means for connection to a source of video/audio signals and *a real-time clock signal*.” Ex-1001, 3:16–19. Figure 4 shows that “A Real Time of day signal is received [by the PVR 60] via *the backchannel in either the Internet connection 24 or the connection via the modem 22*.” *Id.*, 4:45–48.

2. Input Connection Means (Cl. 12)

Recited Function: “for connection to a source of video/audio signals and a real-time clock signal.”

Corresponding Structure: “a connection between PVR 60 and aerial 20, a modem 22 or the Internet 24 as in the prior art.” Ex-1002, ¶87. The specification states that the PVR of the invention comprises “input connection means for connection to a source of video/audio signals and a real-time clock signal.” Ex-1001, 3:16–19. Figure 4 shows, “*in a PVR 60 for use in a system according to the invention, the connections to an aerial 20, a modem 22 and the Internet 24 are as in the prior art*.” Ex-1001, 4:43–45.

3. Output Means (Cl. 12)

Recited Function: “for connection to a consumer’s viewing/listening unit.”

Corresponding Structure: “connection between PVR 60 and TV set 68, as depicted in Figure 4.” Ex-1002, ¶88. The specification states that in Figure 4, “[t]he viewer’s TV set 68” is also shown. Ex-1001, 4:51. FIG. 4 of the patent shows a two-way arrow connecting the PVR 60 to the viewer’s TV set 68. *Id.*, FIG. 4.

C. Proposed Constructions of “Control Means”

To provide a reference for the “control means,” Figure 8 of the ’302 Patent is shown below.

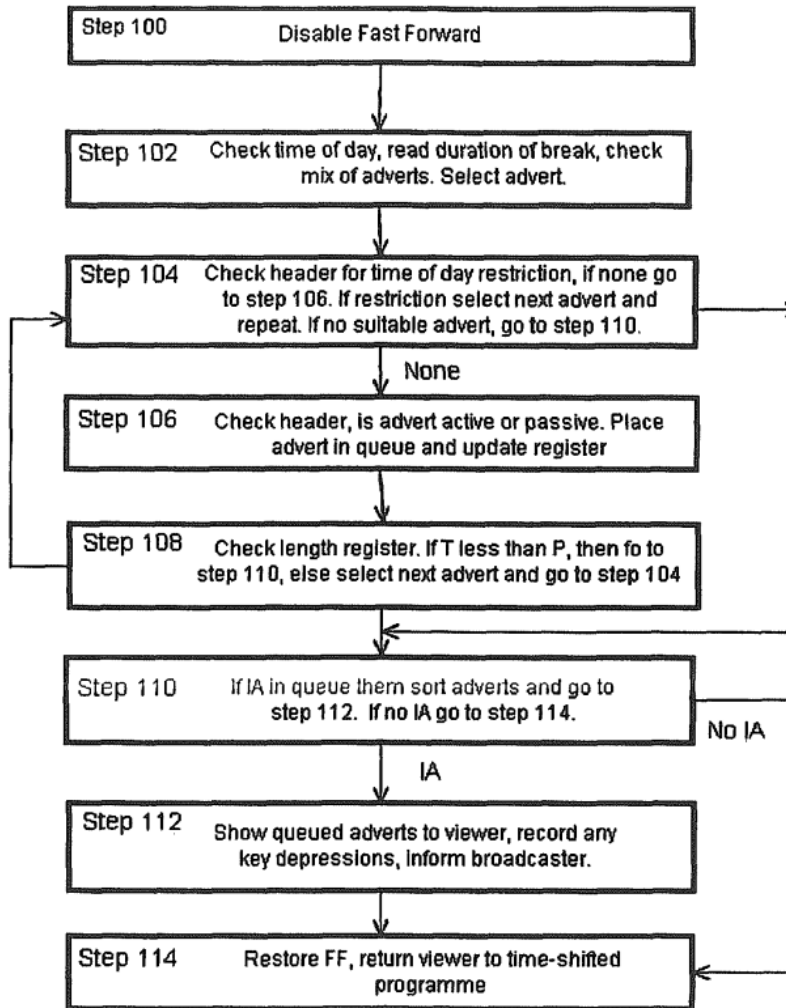


Fig 8

1. Control Means (Cls. 1, 12)

Recited Function: (1) “to read said first field and said clock signal and said rules database”; (2) “to apply said local broadcasting time regulation to each advertisement before said advertisement is shown”; and (3) “to update the second field in the header of said advertisement when said advertisement is again shown during time-shifted viewing.”

Corresponding Structure: “hardware and/or software arranged to perform

steps 102, 104, and 112 of FIG. 8 of the '302 Patent, as described at 6:40–62 and 7:17–27 of the specification.” Ex-1002, ¶89. The specification states that “[i]n Step 102 the PVR 60 checks the Real Time of day signal RT and ensures by means of use of the offset register 156 that the PVR 60 is in perfect synchronisation with signals coming from the broadcaster. The PVR then checks the rules database 90 and determines the appropriate duration of the entire advertising break. The PVR then checks in the rules database 90 the prescribed mix of interactive and passive advertisements for an advertising break of this duration, and stores the duration of the advertising break in a length register 150 in the hard disc (see FIG. 6) and stores the total allowable time of interactive adverts in the prescribed break in an interactive register 152. The PVR then selects an advertisement from the store of live and matched advertisements held in its advertisement database 70. In Step 104 the PVR reads the header information associated with the selected advertisement and checks any time or day of showing restrictions. If there no such restriction then move to Step 106. If there is such a restriction the PVR 60 selects the next advertisement from the advertisement data base 70, and continues checking the headers until an advertisement is found of a type which can be shown at the current time of day and move to Step 106. If no suitable advertisements are found go to Step 110.” Ex-1001, 6:40–62. It further describes that “In Step 112 the PVR 60 shows the stored queued advertisements from the buffer memory 158 to the

viewer. During the showing, the PVR records any depressions of the red or green buttons 67R, 67G on the viewer's remote control 66 made during the advertising break and updates the viewer loyalty points register 156. Via the backchannel, the PVR 60 informs the broadcaster which advertisements were shown to the viewer during the advertising break and whether the viewer made any key depressions during the break in response to the interactive advertisements contained in the break.” *Id.*, 7:17–27.

2. Control Means (Cl. 2)

Recited Function: in addition to the functions of the “control means” of Claim 1, “check[] [a keyword in each header] against the rules database during application of said local broadcasting time regulation to said advertisement” as recited in Claim 2.

Corresponding Structure: hardware and/or software arranged to perform steps 102, 104, and 112 of FIG. 8 of the '302 Patent, as described at 6:40–62 and 7:17–27 of the specification. Ex-1002, ¶90. The specification discloses that in Step 104 the “PVR reads the header information [] and checks any time or day of showing restrictions.” Ex-1001, 6:54-56. And a “Warnings” field in the header includes keywords that are “matched against local viewing regulations” and that “[e]ven a selected word can be used as a control” and lists “alcoholic drinks” or “politician” as examples. *Id.*, 4:23, 4:35-37, 6:10-12.

3. Control Means (Cl. 8)

Recited Function: in addition to the functions of the “control means” of Claim 1, “when the application of said local broadcasting time regulation to a particular advertisement indicates that showing the particular advertisement would violate the local broadcasting time regulation, search the advertisements stored in the advertisement supply means until either an advertisement is found that does not violate the local broadcasting time regulation or it is determined that no advertisement stored in the advertisement supply means is suitable for showing under the local broadcasting time regulation” as recited in Claim 8. That is, in addition to the claimed function in Claim 1, the “control means” in Claim 8 iteratively checks advertisements until a suitable advertisement is found or until it is determined that no advertisement is suitable. Ex-1002, ¶91.

Corresponding Structure: hardware and/or software arranged to perform steps 102, 104, and 112 of FIG. 8 of the '302 Patent, as described at 6:40–62 and 7:17–27 of the specification. Ex-1002, ¶91. The specification discloses that Step 104 also includes this iteration process, disclosing that “In Step 104 the PVR reads the header information associated with the selected advertisement and checks any time or day of showing restrictions. If there no such restriction then move to Step 106. *If there is such a restriction the PVR 60 selects the next advertisement from the advertisement data base 70, and continues checking the headers until an*

advertisement is found of a type which can be shown at the current time of day and move to Step 106. If no suitable advertisements are found go to Step 110.”

Ex-1001, 6:54–62.

4. Control Means (Cl. 9)

Recited Function: in addition to the functions of the “control means” of Claim 8, “to show during time-shifted viewing of the programme a mix of advertisements that were received during the live broadcast of the programme and advertisements that were received other than in the live broadcast of the programme being shown during time-shifted viewing” as recited in Claim 9. That is, in addition to the claimed function in Claim 1, the “control means” In Claim 9 shows a mix of live broadcast and other advertisements. Ex-1002, ¶92.

Corresponding Structure: hardware and/or software arranged to perform steps 102, 104, and 112 of Fig. 8, as described at 6:40–62 and 7:12–27 of the specification. Ex-1002, ¶92. The specification discloses that Step 102 selects from such a mix of advertisements, disclosing that “[t]he PVR then selects an advertisement from the store of *live and matched advertisements* held in its advertisement database 70.” *Id.*, 6:51–52.

XI. Brief Description of the Applied Prior Art References

A. U.S. Patent App. Pub. No. 2002/0144262 (“Plotnick”)

U.S. Patent App. Pub. No. 2002/0144262 (“Plotnick”), titled “Alternative

Advertising in Prerecorded Media,” was published on October 3, 2002, from an application filed on November 14, 2001. Ex-1005, Cover. Plotnick is prior art under at least pre-AIA 35 U.S.C. § 102(b).

Plotnick describes a system for delivering video or audio broadcast programming “via a program[] delivery network” that may be a “digital broadcast satellite (DBS) system.” Ex-1005, ¶92.

Plotnick’s system includes a “client side STB ad targeting system 600,” which is a “software application that may be integrated into a PVR-enabled set-top box (STB PVR).” *Id.*, ¶134. Through the ad targeting system, “ads may be inserted into the program material at indicated points of ‘avails’ (through cue messages).” *Id.*, ¶150. The “STB differentiates individual viewing habits, characterizes the current viewer based on current and historical viewing information, and selects advertising appropriate for the current view based on the characterization.” *Id.*, ¶154. To provide appropriate advertisements, the STB PVR receives “control data 1006,” which is metadata that “includes descriptions of the ad content, target audience, encoding attributes, delivery instructions, and contract limitations.” *Id.*, ¶154.

Plotnick then processes “[t]he control data 1006 ... to generate ad queue structures,” which is “a list of the next ads [] that should be inserted.” *Id.*, ¶¶155, 194. The ad queue and schedule may be based on advertiser-specified campaign

data, including “flight information, which indicates the networks and times for displaying the advertisement.” *Id.*, ¶169. The ad queue “may vary based on ... time of day [], [] day of the week,” and “other criteria.” *Id.*, ¶194. Processing rules 1440 may be used to further control or replace ads in the ad queue. *Id.*, ¶201.

After an ad is played, “the processing component [1010] updates the ad metadata 1006 based on ad delivery and user interaction.” *Id.*, ¶156. The STB generates “ad play reports 1160” for a traffic and billing system to bill the advertiser based on requirements satisfied during the campaign. *Id.*, ¶169.

Plotnick depicts its system from multiple perspectives. Figure 6A (below) shows an “exemplary context diagram” of the client side set-top box (STB) ad targeting system. Ex-1005, ¶74.

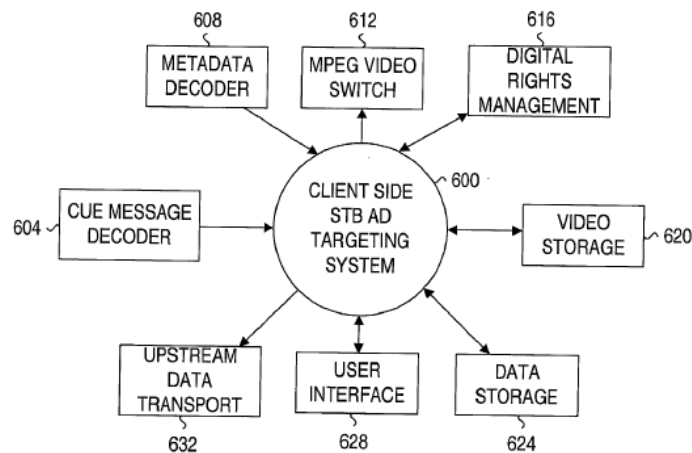


FIG. 6A

Figure 8 is a “block diagram” of the client-side STB ad targeting system. Ex-1005, ¶78.

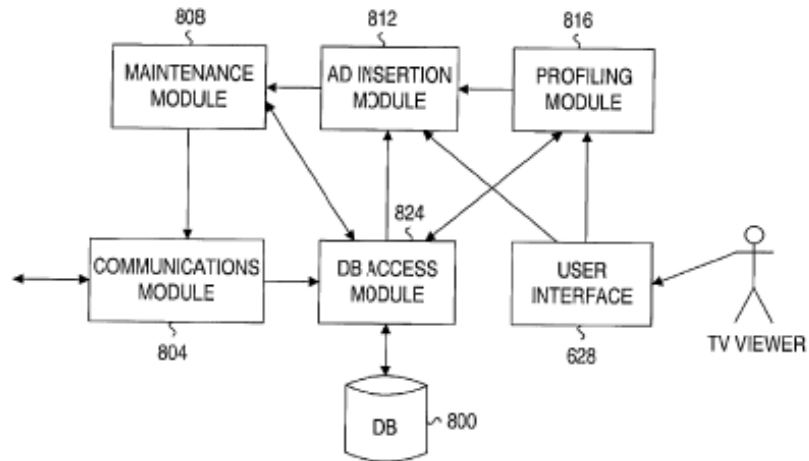


FIG. 8

Figure 10 shows an “exemplary data flow” of the PVR for delivering targeted advertising. Ex-1005, ¶¶80, 154.

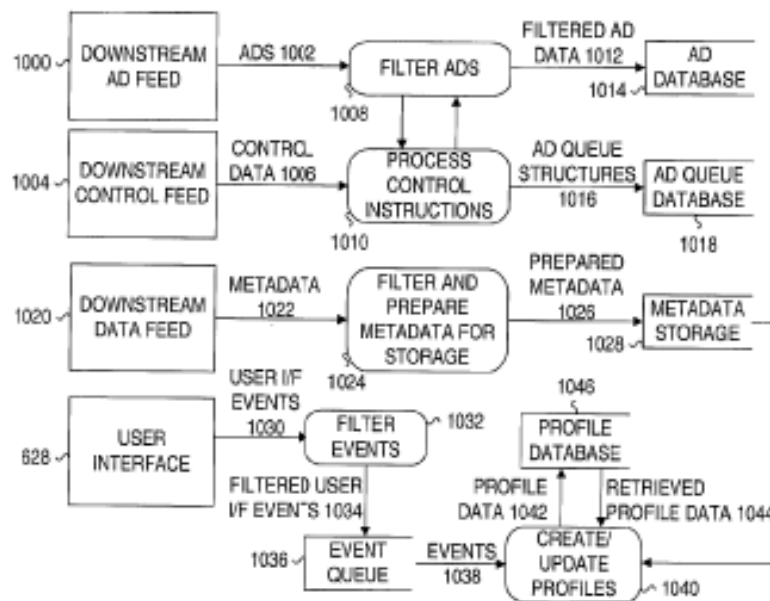


FIG. 10

Figure 13C is an “exemplary system[] in which processing rules are received in order to generate alternative advertisements.” Ex-1005, ¶¶83, 182.

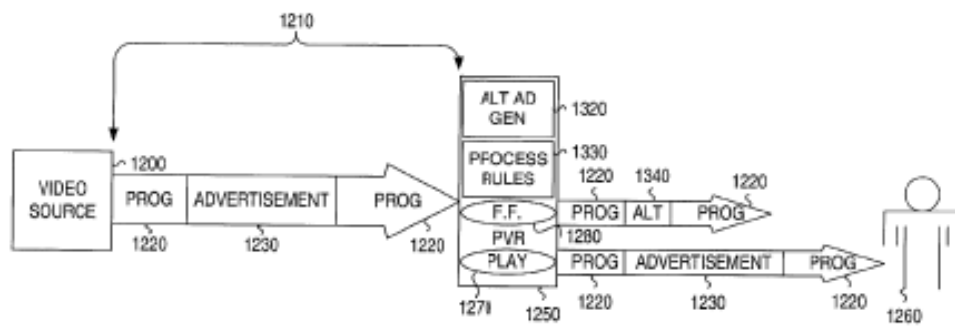


FIG. 13C

Figure 14B is an “exemplary system[] in which advertisements and an ad queue are utilized along with alternative advertisements and/or processing rules.”

Ex-1005, ¶¶84, 201.

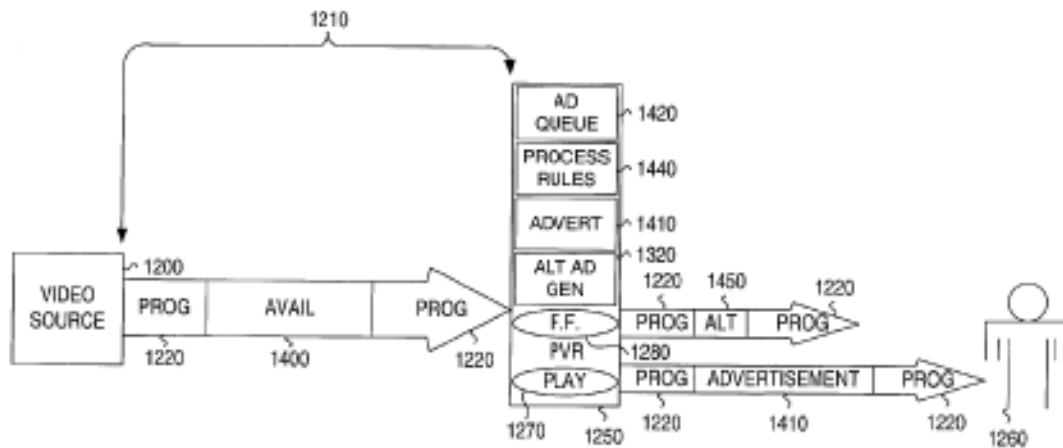


FIG. 14B

And Figure 6C depicts different ad queues targeted to different viewers.

Ex-1005, ¶¶76, 144.

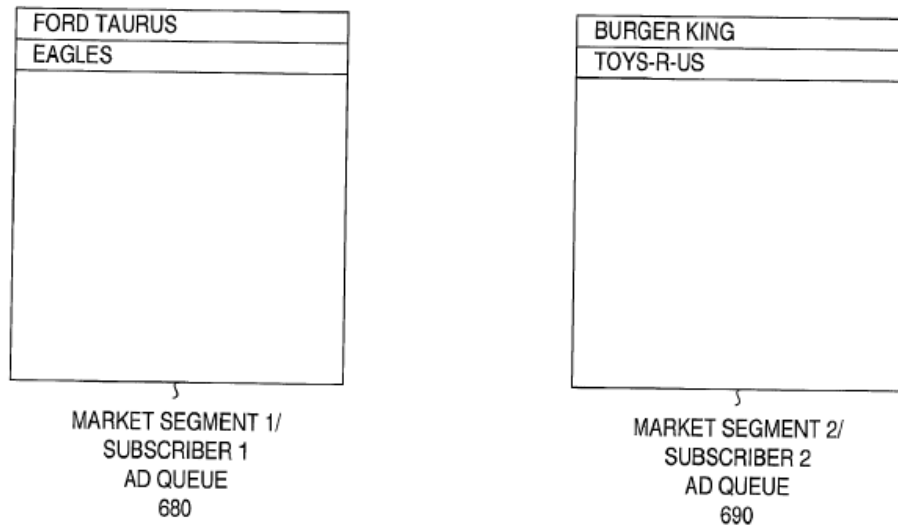


FIG. 6C

B. U.S. Patent No. 8,413,189 (“Parekh”)

U.S. Patent No. 8,413,189 (“Parekh”), titled “Dynamic Selection of Advertising Content in a Social Broadcast Environment,” issued on April 2, 2013, from an application filed on December 22, 2008. Ex-1007, Cover. Parekh is prior art under at least pre-AIA 35 U.S.C. § 102(e).

Parekh discloses a “method of determining advertising content to be included in a broadcast.” Ex-1007, Abstract. Parekh’s advertisements have “inclusion criterion used to determine both whether and how that item of advertising is to be included in a broadcast.” *Id.*, 2:37-40.

Parekh discloses a “rules engine 308” to control “what tracks are played on-air and in what order ... with a combination of guidelines and rules, such as station policies and regulations from regulators 110.” Ex-1007, 11:15-20; *see* FIG. 1

(below). These rules “may be static which apply at all times or dynamic which apply only under certain conditions, such as time of day or size of online audience.” *Id.*, 11:26-28.

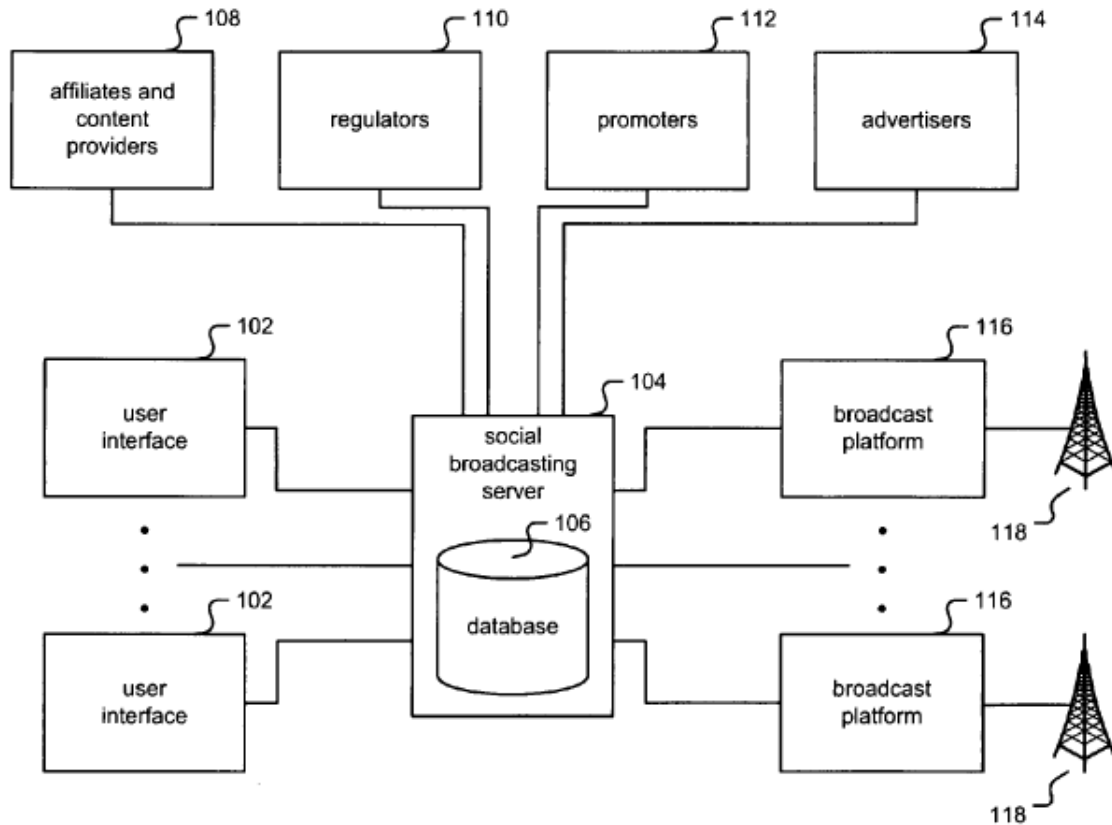


FIG. 1

Examples are “business rules,” including “FCC regulations for content, including: that indecent and/or profane material may not be broadcast outside the FCC Safe Harbor; [and] three songs from the same recording, or four songs from the same artist or anthology, may not be played within a three-hour period.” *Id.*, 11:29-37.

XII. Explanation of Grounds

A. Ground 1: Plotnick In Combination With Parekh Renders Claims 1–4, 6–9, 12–15 Obvious

1. A POSITA Would Have Been Motivated To Combine Plotnick’s And Parekh’s Teachings

PVRs were well-known at the time of the invention, and the idea of targeting advertisements to viewers was too. Ex-1002, ¶¶59-60. That PVRs would time-shift playback such that advertisements may be inappropriate for the time of day was also a well-known issue. Ex-1002, ¶¶61-62.

In addition to the reasons explained below with respect to specific claim elements, a POSITA would have been motivated to combine the teachings of Plotnick and Parekh and would have had a reasonable expectation of success in doing so. Ex-1002, ¶94.

Plotnick and Parekh are in the same field of invention—selecting advertisements to be delivered in broadcast programming. Ex-1002, ¶95. Both teach considering the time of day when selecting advertisements. Ex-1002, ¶96. Plotnick teaches selecting ads for video or audio programming that is broadcast “via a programming delivery network” and/or recorded by a PVR. Ex-1005, ¶¶90-93, 134. Plotnick teaches selecting advertisements based on various criteria, including target audience, what programs are on, time of day, and user interaction. Ex-1005, ¶¶169, 194. Parekh discloses a method of “determining advertising

content to be included in a broadcast” and also applies to audio and video content. Ex-1007, Abstract, 11:20-23; *see* 2:26-28. In Parekh, advertisements are also selected based on various factors, including target audience, what program is on, time of day, and user interaction. Ex-1007, 16:26-30, 16:42-47, 16:53-65, 17:8-16, 17:24-30.

Plotnick and Parekh seek to solve the same problems in similar ways. Ex-1002, ¶¶97-98. Plotnick’s STB PVR uses metadata associated with each advertisement, “control data 1006,” that “includes descriptions of the ad content, target audience, encoding attributes, delivery instructions, and contract limitations” to select appropriate advertisements. Ex-1005, ¶154. Among other things, advertisers can specify flight information, indicating networks and times for displaying the advertisement. Ex-1005, ¶169. Plotnick’s STB PVR applies processing rules to vary what ads will be played, including based on “what subscriber [] is interacting with the TV, what time of day it is, what time of week, what programs are on, and other criteria.” Ex-1005, ¶¶194, 187, 201. Parekh likewise teaches that each advertisement has “inclusion criteria used to determine both whether and how that item of advertising content is to be included in a broadcast.” Ex-1007, 2:37-40. Parekh’s system also uses metadata associated with each ad, information about user engagement, and “business rules,” including rules about when content can be played, to determine which advertisements to play. *Id.*,

10:47-51, 11:15-35. Parekh teaches that such metadata is transmitted and stored with the advertisements in “media database 340.” *Id.*, 10:32–37, 10:57, 11:11–13, 9:66–10:4; Ex-1002, ¶98.

A POSITA would have known the importance of tracking how many times an advertisement was played—e.g., for billing, capping the number of playbacks based on what the advertiser paid for, and/or avoiding annoying the viewer. Ex-1002, ¶¶99, 60. Plotnick and Parekh also both teach the importance of tracking ad plays. Ex-1002, ¶99. In Plotnick, the processing component 1010 “updates the ad metadata 1006 based on ad delivery and user interaction.” Ex-1005, ¶156. After an advertisement is presented, “the system updates the ad metadata and transmits an insertion report to the head-end.” *Id.*, ¶163. Plotnick creates an “ad play report” when “ads are displayed to the subscriber.” *Id.*, ¶169. In Parekh, an “ad integration server” likewise enables “real-time ad measurement and analysis.” Ex-1007, 9:27-32; *see id.*, 9:56-61. Parekh also discloses “[r]eporting may include an analysis of the broadcast associated with the broadcasted ad” and “may indicate that ... an ad for a female fitness center was bombed by 24,343 females and 12,522 males.” *Id.*, 17:39-46.

A POSITA would also have known to select content that abides by FCC regulations restricting the profanity and obscenity from broadcasts at certain times of day because FCC fines were frequently in news headlines before and around the

time of the invention. Ex-1002, ¶¶100, 110. A POSITA would have been motivated to combine the teachings of Plotnick and Parekh because Plotnick teaches managing and replacing advertisements that are shown in a PVR-recorded program, including based on time of day at playback, and Parekh teaches that time of day considerations should include FCC broadcasting time regulations. Ex-1002, ¶100; Ex-1005, ¶194; Ex-1007, 4:7-15, 11:29-42. These teachings would have been used to implement a real-world system that supplies appropriate, targeted advertisements to users that also complies with applicable laws. Ex-1002, ¶100.

A POSITA would also have had a reasonable expectation of success in combining the teachings of Plotnick and Parekh. Ex-1002, ¶101. Plotnick teaches that its system is adjustable and may vary “based on ... what time of day it is, what day of the week, ... *and other criteria that would be well within the scope of the current invention.*” Ex-1005, ¶¶194, 60, 64-65; Ex-1002, ¶¶101, 111. Parekh teaches one such criteria—FCC time regulations. Ex-1007, 4:7-16, 9:23-26, 11:29-42; Ex-1002, ¶101. Further, each uses similar and well-known technology—metadata, databases, storage, and rules—to select appropriate advertisements. Ex-1002, ¶101; Ex-1005 (Plotnick), ¶¶107, 109-110, 134, 139, 154-158; Ex-1007 (Parekh), 4:4-17, 8:41-62, 9:66-10:15, 11:15-53. A POSITA would have understood that Plotnick and Parekh disclose similar techniques for ad targeting systems that would have been combined in conventional and expected ways to

select and replace advertisements played in a PVR recording in accordance with FCC time regulations. Ex-1002, ¶101.

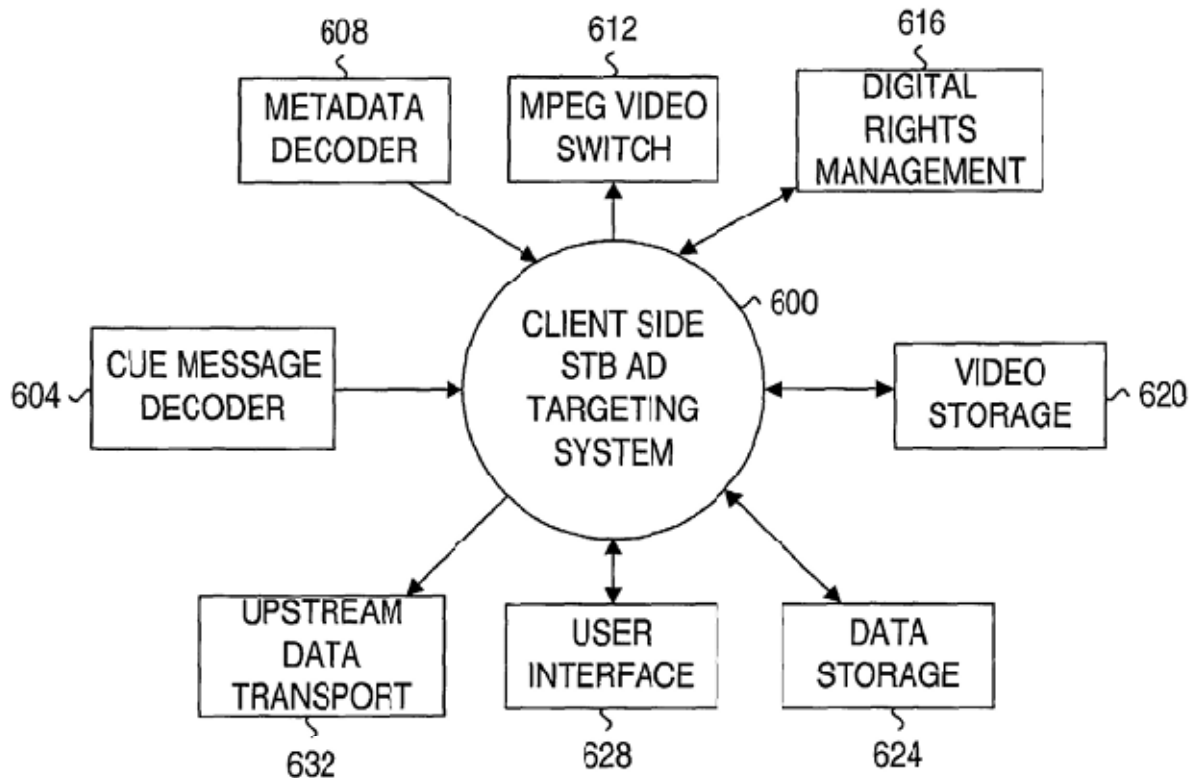
Finally, a POSITA would have been motivated to incorporate the teachings of Parekh into Plotnick's system because Parekh teaches enhancing a broadcast system by incorporating users' desires, including their real-time feedback, into the process for selecting ads. Ex-1007, 7:34-52, 11:55-12:28; Ex-1002, ¶102. Parekh also teaches how to ensure that applicable broadcasting rules are followed and to report played advertisement data for data collection and payment. Ex-1007, 7:7-18, 9:25, 11:29-53, 5:12-17, 9:20-22, 9:56-61, 17:36-46; Ex-1002, ¶102. A POSITA implementing the system of Plotnick would have looked to other references in the field for details regarding implementing ad targeting and reporting and would have been motivated to ensure that targeted ads were in compliance with applicable laws and regulations as taught in Parekh. Ex-1002, ¶¶ 102, 109.

2. Independent Claim 1

- a. 1[a]: “A system for automating compliance with local broadcasting regulations laid down by a broadcasting authority and applicable to advertisements, said advertisements being provided during time-shifted viewing/listening comprises:”**

Plotnick and Parekh teach Claim 1's preamble to the extent it is limiting. Ex-1002, ¶103. Plotnick discloses an “ad targeting system 600,” which is a “software application that may be integrated into a PVR-enabled set-top box (STB PVR).”

Ex-1005, ¶134; *see* FIG. 6A (below).



Plotnick’s PVR enables users to view advertisements during time-shifted viewing. Ex-1002, ¶104. For example, “a number of events such as fast-forward, commercial skip, and rewind can be used to trigger the alternative advertisement.” Ex-1005, ¶62. These are well-known examples of “time-shifted viewing” because the time of playback in cases of fast-forward and rewind is different, i.e. shifted, from when the material was broadcast to the user. Ex-1002, ¶104.

Plotnick also discloses the STB PVR “differentiates individual viewing habits, characterizes the current viewer based on current and historical viewing

information, and selects advertising appropriate for the current viewer based on the characterization.” Ex-1005, ¶154. To select appropriate advertising, Plotnick’s advertisements contain “control data 1006,” which is metadata that “includes descriptions of the ad content, target audience, encoding attributes, delivery instructions, and contract limitations.” *Id.*, ¶154. Moreover, Plotnick discloses that there are “requirements for ... frequency of viewership by the target audience, and flight information, which indicates the networks and *times for displaying the advertisement.*” *Id.*, ¶169 (emphasis added). Advertisements are also selected based on “*what time of day it is*, what day of the week, ... and other criteria that would be well within the scope of the current invention.” *Id.*, ¶194 (emphasis added).

Metadata to select ads based on “time of day” or “day of the week” encompass metadata relating to time restrictions of local broadcasting time regulations set by a local broadcasting authority. Ex-1002, ¶106. Plotnick’s system automates compliance with such regulations because the PVR processes metadata and filters to select appropriate advertisements without user action. *Id.*

A POSITA seeking additional implementation details for local broadcasting regulations would have looked to related references, like Parekh. Ex-1002, ¶107; *see also* Section XII.A.1. Parekh discloses a “rules engine” that controls “what [media items] are played on-air and in what order ... with a combination of

guidelines and rules, such as [] regulations from regulators 110.” Ex-1007, 11:14-20. These rules “may be static which apply at all times or dynamic which apply only under certain conditions, such as time of day or size of online audience.” *Id.*, 11:26-28. Examples of such rules include “FCC regulations for content, including: that indecent and/or profane material may not be broadcast outside the FCC Safe Harbor[.]” *Id.*, 11:29-31.

Such FCC regulations are local broadcasting time regulations laid down by a broadcasting authority because the FCC Safe Harbor restricts hours during which broadcasters may transmit indecent or profane content and is laid down by the FCC. Ex-1002, ¶107. This was the very regulation that the Applicant agreed was the target of the ’302 Patent. Ex-1002, ¶108; Ex-1004, 240.

A POSITA would have been motivated to implement Parekh’s business rules that ensure compliance with applicable regulations (e.g., FCC time regulations) in Plotnick because Plotnick teaches “day part” and “time of day” as considerations for ad selection. Plotnick is silent on what specific time of day considerations to implement, but a POSITA would have known that applicable FCC regulations are such considerations that define what is legal based on time of day. Ex-1005, ¶¶161, 194; Ex-1002, ¶¶106-110. A POSITA seeking to implement time of day considerations as suggested in Plotnick would have sought further teachings about such time considerations in other ad-targeting teachings and would

have been motivated to implement the teaching in Parekh to ensure that ads complied with FCC regulations. Ex-1002, ¶¶107, 109.

Additionally, a POSITA would have had a reasonable expectation of success in combining these teachings. *Id.*, ¶111. Plotnick’s system uses similar rules to Parekh’s “business rules” (i.e., time-based regulations), including criteria limiting advertisements based on “time of day” or “day of the week.” *Id.* A POSITA implementing Parekh’s teachings would have known to add time restrictions defined in FCC regulations into the Plotnick’s system because it would have simply required adding applicable restriction rules, including times when certain types of content are not allowed according to the FCC regulation as taught in Parekh, and applying such rules based on ad metadata about the content in each ad, as taught in Plotnick. *Id.*; *see, e.g.*, Ex-1005, FIG. 6C (below, showing ads selected based on content).

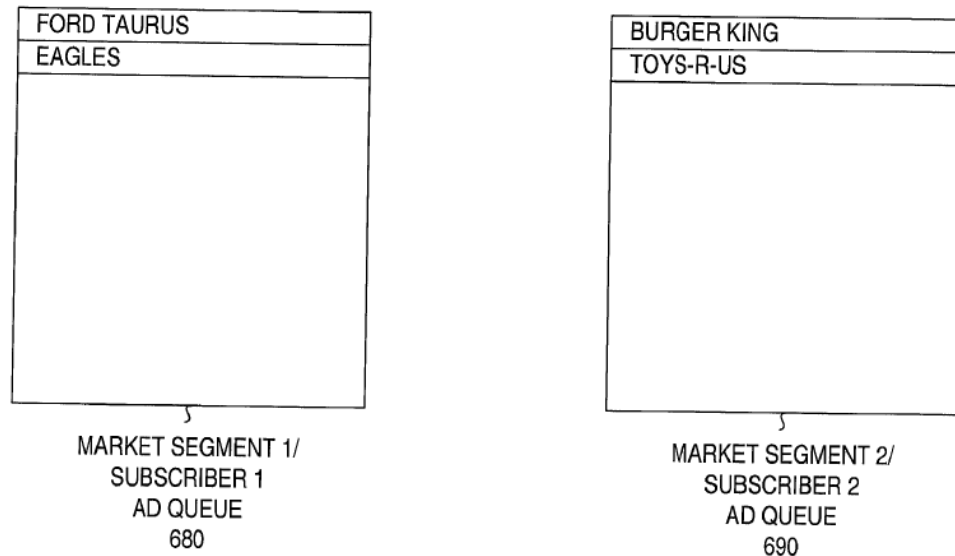
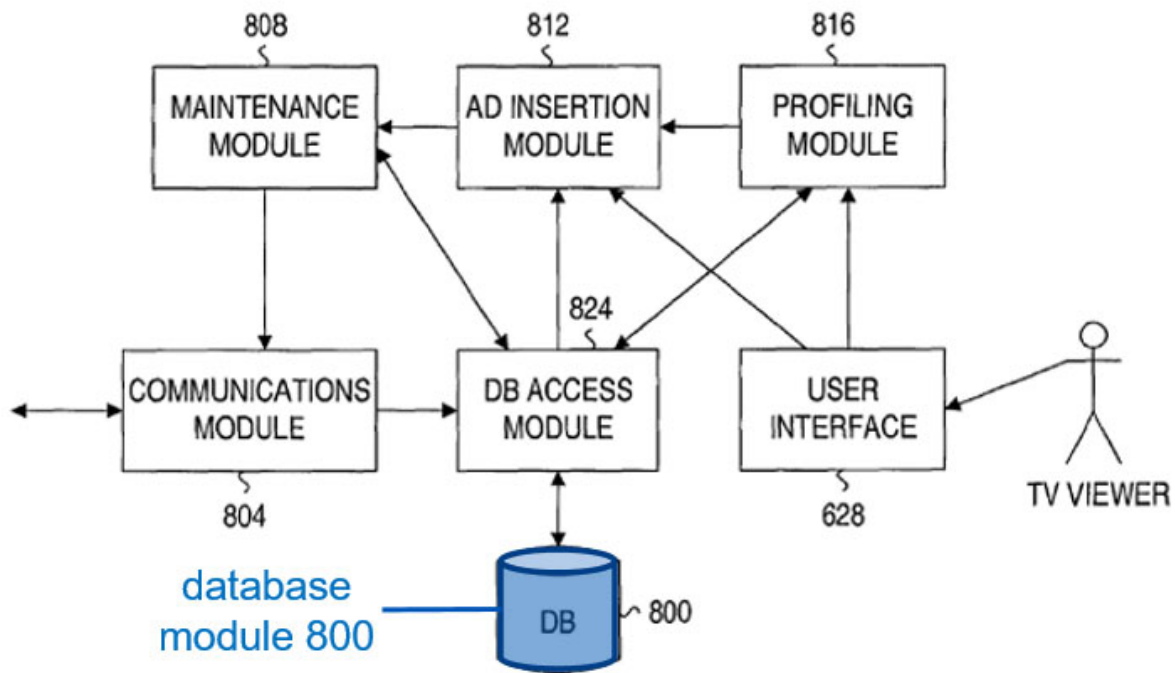


FIG. 6C

b. 1[b]: “programme supply means to supply broadcast digital video/audio programmes having therein periodic breaks for the insertion of advertisements;”

Plotnick teaches element 1[b]. Ex-1002, ¶¶112-115. The “programme supply means” has the structure and function detailed in Section X.A.1. Plotnick discloses “client side STB ad targeting system ... may be integrated into a PVR-enabled set-top box (STB PVR).” Ex-1005, ¶134. The PVR includes “video storage 620 component,” which is a “mass storage device, such as a hard disk drive” “used to store all video audio programs on the set-top box, including ads (commercials).” *Id.*, ¶139.

Plotnick discloses “database module 800” stores “information essential to the operation” of the system, including “ad and program information (metadata), and possibly the ads themselves.” *Id.*, ¶150; *see* Figure 8 below (annotated):



Plotnick receives and delivers video or audio “broadcast” programming “via a program delivery network,” and those programs can be stored on and “played from the set-top box’s hard disk.” *Id.*, ¶¶91, 90, 150; *see* ¶92. Accordingly, Plotnick discloses equivalent structure to “hard disc 62 in PVR 60, containing programme database 80.” Ex-1002, ¶¶113-114.

The programs in video storage 620 component “hav[e] therein periodic breaks for the insertion of advertisements.” Ex-1002, ¶115. In Plotnick, an “ad insertion module” “handles the processes necessary to incorporate targeted ads into television programs, including programs received in real-time or being played from the set-top box’s hard disk.” Ex-1005, ¶150. Through the ad insertion module, “ads may be inserted into the program material at indicated points or ‘avails’ (through

cue messages), or inserted before (pre-pended) or after (post-pended) a program.”

Ex-1005, ¶150; *id.*, ¶¶150, 91, 194. Figure 1 (below) illustrates Plotnick’s programming with periodic advertisement breaks:

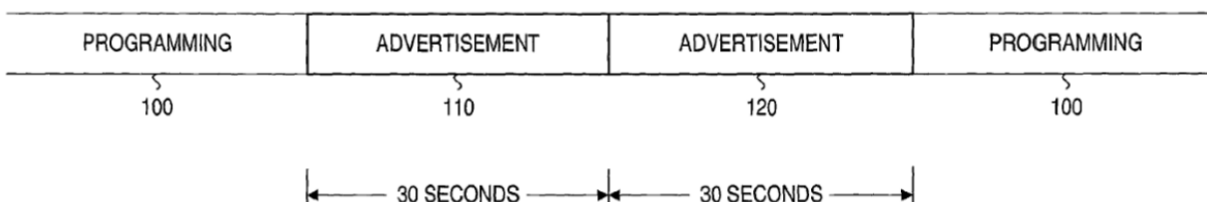
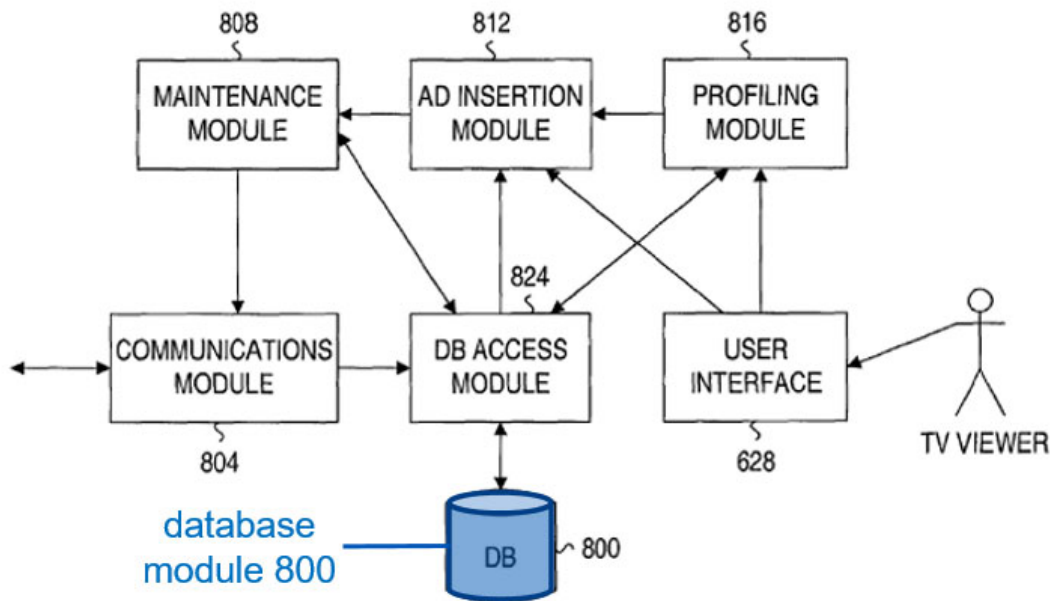


FIG. 1

c. 1[c]: “advertisement supply means to supply advertisements within the periodic breaks,”

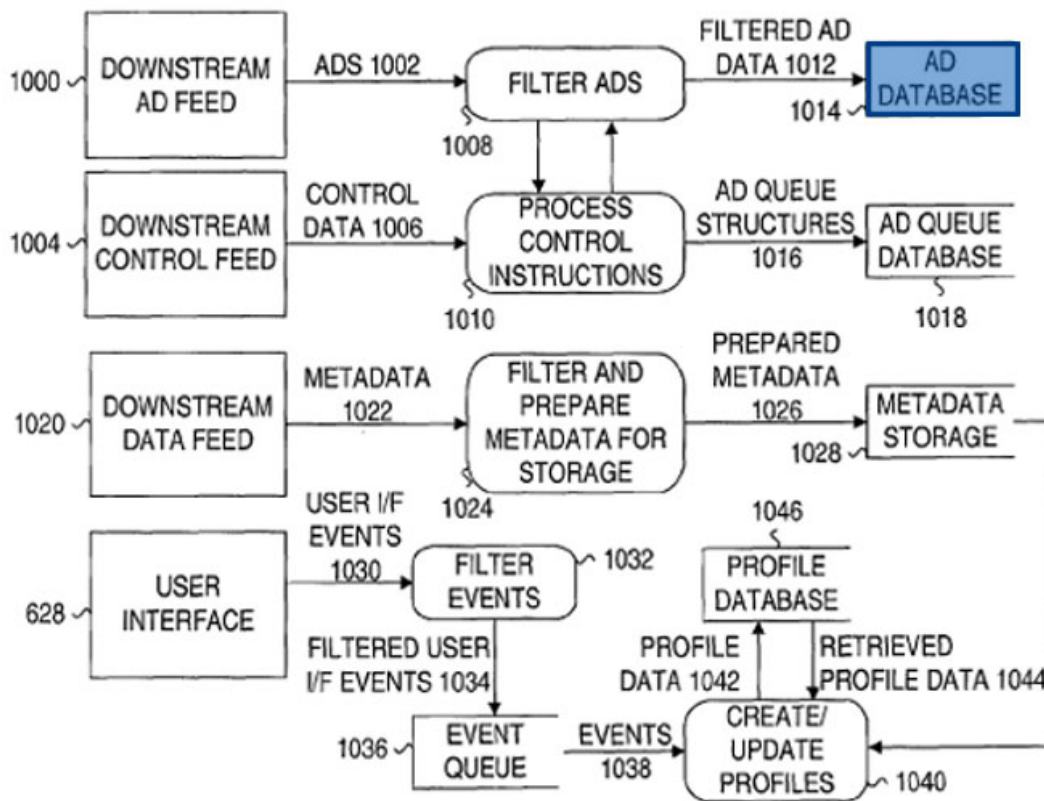
Plotnick teaches element 1[c]. Ex-1002, ¶¶116-120. The “advertising supply means” has the structure and function detailed in Section X. As detailed in Section XII.A.2.b, Plotnick discloses “client side STB ad targeting system may be integrated into a PVR-enabled set-top box (STB PVR),” and the PVR includes a “video storage 620 component,” which may be implemented as “*a hard disk drive*” and “*used to store all video/ audio programs on the set-top box, including ads (commercials).*” Ex-1005, ¶¶134, 139. In a block diagram of Plotnick’s STB PVR system 600, “[a] database module 800 stores information essential to the operation of the ad queuing and profiling system including ... ad and program information

(metadata), and possibly the ads themselves.” *Id.*, ¶150.



Id., Fig. 8 (annotated).

As depicted in Figure 10, ads are stored in an ad database on a hard disk in the PVR. *Id.*, ¶155.



Id., Fig. 10 (annotated). Accordingly, Plotnick discloses equivalent structure to “hard disc 62 in PVR 60, containing advertisement database 70.” Ex-1002, ¶¶117-118.

Plotnick further describes selecting and supplying an advertisement within periodic ad avails during a program. Ex-1005, ¶¶150, 163. Such “ad queues are used as part of or in conjunction with the video storage 620 to provide proper sequencing of ads.” *Id.*, ¶139. Plotnick’s PVR performs processing to manage the ad database and ensure that only ads that are appropriate for the household are stored in the ad database. *Id.*, ¶156. When an ad insertion opportunity arises, the PVR selects an appropriate advertisement to present to the viewer. *Id.*, ¶163. As

detailed in Section XII.A.2.b, Plotnick discloses that advertisements are provided “at indicated points or ‘avails’ (through cue messages), or inserted before (pre-pended) or after (post-pended) a program.” *Id.*, ¶150; *see* FIG. 1.

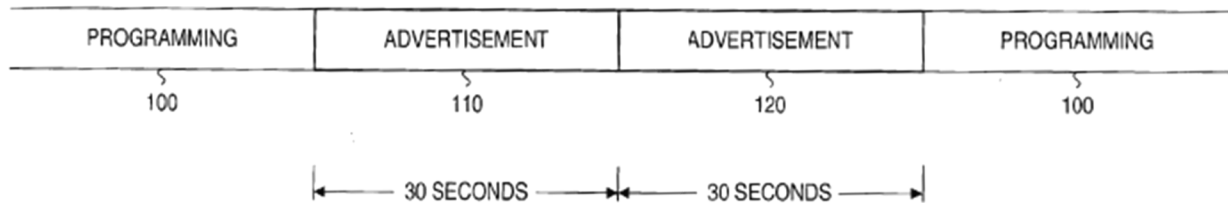


FIG. 1

Such “indicated points” or “avails” are periodic breaks distributed between blocks of content in a program. Ex-1002, ¶119.

A POSITA would have understood that advertisements should be shown in a periodic manner to balance the desire to engage viewers while also showing an optimal number of advertisements. Ex-1002, ¶120. A POSITA would have been motivated to show ads periodically while viewers were still engaged in the program while maximizing the number of ads shown to maximize advertising revenue. Ex-1002, ¶120.

- (1) **1[c.1]: “each advertisement having associated therewith a header comprising a first field related to a local broadcasting time regulation laid down by the broadcasting authority, which local broadcasting time regulation restricts the time of day at which said advertisement may be shown,”**

Plotnick and Parekh teach and disclose element 1[c.1]. Ex-1002, ¶¶121-129. Plotnick discloses that advertisements include “control data 1006,” which is “ad metadata” that “includes descriptions of the ad content, target audience, encoding attributes, delivery instructions, and contract limitations.” Ex-1005, ¶154. The ’302 Patent explains that “the header also contains information including the duration and nature of the advert.” Ex-1001, 3:24-25. Accordingly, Plotnick’s “ad metadata” is the same information as the “header” described by the ’302 Patent. Moreover, a POSITA would have understood that Plotnick’s ad metadata would be in a field of a “header” associated with the advertisement. Ex-1002, ¶¶97-98, 121-123 (explaining that a POSITA would know that metadata is stored in headers with fields).

Plotnick discloses that “control data 1006” is “processed [] to generate ad queue structures that are stored in an ad queue database 1018.” Ex-1005, ¶155. The ad queue and schedule may be generated based on “flight information, which indicates the networks and times for displaying the advertisement.” *Id.*, ¶169. The ad queue may further vary based on “what subscriber 1260 is interacting with the

TV, *what time of day it is*, [or] what day of the week” it is. *Id.*, ¶194 (emphasis added). Plotnick discloses, via U.S. Patent App. No. 09/742,852 (“’852 Application”), which was incorporated by reference,³ more details about selecting advertisements. *Id.*, ¶¶2-14, 36, 194. The ’852 Application discloses that the subscriber’s system may use “time of day” to prepare an ad queue, and the ad schedule may change, e.g., based on “time of day.” Ex-1006, ¶¶50-51. Plotnick thus discloses that “control data 1006,” which is used to generate ad queues, has metadata relating to times for displaying the advertisement and that can be used to select ads based on “what time of day it is.” Ex-1005, ¶¶169, 194; Ex-1002, ¶124. Metadata relating to times for displaying the advertisement would have been stored in a first field of the “control data 1006” header because, as well known by a POSITA, the purpose of a header is to set out required metadata information associated with the underlying data in various fields, so that the information can be retrieved in an organized and predictable way. Ex-1002, ¶124.

Plotnick also discloses including different metadata (e.g., ad rating, topic, brand) as a control data field, and using such data to vary the ad queue based on “time of day.” Ex-1002, ¶125. For instance, Plotnick discloses that “metadata

³ “Material not explicitly contained in the single, prior art document may still be considered” for invalidity purposes “if that material is incorporated by reference into the document.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 481 F.3d 1371, 1381-1382 n.3 (Fed. Cir. 2007).

descriptors” are “used by the PVR to identify and characterize programs” and that “[m]etadata includes descriptive items such as title, genre, [] other program related information, [] the content’s typical or intended demographic and psychographic groups.” Ex-1005, ¶¶107, 109, 136. Plotnick discloses that the control data may include “descriptions of the ad content, target audience, [] delivery instructions, and contract *limitations*.” *Id.*, ¶154 (emphasis added). Plotnick thus discloses control metadata having a field with information related to applicable local broadcasting time regulations laid down by applicable broadcasting authorities because such metadata would include, for instance, information about limitations based on whether the ad content is profane, indecent, relates to alcohol, should not be shown to children during the day, or any other such information related to applicable broadcasting time regulations. Ex-1002, ¶125. For example, Figures 6B and 6C of Plotnick show identification of advertisements by brand, which could signal that the content is not child-friendly (e.g., an alcohol or casino brand). *See* Ex-1005, FIG. 6C (shown below), FIG. 6B.

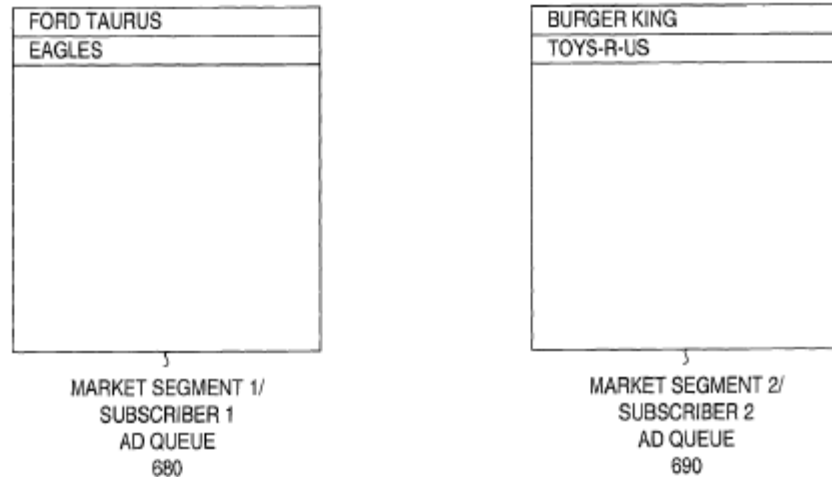


FIG. 6C

A POSITA would have known that broadcasting systems, like those disclosed by Plotnick, may be subject to FCC regulations, which prohibit certain types of content from being broadcast at certain times of day. Ex-1002, ¶¶98, 126-127. Plotnick thus suggests that the “control data 1006” has a field relating to a local broadcasting time regulation laid down by a broadcasting authority. *Id.*

A POSITA implementing the teachings of Plotnick would have been motivated to turn to related references for additional implementation details relating to advertisement metadata, headers, and rules. Ex-1002, ¶127. As explained in Section XII.A.1, Parekh is one such reference. Ex-1002, ¶128. For example, Parekh discloses a “rules engine” that controls “what [media items] are played on air” by applying “a combination of guidelines and rules, such as station policies and regulations from regulators 110.” Ex-1007, 11:14-20. These rules include “business rules,” which may apply “at all times or [be] dynamic which

apply only under certain circumstances, such as time of day.” *Id.*, 11:26-28.

Examples of “business rules” in Parekh include “FCC regulations for content, including: that indecent and/or profane material may not be broadcast outside the FCC Safe Harbor[.]” *Id.*, 11:29-36. Parekh discloses that metadata is associated and transmitted, processed, and stored with each advertisement in a “media database 340.” *Id.*, 10:32–37, 10:57, 11:11–13, 9:66–10:4; Ex-1002, ¶98. As explained in Section VII, this FCC regulation was cited by the Applicant as an example of a local broadcasting time regulation laid down by the broadcasting authority covered by the ’302 Patent. Ex-1004, 240. Specifically, 47 C.F.R § 73.3999 restricts the time of day at which, for example, “indecent” content may be shown.

As set forth in Section XII.A.1, a POSITA would have been motivated to apply Parekh’s rules related to FCC regulations in an implementation of Plotnick. Ex-1002, ¶128. A POSITA would have recognized that Parekh’s FCC regulations could easily be incorporated into Plotnick’s system, including into the control metadata, which already includes information such as “delivery instructions and contract limitations.” *Id.*, ¶128. Parekh teaches the use of metadata associated with each track that is checked against business rules. Ex-1007, 10:47-51; Ex-1002, ¶128. Parekh teaches that each advertisement can have an associated “inclusion criterion” that is used to determine whether and how the advertisement should be

integrated into a broadcast. Ex-1007, 16:17-20, 20:9-21; Ex-1002, ¶128.

A POSITA would have been motivated to incorporate Parekh’s teaching to use metadata relating to applicable FCC broadcasting time regulations as control data in a PVR system like Plotnick. *Id.*, ¶129. Plotnick selects and replaces ads in broadcast programs based on the time of day and specified ad schedules. *Id.* Parekh teaches a similar method for selecting advertisements based on time of day regulations. *Id.* Combining Plotnick and Parekh would have been straightforward—both disclose using metadata associated with each advertisement to control when and how the advertisement is played. *Id.* Indeed, Plotnick teaches using “time of day” and “other criteria” known to a POSITA. Ex-1005, ¶194; Ex-1002, ¶129. Applying the teachings of Plotnick and Parekh regarding adding metadata and associated rules to control ad timing in accordance with FCC regulations would have led to the expected result that an advertisement would only be selected for playback when permitted by such rules. *Id.*, ¶129.

(2) **1[c.2]: “and a second field related to the number of times said advertisement has previously been shown during time-shifted viewing:”**

Plotnick teaches element 1[c.2]. Ex-1002, ¶¶130-131 (explaining that a POSITA would know that metadata is stored in headers with fields). Plotnick discloses that the processing component 1010 “updates the ad metadata 1006 *based on ad delivery* and user interaction.” Ex-1005, ¶156; Ex-1002, ¶130. Additionally,

after an advertisement is presented, “the system *updates the ad metadata* and transmits an insertion report to the head-end.” Ex. 1005, ¶163. As Plotnick explains, the system includes updates to the “ad metadata” based on “ad delivery.” A POSITA would have understood these metrics include the number of times the ad was shown to the user. Ex-1002, ¶130. For example, Plotnick explains that “[t]he traffic and billing system 712 tracks the insertion results and bills the advertiser based on the insertions.” Ex-1005 ¶170. Additionally, Plotnick teaches “upstream data transport module” for sending data and reports to the broadcaster. *Id.*, ¶141.

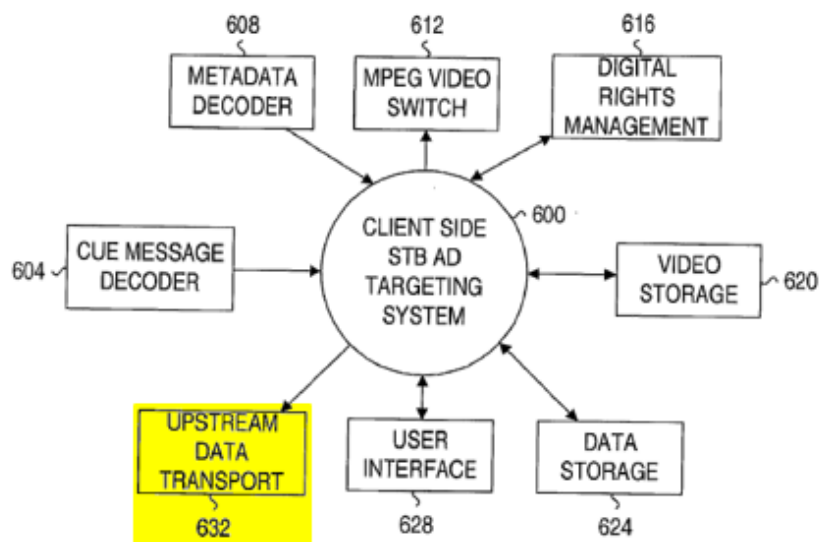


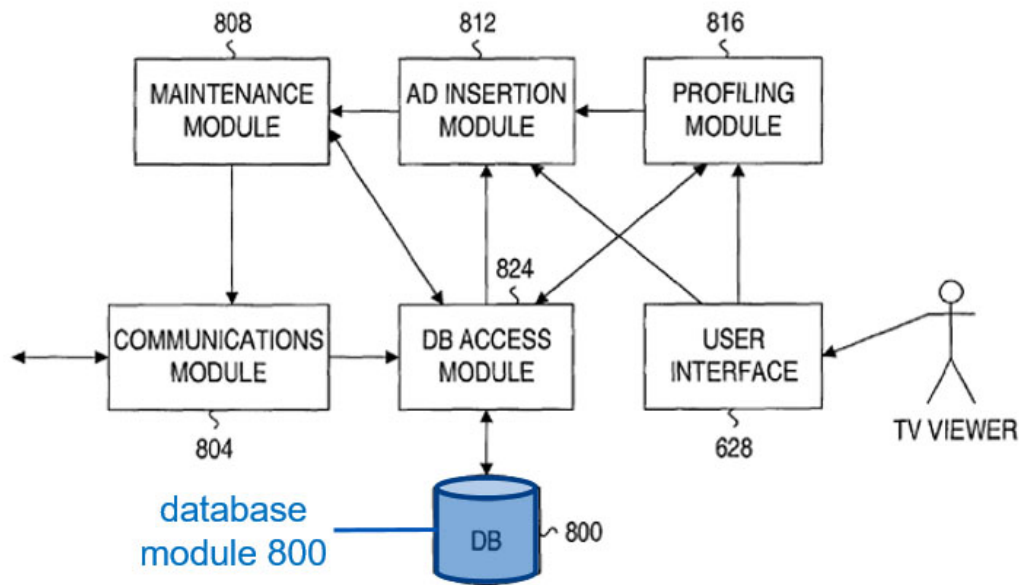
FIG. 6A

As Plotnick explains, viewer usage data is sent back “upstream.” *Id.* ¶168. A POSITA would have been motivated to implement this “upstream” transmission of viewer delivery metadata using a second header field because the data would need

to be stored and associated with the advertisement so that the required reports can be generated. Ex-1002, ¶131. A POSITA would have been motivated to store such data in the advertisements metadata header area, which already includes broadcasting time rules, as explained in Section XII.A.2.c.1. *Id.* The added metadata would simply be included as a second field to existing metadata so that information about number of plays would be separately identifiable from the metadata relating to timing regulations but would similarly be associated with the advertisement it corresponds to. Ex-1002, ¶131. Metadata and headers were well-known, adaptable computing techniques and adding another field to the header would not have unexpected results or required any other changes to the system—it would simply mean that there is an additional data field in the header of each advertisement. Ex-1002, ¶131.

d. 1[d]: “rules database means containing rules relating to said local broadcasting time regulation;”

Plotnick and Parekh teach element 1[d]. Ex-1002, ¶¶132-135. The “rules database means” has the structure and function detailed in Section X.A.3. As detailed in Section XII.A.2.a, Plotnick discloses a “PVR-enabled set-top box (STB PVR).” Ex-1005, ¶107. Plotnick discloses that in the STB ad targeting system, “a database module 800” “stores information essential to the operation of the ad queuing and profiling system including viewer signatures, ad and program information (metadata), and possibly the ads themselves.” *Id.*, ¶150.



Id., FIG. 8 (annotated).

The queue of ads to be displayed may be varied based on time of day. *See* Section XII.A.2.c.1. A POSITA would have known that rules relating to applicable time regulations are “essential to operation of the ad queuing system” and thus stored in “database module 800.” Ex-1002, ¶133. Plotnick discloses that PVR may select ads using processing rules based on playback circumstances. Ex-1005, ¶201, FIG. 14B. In Figure 10 of Plotnick, “process control instructions” 1010 are applied to the control data of each ad to generate ad queues. Ex-1005, FIG. 10, ¶¶155-156. Plotnick thus teaches a hard disc in the PVR containing a rule database with rules relating to a local broadcasting time regulation. Ex-1002, ¶133.

Additionally, Parekh teaches implementing timing rules for selecting advertisements by including consideration of local broadcasting time regulations.

Ex-1002, ¶134. Parekh discloses a “rules engine” that controls “what tracks are played on-air and in what order ... with a combination of guidelines and rules, such as station policies and regulations from regulators 110.” Ex-1007, 11:15-20. Those rules include “business rules,” which can “apply at all times or [be] dynamic which apply only under certain conditions, such as time of day.” *Id.*, 11:26-28. Examples of business rules include “FCC regulations for content, including: that indecent and/or profane material may not be broadcast outside the FCC Safe Harbor.” *Id.*, 11:29-35.

As detailed in Sections XII.A.1 and XII.A.2.c.1, a POSITA would have been motivated to implement Parekh’s business rules in Plotnick’s system. Ex-1002, ¶135. Parekh’s business rules, which include the rules about FCC broadcasting time regulation, would have been predictably added into the rules database of Plotnick with the expected result that such rules would be applied to select advertisements that do not violate the FCC time regulation based on the time of playback. Ex-1002, ¶135. Such rule would be easy to add to or implement in Plotnick because it is merely a variation of Plotnick’s rules for adjusting the ad queue based on “time of day.” *Id.*

e. 1[e]: “clock means to supply a real-time clock signal;”

Plotnick teaches element 1[e]. Ex-1002, ¶¶136-139. The “clock means” has the structure and function detailed in Section X.A.b. As the ’302 Patent admits, this

element was not novel—“known systems” provided a “Real Time of day Signal RT [] via the backchannel in either the Internet connection 24 or the connection via the modem 22.” Ex-1001, 4:43-49.

Like the '302 Patent, Plotnick discloses that “the PVR may be connected to a variety of networks,” including “to the Internet (for return signals) via a telephone line or other network connection.” Ex-1005, ¶110. Plotnick also discloses that “[t]he ad queue 1420 is a list of the next ads 1410 that should be inserted” and “may vary based on what subscriber 1260 is interacting with the TV, *what time of day it is*, what day of the week, what programs are on, and other criteria.” Ex-1007, ¶194 (emphasis added). Moreover, the “filtering and preparing component 1024 makes a determination as to whether to store the program metadata based on the program air times ... and *current system time*.” *Id.*, ¶158 (emphasis added). Plotnick thus discloses a backchannel connection to the Internet or a modem and that the system obtains real-time clock signals. Ex-1002, ¶138.

Parekh also teaches that “In some embodiments, *time and scheduling synchronization*, play list updates, device monitoring and status, playback status, etc. are provided. In some embodiments, real-time or near rear-time events may be coordinate [sic] with a broadcast, *included in real-time or near real-time in a broadcast*, and/or are otherwise supported.” Ex-1007, 19:13-20. Parekh thus teaches time and schedule synchronization and the benefits of synchronizing real-

time events. Ex-1002, ¶139. Parekh, in combination with Plotnick, renders obvious synchronizing time over the Internet or modem connection, e.g., via the Network Time Protocol, and further teaches the motivation for doing so—to ensure accurate time for real-time events. Ex-1002, ¶139.

- f. **1[e.1]: “and control means arranged to read said first field and said clock signal and said rules database and to apply said local broadcasting time regulation to each advertisement before said advertisement is shown;”**

Plotnick teaches element 1[e.1]. Ex-1002, ¶¶140-146. The “control means” has the structure and function detailed in Section X.C.1.

Plotnick discloses “processing component 1010[]” (or “processing 1010”), which acts as a control means within the PVR. *E.g.*, Ex-1005, ¶¶154-156. As described in Section XII.A.2.e, Plotnick discloses that “[t]he ad queue 1420 is a list of the next ads 1410 that should be inserted” and “*what time of day it is*, what day of the week, ... and other criteria.” Ex-1005, ¶194 (emphasis added). Furthermore, as described in Sections XII.A.2.c-d, Plotnick and Parekh teach that each advertisement would have a header with a first field having metadata relating to a local broadcasting time regulation and a rules database with rules based on local broadcasting time regulations. Those fields would have been read so that the Plotnick system knows what constraints might apply to the associated advertisement. Ex-1002, ¶142.

Plotnick also discloses the “control data 1006” is “*processed 1010* to generate ad queue structures 1016 that are stored in an ad queue database 1018.” Ex-1005, ¶155, FIG. 10.

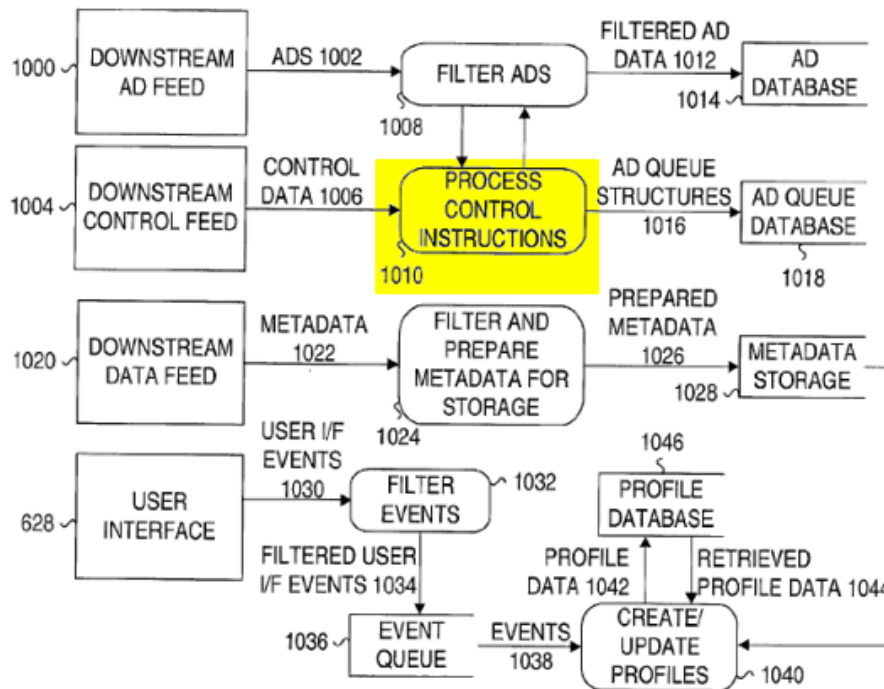


FIG. 10

Based on these teachings, a POSITA would have understood that, to filter what advertisements are played based on “time of day,” the Plotnick system reads the first field metadata to know what restrictions apply, and then applies the correct restriction based on the real-time clock “time of day” information. And the rules applied would be the rules discussed in the rules database, relating to the local broadcasting regulation, as explained in Section XII.A.2.d. Ex-1002, ¶142.

A POSITA would have known that these steps must be applied before an advertisement is shown because they are part of the advertisement selection

process. Ex-1002, ¶143. Each advertisement that is selected to be played would have first been checked by the rules to determine whether it was suitable, e.g., for that time of day or based on other criteria. *Id.* A POSITA would have understood that if a rule did not allow the ad to be played at that time, then processing 1010 would check the same criteria on other stored ads. *Id.* A POSITA thus would have understood that Plotnick teaches the functions “(1) “read said first field and said clock signal and said rules database”; (2) “to apply said local broadcasting time regulation to each advertisement before said advertisement is shown.”⁴ Ex-1002, ¶143.

Plotnick further discloses that its ad targeting system containing processing 1010 “is a software application that may be integrated into a PVR-enabled set-top box (STB PVR).” Ex-1005, ¶134. Based on this disclosure, a POSITA would have understood that Plotnick’s “processing 1010” would be embodied by hardware or software in the PVR that performs these functions. Ex-1002, ¶144. Plotnick therefore teaches equivalent “control means” structure. *Id.* The discussions of claims and claim elements 1[f], 2, 3, 4, 6, 8, 9, 13, 14, 15 also further describe how Plotnick discloses and teaches the structure of the “control

⁴ Petitioner addresses the processing component 1010’s (i.e., the “control means”) performance of the third element of the construed function, “to update the second field in the header of said advertisement when said advertisement is again shown during time-shifted viewing,” in Section XII.A.2.g.

means.” *Id.*

- g. 1[f]: “wherein the control means is further arranged to update the second field in the header of said advertisement when said advertisement is again shown during time-shifted viewing.”**

Plotnick renders obvious element 1[f]. Ex-1002, ¶¶147-148. The processing component 1010 (“control means”) “updates the ad metadata 1006 based on ad delivery and user interaction.” Ex-1005, ¶156. After showing an advertisement to a viewer, “the system updates the ad metadata and transmits an insertion report to the head-end.” *Id.*, ¶163. A POSITA would have been motivated to implement “updating” metadata after an advertisement is shown by updating a second field of the header when an advertisement is shown, including during time-shifted viewing, because updating such metadata in the second field of the header would ensure that metadata in the header is accurate and up-to-date. Ex-1002, ¶148. Moreover, as explained in Section XII.A.2.c.(2), Plotnick/Parekh teach that such information should be stored in a second header field, so an obvious place to store updates to that information in the same field. While there were many equivalent ways to implement this technique, a POSITA would have been motivated to store updated information in the same second header field because this would ensure that if that item is considered for playback again, the system would be able to decide whether to play the item using accurate and up-to-date information. *Id.* Updating such information would also ensure that advertising campaign and targeting criteria are

met. *Id.*, ¶¶60-61, 148 For instance, an advertiser may have purchased only a certain number plays or may have a rule about the frequency at which their ad is shown, e.g., to avoid annoying the viewer. *Id.*, ¶60. These were well-known criteria that would have used up-to-date metadata regarding how many times the ad was played. *Id.*, ¶¶60-61, 148. Additionally, storing and using metadata in fields of a header was well-known. *Id.*, ¶¶122-123, 148. Updating such metadata upon playback, including in time-shifted mode, would have been easy to implement because a POSITA would have known how to update metadata, which could be as simple as incrementing the play-count up when a certain duration of the advertisement is played. *Id.*, ¶148.

3. Claim 2: “The system according to claim 1 in which each header includes a keyword, and the control means checks the keyword against the rules database during application of said local broadcasting time regulation to said advertisement.”

Plotnick and Parekh teach Claim 2. Ex-1002, ¶¶149-153. As described above, Plotnick and Parekh render Claim 1 obvious. As explained in Section VI, the '302 Patent describes that the “control means” may use the keywords “alcoholic drinks” or “politician” to control when such ads are played. Ex-1001, 4:23, 4:35-37, 6:10-12.

Plotnick also discloses that “[s]tored ads and infomercials can be organized and *presented by subject matter* ...” Ex-1005, ¶130. Moreover, control data 1006

“includes *descriptions of the ad content*, target audience, encoding attributes, delivery instructions, and contract limitations.” *Id.*, ¶154. The control data’s descriptions of ad content, including subject matter, are words that describe the ad and are used by Plotnick’s system to deliver appropriate ads and thus are “keywords.” Ex-1002, ¶150.

Plotnick’s Figure 10 shows a data flow for delivering targeted advertisements:

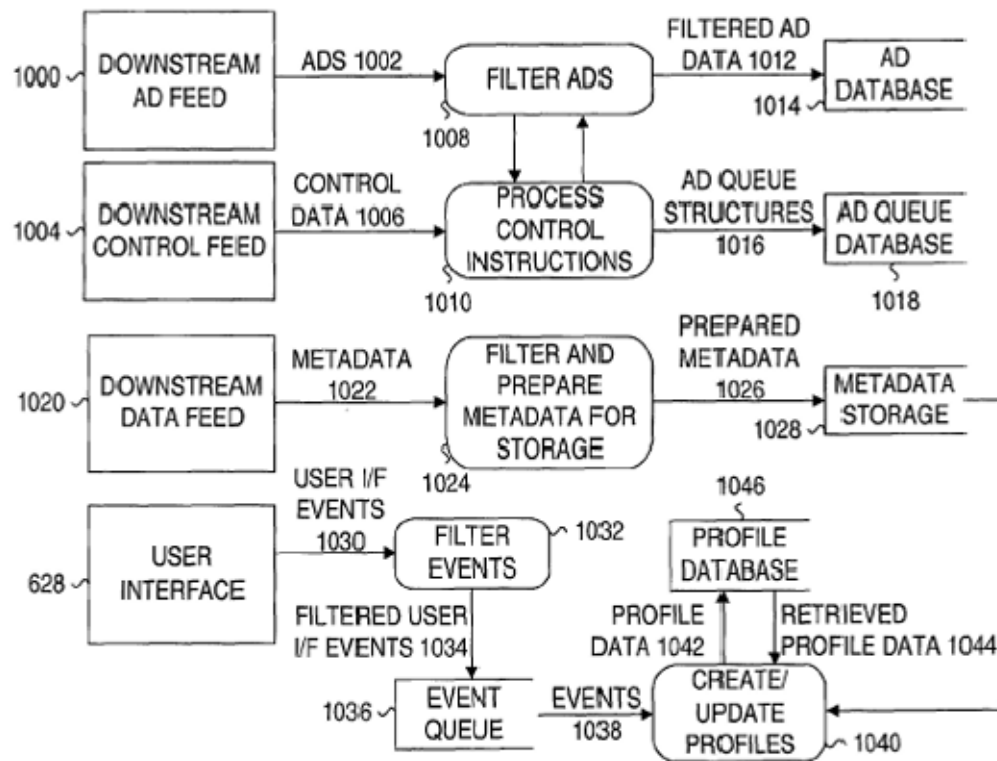


FIG. 10

As shown, process control instructions 1010 and filtering 1008 process control data 1006 to “generate ad queue structures 1016 that are stored in an ad

queue database 1018.” Ex-1005, ¶155. “[P]rocessing 1010” “manages the ad database 1014 and ad queue database 1018” by “examin[ing] the contract limits from the ad metadata 1006 to determine when to purge ads and ad metadata from the associated databases.” *Id.*, ¶156. Processing 1010 works with “filtering 1008” to “determine whether an ad 1002 received from the downstream ad feed 1000 is appropriate for the household by comparing the target audience specified in the ad metadata 1006 with the viewer profiles from a profile database 1046.” *Id.*; Fig. 10. Plotnick depicts ads selected based on content as indicated by the advertiser brand. *Id.*, FIG. 6C (below). Plotnick thus discloses applying advertisement selection rules based on brand names, which a POSITA would have understood as keywords that describe the content and control how it is presented to the user. Ex-1002, ¶152.

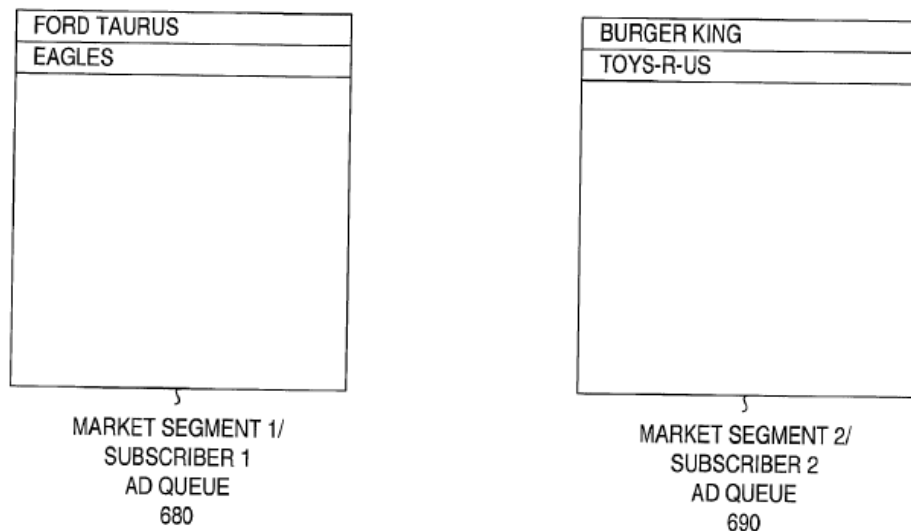


FIG. 6C

As also described with respect to Claim 1 and Claims 3, 4, 6, 8, 9, 13, 14, and 15 below, Plotnick discloses and teaches the structure of the “control means.” Ex-1002, ¶152.

Parekh teaches “FCC regulations for content, including: that indecent and/or profane material may not be broadcast outside the FCC Safe Harbor.” Ex-1007, 11:29-35. As detailed in Section XII.A.1 and with respect to Claim 1, a POSITA would have been motivated to incorporate Parekh’s business rules into Plotnick’s system, using Plotnick’s “ad filter” 1008 to determine if an ad is “appropriate” using keywords or other information about the ad to determine if the ad is “indecent” as explained by Parekh. Ex-1005 ¶156 (“The filtering 1008 determines whether an ad 1002 received from the downstream ad feed 1000 is appropriate”); Ex-1007, 11:29-30, 12:14-28. Ex-1002, ¶153.

4. Claim 3: “The system according to claim 2 in which a further local broadcasting regulation forbids the provision of certain types of advertisement on certain days of the week and each header further indicates a day of the week validity.”

Plotnick and Parekh teach Claim 3. Ex-1002, ¶¶154-155. As described above, Plotnick and Parekh render Claim 2 obvious. Plotnick further discloses that the ad queue may vary based on “*what day of the week*” it is. Ex-1005, ¶194. Criteria affecting whether advertisements can be presented depending on day of the week include local broadcasting regulations forbidding certain types of

advertisement on certain days of the week. Ex-1002, ¶¶154. As detailed in Sections XII.A.1 and XII.A.2.c.1, this regulation would be in control data 1006, which includes “descriptions of the ad content, target audience, encoding attributes, delivery instructions, and contract limitations” to create the ad queue.

Parekh teaches a “rules engine” applies business rules to determine whether to display certain ads, including “dynamic [rules] which apply only under certain conditions, such as time of day.” Ex-1007, 11:26-28. Parekh discloses business rules like “FCC regulations for content, including: that indecent and/or profane material may not be broadcast outside the FCC Safe Harbor.” *Id.*, 11:29-31. As detailed in Sections XII.A.1 and XII.A.2.c.1, a POSITA would have been motivated to incorporate Parekh’s local broadcasting regulations into Plotnick. Ex-1002, ¶155.

5. Claim 4: “The system according to claim 1 in which the advertisements include interactive advertisements to which a response by a consumer is requested.”

Plotnick and Parekh teach Claim 4. Ex-1002, ¶156. As described above, Plotnick and Parekh render Claim 1 obvious. Plotnick discloses that “[i]nteractive ads can also be utilized to deliver advertising to subscribers” and that “[i]n the interactive ads a user may be prompted to indicate which ad he/she wants to watch and then may be asked to interact with that ad.” Ex-1005, ¶131.

6. **Claim 6: “The system according to claim 1 in which the broadcast video/audio programme is arranged to contain information including the duration of each segment of programme between periodic breaks and the duration of the next periodic break.”**

Plotnick and Parekh teach Claim 6. Ex-1002, ¶¶157-158. As described above, Plotnick and Parekh render Claim 1 obvious. In Plotnick, “ads may be inserted into the program material at indicated points or ‘avails’ (through cue messages)” as Figure 1 illustrates. Ex-1005, ¶150; *see id.*, ¶¶90, 194.

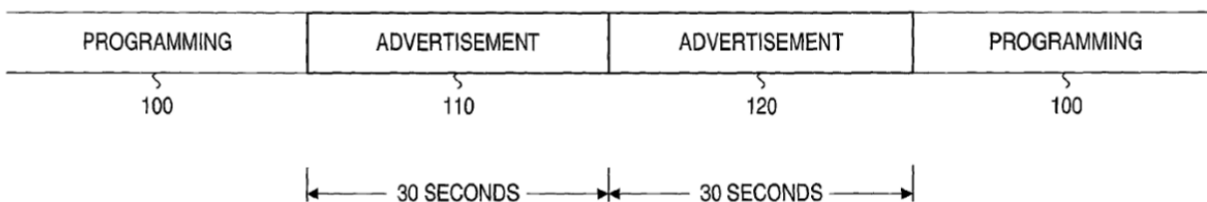


FIG. 1

Id., FIG. 1. As shown, the programming contains two 30-second periodic advertisement breaks. A POSITA would have known the program contains information about break duration so that the system can seamlessly provide advertisements to users. Ex-1002, ¶158. Knowing the duration of the breaks would allow Plotnick’s system to select appropriate length advertisements for each periodic break. *Id.*, ¶158. Plotnick discloses that “processing rules 1310 for a subscriber 1260 whose viewing preferences indicate that they do not to like a lot of

action in their program choices may be to simply select an individual image from the advertisement 1230 and display it for the length of the alternative advertisement 1300 (i.e., 2 seconds).” Ex-1005, ¶187. Alternatively, “processing rules 1310 for a subscriber 1260 whose viewing preferences was quick changing action may be to select several images and display each of them for a *certain time* (i.e., four images each for a half-second for the two second alternative ad 1300).” *Id.*, ¶187; *see id.*, ¶231.

7. Claim 7: “The system according to claim 1, wherein the system is a personal video recorder (PVR), and wherein the rules database means is a rules database stored locally in the PVR.”

Plotnick and Parekh teach Claim 7. Ex-1002, ¶¶159-160. As described above, Plotnick and Parekh render Claim 1 obvious. Plotnick’s “client side STB ad targeting system 600 is a software application that may be integrated into a PVR-enabled set-top box (STB PVR).” Ex-1007, ¶134. As detailed in Section XII.A.2.d, Plotnick discloses the rules database means stored in the PVR. Ex-1002, ¶¶159-160. Plotnick discloses “database module 800” within the PVR “stores information essential to the operation of the ad queuing and profiling system including viewer signatures, ad and program information (metadata), and possibly the ads themselves.” Ex-1005, ¶150.

8. **Claim 8: “The system according to claim 1, wherein the control means is further arranged to, when the application of said local broadcasting time regulation to a particular advertisement indicates that showing the particular advertisement would violate the local broadcasting time regulation, search the advertisements stored in the advertisement supply means until either an advertisement is found that does not violate the local broadcasting time regulation or it is determined that no advertisement stored in the advertisement supply means is suitable for showing under the local broadcasting time regulation.”**

Plotnick and Parekh teach Claim 8. Ex-1002, ¶¶161-163. As described above, Plotnick and Parekh render Claim 1 obvious. Plotnick discloses processing 1010 works with “filtering 1008” to “determine whether an ad 1002 received from the downstream ad feed 1000 is appropriate for the household by comparing ... the ad metadata 1006 with the viewer profiles from a profile database 1046.” Ex-1005, ¶156. “Ads that are not appropriate for viewers in this household will be discarded.” *Id.* Plotnick also discloses the ad queue 1420, which “is a list of the next ads 1410 that should be inserted,” may “vary based on ... what time of day it is, what day of the week, ... and other criteria.” *Id.*, ¶194. As also described with respect to Claims 1, 2, 3 4, and 6 and Claims 9, 13, 14, and 15 below, Plotnick discloses and teaches the structure of the “control means.”

Parekh further teaches that if an advertisement cannot be played at the time, e.g., due to FCC regulations, it is removed from consideration. Ex-1007, 11:58-12:4. A POSITA would have understood the system would play the next option

that does not violate the regulation, or play no ad if no such ad exists. Ex-1002, ¶162.

A POSITA have been motivated to implement the combined teachings of Plotnick and Parekh such that that if the current advertisement cannot be played due to a local broadcasting regulation, then the control means should search for a compliant alternative. Ex-1002, ¶163. It is standard a typical computing process to look for another item that works if a first item does not, especially where, as in both Plotnick and Parekh, there exists a database where a suitable option may be found. Ex-1002, ¶163.

9. Dependent Claim 9

- a. 9[a, b, c]: “The system according to claim 8, wherein the advertisements stored in the advertisement supply means include advertisements that were broadcast live with a programme being shown during time-shifted viewing and also include advertisements that were received by the system other than in the live broadcast of the programme being shown in time-shifted viewing.”**

Plotnick and Parekh teach elements 9[a, b, c]. Ex-1002, ¶164. As described above, Plotnick and Parekh render Claim 8 obvious. In Plotnick, “advertisements [] may be a separate video (preferred for non-related advertisements) or may be derived from the video for the recorded advertisements.” Ex-1005, ¶171; *see id.*, ¶194. Plotnick teaches substituting ads during live or recorded programming. Ex-1005, ¶128. Plotnick teaches playing alternative ads instead of ads recorded from

the live broadcast; those alternative ads may be from the media buyer or advertiser. Ex-1005, Abstract, ¶178. Plotnick thus discloses that the stored advertisements may be from live recordings or another source. Ex-1002, ¶164. As also described with respect to Claims 1, 2, 3 4, 6, and 8 and Claims 13, 14, and 15 below, Plotnick discloses and teaches the structure of the “control means.”

- b. 9[d]: “and wherein the control means is further arranged to show during time-shifted viewing of the programme a mix of advertisements that were received during the live broadcast of the programme and advertisements that were received other than in the live broadcast of the programme being shown during time-shifted viewing.”**

Plotnick and Parekh teach element 9[d]. Ex-1002, ¶165. Processing 1010 and filtering 1008 process control data 1006 to “generate ad queue structures 1016 that are stored in an ad queue database 1018.” Ex-1005, ¶155. In Plotnick, “the alternative advertisements 230, 240 are displayed in place of or in conjunction with the fast forwarding, rewinding, skip or pausing advertisements 210, 220, when the subscriber fast forwards, rewinds, skips or pauses [] through the recorded advertisements 110, 120.” *Id.*, ¶171. Plotnick teaches alternative ads can be played instead of ads that were recorded from the broadcast. Ex-1005, Abstract; Ex-1002, ¶165. Plotnick thus discloses its control means, which generates ad queue structures, includes live broadcast and alternative ads for playback during time-shifted viewing. Ex-1002, ¶165.

10. Independent Claim 12

Claim 1 and Claim 12 are similar, and Claim 12 only adds the “output means” (element (12[f])), which is merely a connection between the PVR and television set. *See* Ex-1020; Section X.B.3.

- a. **12[a]: “A Personal Video Recorder (PVR) for use in a system for automating compliance with local broadcasting regulations laid down by a broadcasting authority and applicable to advertisements, said advertisements being provided during time-shifted viewing/listening, the PVR comprising:”**

As explained in Section XII.A.2.a, Plotnick and Parekh teach Claim 12’s preamble to the extent it is limiting. Ex-1002, ¶167.

- b. **12[b]: “data storage means storing a programme episode database, an advertisement database, and a rules database,”**

Plotnick and Parekh teach element 12[b]. Ex-1002, ¶¶168-169. The “data storage means” has the structure and function detailed in Section X.A.4. Plotnick discloses the PVR includes a “video storage 620 component,” which stores video programs and ads and may be implemented as “a hard disk drive.” Ex-1005, ¶139. Plotnick discloses “[a] database module 800 stores information essential to the operation of the ad queuing and profiling system including ... ad and program information (metadata), and possibly the ads themselves.” *Id.*, ¶150. A POSITA would have understood that Plotnick’s video storage component and database module disclose hard disc 62 in PVR 60. Ex-1002, ¶168.

As detailed, the PVR includes a “video storage 620 component” “to store all video audio programs on the set-top box, including ads (commercials).” Ex-1005, ¶139. Plotnick also discloses “[a] database module 800 stores information essential to the operation of the ad queuing and profiling system including ... ad and program information (metadata), and possibly the ads themselves.” *Id.*, ¶150. A POSITA would have understood the video storage component and database module store program episode, advertisement, and rules databases because these databases are essential to the operation of Plotnick’s ad queuing and profiling system and store “program information” and “the ads themselves.” *Id.*; *see* Section XII.A.2.b-d.

- c. **12[c]: “each stored advertisement having associated therewith a header comprising a first field related to a local broadcasting time regulation laid down by the broadcasting authority, which local broadcasting time regulation restricts the time of day at which said advertisement may be shown,”**

As explained in Section XII.2.c.1, Plotnick and Parekh teach element 12[c]. Ex-1002, ¶170.

- d. **12[d]: “and a second field related to the number of times said advertisement has previously been shown during time-shifted viewing, wherein the rules database contains rules relating to said local broadcasting time regulation, and wherein the stored programme episodes have periodic breaks for the insertion of advertisements;”**

Plotnick and Parekh teach element 12[d]. Ex-1002, ¶171. As explained in

Section XII.A.2.c.2, Plotnick and Parekh disclose “and a second field related to the number of times said advertisement has previously been shown during time-shifted viewing.” Ex-1002, ¶171. As explained in Section XII.A.2.d, Plotnick and Parekh disclose “wherein the rules database contains rules relating to said local broadcasting time regulation.” *Id.* As explained in Section XII.A.2.b, Plotnick and Parekh disclose “and wherein the stored programme episodes have periodic breaks for the insertion of advertisements.” *Id.*

e. 12[e]: “input connection means for connection to a source of video/audio signals and a real-time clock signal;”

Plotnick and Parekh teach element 12[e]. Ex-1002, ¶¶172-173. The “input connection means” has the structure and function detailed in Section X.B.2. As the ’302 Patent admits, such input connection means was known. Ex-1001, 4:43–45.

In Plotnick, the PVR STB supports upstream and downstream data transmission and digital television reception, including a tuner/demod that receives programming and data. Ex-1005, ¶107. The PVR connects to a cable network, receive signals from a satellite, or connect to the Internet via a telephone line or other network connection. Ex-1005, ¶¶110, 111. The PVR receives advertisements via those connections. Ex-1005, ¶110. Plotnick thus discloses a PVR STB with a connection between the PVR and an aerial, a modem, or the Internet. Ex-1002, ¶172; Ex-1002 ¶73. Like the ’302 Patent, Plotnick discloses that “the PVR may be

connected to a variety of networks,” including “to the Internet (for return signals) via a telephone line or other network connection” via the aforementioned connections. Ex-1005, ¶¶110, 111; Ex-1002 ¶173. And as described in Section XII.A.2.e, the Plotnick PVR system is aware of “*what time of day it is*, what day of the week” and makes determinations based on “*current system time*.” Ex-1005, ¶¶194, 158 (emphasis added). As described in Section XII.A.2.e, Plotnick and Parekh render obvious that such connection means provide the real-time clock signal. Ex-1002, ¶173.

f. 12[f]: “output means for connection to a consumer's viewing/listening unit;”

Plotnick and Parekh teach element 12[f]. Ex-1002, ¶174. The “output means” has the structure and function detailed in Section X.B.3. As shown in Figure 3, annotated below, “video out” and “audio out” connect the PVR and user’s television:

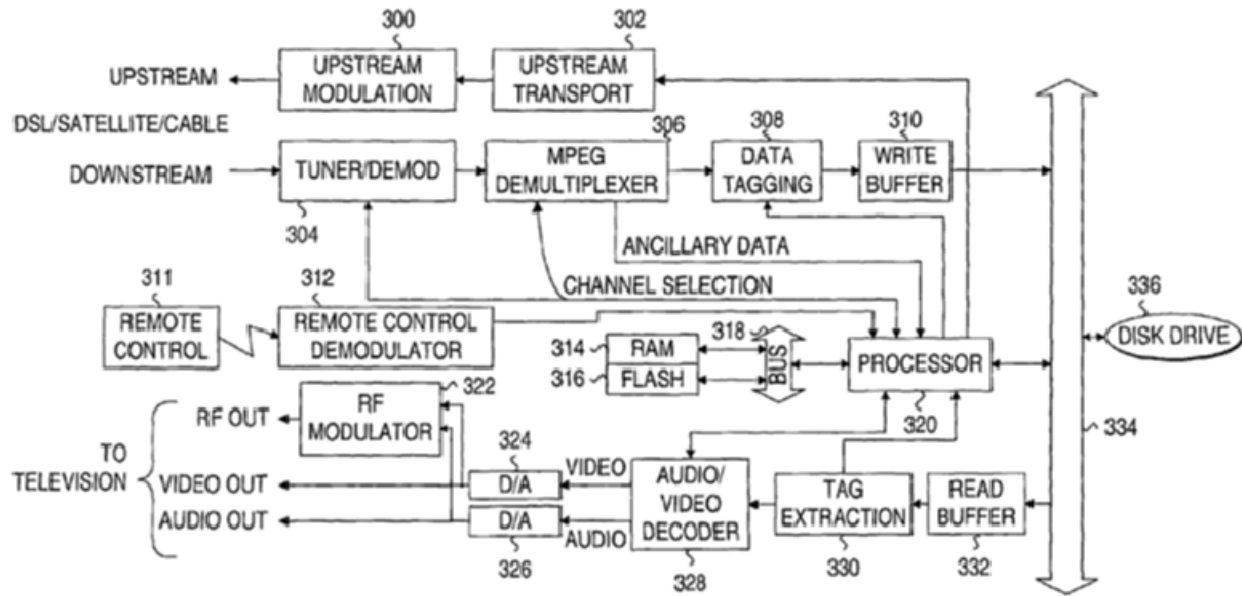


FIG. 3

A POSITA would have understood the video and audio out connect a user's viewing and listening unit as common in PVR and televisions. Ex-1002, ¶175.

- g. **12[g]: “and control means arranged to read said first field and said clock signal and said rules database and to apply said local broadcasting time regulation to each advertisement before said advertisement is shown during one of the periodic breaks;”**

As explained in Section XII.A.f, Plotnick and Parekh teach element 12[g].

Ex-1002, ¶176.

- h. **12[h]: “wherein the control means is further arranged to update the second field in the header of said advertisement when said advertisement is again shown during time-shifted viewing.”**

As explained in Section Section XII.A.g, Plotnick and Parekh teach element

12[h]. Ex-1002, ¶177.

- 11. Claim 13: “The PVR according to claim 12 arranged to read the real-time clock, to read the first field in the header of an advertisement, to read the rules database, and to provide that advertisement to a consumer’s viewing/listening unit only when its header and the rules database do not indicate that the advertisement may not be viewed at the real time of day indicated by the clock signal.”**

As described above, Plotnick and Parekh render Claim 12 obvious. Ex-1002, ¶178. As explained in Sections XII.A.2 and XII.A.10, Plotnick and Parekh teach reading and using information from a real-time clock signal, the first field in the advertisement header, the rules database, and applying the rules to provide the advertisement to the TV only when the headers and rules do not forbid it at that time of day, as recited in Claim 13. *Id.*

- 12. Claim 14: “The PVR according to claim 13 further arranged to supply to the viewing unit interactive advertisements which request a response from the viewer, and to record such a response.”**

Plotnick and Parekh teach Claim 14. Ex-1002, ¶179. As described above, Plotnick and Parekh render Claim 13 obvious. A POSITA would have understood that Plotnick records the viewer’s response. Ex-1002, ¶179. In Plotnick, after an advertisement is presented, “the system updates the ad metadata and transmits an insertion report to the head-end.” Ex-1005, ¶163. Plotnick creates an “ad play report 1160” when “ads are displayed to the subscriber.” *Id.*, ¶169. A POSITA would have known that a viewer’s recorded response is more information to improve targeting. *Id.*, ¶179.

13. Claim 15: “The PVR according to claim 13, further arranged to update the second field in the header when said advertisement is provided to the consumer's viewing/listening unit.”

As described above, Plotnick and Parekh render Claim 13 obvious. As explained in Section XII.A.2.g and XII.A.10.h, Plotnick and Parekh teach Claim 15. Ex-1002, ¶180.

B. Ground 2: Plotnick Renders Claims 1–4, 6–9, 12–15 Obvious

In the underlying litigation, Patent Owner alleges the challenged claims are met when advertisements are shown based on advertiser-defined schedules. Ex-1022, 3-4; Ex-1023, 2-3. Should the Board agree this is within the scope of the challenged claims, Plotnick alone renders the challenged claims obvious because Plotnick teaches selecting ads based on advertiser-defined schedules. Ex-1002, ¶181.

1. Claim 1

a. 1[a]

Patent Owner asserts this element is met by a system that plays advertisements in video programming and that abides by laws. Ex-1002, ¶182; *see* Ex-1022, 3 (excerpts below):

Google Inc. (Google), through its subsidiary YouTube, provides YouTube TV, which “lets you watch live TV, on demand video, and cloud-based DVR from major broadcast and popular cable networks.” *See* https://tv.youtube.com/welcome/?utm_source=prod.

Google’s Google Ads program provides advertisements for YouTube TV; its Display Network targeting allows advertisers to “set where or when ads are shown based on features of their ideal audience.” *See* https://ads.google.com/intl/en_us/home/resources/reach-larger-new-audiences/.

Google's Google Ads provides advertisements that "are designed" to "abide by laws." See <https://support.google.com/adspolicy/answer/6008942>. Additionally, Google attests that its ads will "comply with the local laws for any area [its] ads target." See <https://support.google.com/adspolicy/answer/6023676>.

Patent Owner's interpretation gives no patentable weight to the preamble of Claim 1 and does not require "compliance with local broadcasting regulations *laid down by a broadcasting authority*." Ex-1022, 3 (emphasis added); Ex-1002, ¶183.

Plotnick meets the Patent Owner's interpretation of the preamble of Claim 1. Plotnick provides advertisements in time-shifted viewing by "ad targeting system 600," which is a "software application that may be integrated into a PVR-enabled set-top box (STB PVR)." Ex-1005, ¶134; see FIG. 6A. Plotnick is "described in relation to the recording and playback of advertisements utilizing a PVR" and thus enables users to view advertisements during time-shifted viewing. Ex-1005, ¶95; Ex-1002, ¶184.

A POSITA would have also understood that Plotnick teaches a lawful system. Ex-1002, ¶185. A POSITA would have implemented the Plotnick system in a way that complies with applicable laws, including FCC regulations, to avoid penalties, legal action, or other adverse consequences. Ex-1002, ¶185.

Plotnick thus discloses, or at least renders obvious, the preamble of Claim 1 under Patent Owner's interpretation. Ex-1002, ¶186.

b. 1[b]

As described in Section VIII.A.2.b, Plotnick discloses this element. Ex-1002, ¶187.

c. 1[c, c.1, c.2]

Patent Owner asserts these elements are met by a system that plays recorded programs and selects ads for such programs based on advertiser-defined schedules and ad frequency criteria. Ex-1022, ¶188; *see* Ex-1022, 5-6 (excerpts below):

Furthermore, YouTube allows for “day and time targeting” of advertisements. *See* <https://support.google.com/displayvideo/answer/2697407>.

Additionally, Google utilizes proprietary algorithms and machine learning to “manage ad frequency,” demonstrating that Google provides a second field related to the number of times a particular advertisement has previously been shown. *See* <https://www.blog.google/products/marketingplatform/360/privacy-safe-approach-managing-ad-frequency/>.

Patent Owner’s interpretation of 1[c] thus does *not* require and gives no patentable weight to a “local broadcasting time regulation,” much less “a header comprising a first field” related to such regulation. *Id.*; Ex-1002, ¶189.

Plotnick discloses selecting ads (for an ad queue), based on “frequency of viewership” and “times for displaying the advertisement” set by advertisers, and discloses playing ads in breaks in programs recorded by a PVR. Ex-1005, ¶169; Ex-1002, ¶190. Plotnick thus discloses these claim elements under Patent Owner’s interpretation. Ex-1002, ¶190.

d. 1[d]

Patent Owner asserts this element is met by a system that abides by laws and regulations. *See* Ex-1022, 6 (excerpt below):

Google’s YouTube TV provides ads that “abide by laws” as referenced above in limitation [1a]. *See* <https://support.google.com/adspolicy/answer/6008942>. Google admits that it regularly reviews “changes in online trends and practices, industry norms, and **regulations**.” *Id.*, emphasis added.

As described in Section XII.A.1, a POSITA would have found it obvious to implement the Plotnick system in a manner that abides by laws. Ex-1002, ¶191. A POSITA would have been motivated to apply Plotnick’s teachings in a way that abides by laws and regulations to avoid penalties, legal action, or adverse consequences that may interfere with or prevent use of the system. Ex-1002, ¶192. Plotnick thus renders 1[d] obvious under Patent Owner’s interpretation. Ex-1002, ¶192.

e. 1[e, e.1]

Patent Owner asserts these elements are met by a system that “allows advertisers to ‘specify certain hours or days of the week when [they] want [their] ads to show.’” Ex-1022, 7. Patent Owner’s interpretation of 1[e] and 1[e.1] does not require any particular structure, method, or frequency of obtaining a real-time clock signal. *Id.*; Ex-1002, ¶193.

Plotnick discloses selecting ads to be played based on timing criteria set by advertisers. Ex-1005, 169; Ex-1002, ¶193. Plotnick thus discloses these claim elements under Patent Owner’s interpretation. Ex-1002, ¶194.

f. 1[f]

Patent Owner asserts this element is met by a system that manages ad frequency. Ex-1022, 7. Plotnick discloses selecting ads to be played (ad queue), based on timing and frequency criteria from advertisers, and discloses playing such

ads in breaks in programs recorded by a PVR. Ex-1005, ¶169 (advertisers set “frequency of viewership” and “times for displaying the advertisement”); Ex-1002, ¶197. Plotnick thus discloses this claim element under Patent Owner’s interpretation. Ex-1002, ¶197.

2. Claim 2

Patent Owner contends Claim 2 is met for the same reasons that 1[a] and 1[c] are met. Ex-1022, 8. For the reasons described in Sections XII.A.2.a and XII.A.2.c, Plotnick discloses elements 1[a] and 1[c] and therefore discloses Claim 2 under Patent Owner’s interpretation. Ex-1002, ¶198.

3. Claim 3

Patent Owner contends Claim 3 is met for the same reasons that 1[a] and 1[c] are met. Ex-1022, 8. For the reasons described in Sections XII.A.2.a and XII.A.2.c, Plotnick discloses elements 1[a] and 1[c] and therefore discloses Claim 3 under Patent Owner’s interpretation. Ex-1002, ¶199.

4. Claim 4

Patent Owner contends the dependent limitation of Claim 4 is met by a system with interactive features. Ex-1022, 9. As described in Section XII.A.5, Plotnick discloses advertisements wherein a user can interact by clicking on links and/or through a remote and/or panel on the STB. Ex-1002 ¶199. Plotnick thus discloses Claim 4 under Patent Owner’s interpretation. Ex-1002, ¶200.

5. Claim 6

Patent Owner contends Claim 6 is met by a system with programs having periodic breaks for advertisements because such programs “necessitate[e] inclusion of information related to segment duration.” Ex-1022, 9. As described in Section XII.B.5, Plotnick describes such a system. Per Patent Owner’s claim interpretation, Plotnick discloses programs containing information related to segment duration as required by Claim 6. Ex-1002, ¶201.

6. Claim 7

As described in Section XII.A.7, Plotnick discloses that its system is a PVR and that the rules database means is stored locally in the PVR. Ex-1002 ¶202.

7. Claim 8

Patent Owner contends claim 8 is met by a system that provides advertisements in accordance with elements 1[a] and 1[c] because searching for such advertisements “by definition results either in success, and the finding of an advertisement that ‘does not violate the local broadcasting time regulation,’ or in failure and the determination that no advertisement stored in the advertisement supply means is suitable for showing under local broadcasting time regulation.” Ex-1022, 10-11. As discussed in Sections XII.A.2.a and XII.A.2.c, Plotnick discloses an advertisement system that provides advertisements in accordance with elements 1[a] and 1[c]. Plotnick thus discloses Claim 8 under Patent Owner’s interpretation. Ex-1002 ¶203.

8. Claim 9

a. 9[a, b, c]

Patent Owner contends Claim 9 is met by a system that meets element 1[c] because such a system is configured to “provide advertisements both broadcasted live and later supplied” and “necessitates the inclusion of advertisements that were not aired live, but added ex post facto by the control means of this system.” Ex-1022, 11-12. As discussed in Section XII.A.2.c, Plotnick discloses a system that meets element 1[c], and as discussed in Section XII.A.9, Plotnick teaches including advertisements that were not aired live. Plotnick thus discloses 9[a, b, c] under Patent Owner’s interpretation. Ex-1002, ¶204.

b. 9[d]

Patent Owner contends element 9[d] is met by a system that meets element 1[c] and shows a “mix of advertisements” during time-shifted viewing. Ex-1022, 12. As discussed in Section XII.A.2.c, Plotnick discloses a system that meets element 1[c], and as discussed in Section XII.A.9, Plotnick teaches displaying a mix of advertisements during time-shifted viewing. Plotnick thus discloses 9[d] under Patent Owner’s interpretation. Ex-1002, ¶205.

9. Independent Claim 12

a. Element 12[a]

As explained in Section XII.B.1.a, Plotnick discloses 12[a] under Patent Owner’s interpretation. Ex-1002, ¶206.

b. Element 12[b]

As explained in Section XII.B.1.b, Plotnick discloses 12[b] under Patent Owner's interpretation. Ex-1002, ¶207.

c. Element 12[c]

As explained in Section XII.B.1.c, Plotnick discloses 12[c] under Patent Owner's interpretation. Ex-1002, ¶208.

d. Element 12[d]

As explained in Section XII.B.1.c and XII.B.1.d, Plotnick discloses 12[d] under Patent Owner's interpretation. Ex-1002, ¶209.

e. Element 12[e]

As explained in Section XII.B.1.e and XII.B.1.f, Plotnick discloses 12[e] under Patent Owner's interpretation. Ex-1002, ¶210.

f. Element 12[f]

As explained in Section XII.B.1.e and XII.B.1.f, Plotnick discloses 12[f] under Patent Owner's interpretation. Ex-1002, ¶211.

g. Element 12[g]

As explained in Section XII.B.1.e and XII.B.1.f, Plotnick discloses 12[g] under Patent Owner's interpretation. Ex-1002, ¶212.

h. Element 12[h]

As explained in Section XII.B.1.g, Plotnick discloses 12[h] under Patent Owner's interpretation. Ex-1002, ¶213.

10. Claim 13

As explained in Section XI.B.1 and XI.B.9, Plotnick discloses the dependent claim element of Claim 13 under Patent Owner's interpretation. Ex-1002, ¶214.

11. Claim 14

As explained in Section XII.B.1.g and XII.B.4, Plotnick discloses the dependent claim element of Claim 14 under Patent Owner's interpretation. Ex-1002, ¶215.

12. Claim 15

As explained in Section XII.B.1.g, Plotnick discloses the dependent claim element of Claim 15 under Patent Owner's interpretation. Ex-1002, ¶216.

XIII. Conclusion

For the reasons given, Petitioner requests institution of IPR for Claims 1-4, 6-9, and 12-15 of the '302 Patent based on the grounds specified in this Petition.

Respectfully Submitted,

/s/ Amy Liang

Amy Liang (Reg. No. 74,194)

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner certifies that this petition includes 13,915 words, as measured by Microsoft Word, exclusive of the table of contents, mandatory notices under § 42.8, certificates of service, word count, and exhibits.

CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned certifies pursuant to 37 C.F.R. §§42.6(e) and 42.105 that on March 1, 2023, a true and correct copy of the Petition For *Inter Partes* Review Of U.S. Patent No. 9,392,302 and Exhibits 1001 through 1039 were served via express mail on the Patent Owner at the below correspondence address of record:

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