UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.
Petitioner

v.

ANONYMOUS MEDIA RESEARCH HOLDINGS, LLC,
Patent Owner

Patent No. 10,572,896

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 10,572,896

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I. INTRODUCTION

Samsung Electronics Co., Ltd. ("Petitioner" or "Samsung") requests *inter partes* review of claims 1-13 ("the challenged claims") of U.S. Patent No. 10,572,896 ("the '896 patent") (Ex. 1001), which, according to PTO records, is assigned to Anonymous Media Research Holdings, LLC ("Patent Owner" or "PO"). For the reasons discussed below, the challenged claims should be found unpatentable and canceled.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Parties-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner identifies the following as the real parties-in-interest: Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.

B. Related Matters

1. Related Lawsuit

The '896 patent is asserted in the following civil action: *Anonymous Media Research Holdings, LLC v. Samsung Electronics Co., Ltd. et al.*, Case No. 2:23-cv-00439-JRG (E.D. Tex.) ("the 439 action"). The following patents are also asserted in the 439 action: U.S. Patent Nos. 8,510,768 ("the '768 patent"), 8,756,622 ("the '622 patent"), 8,296,791 ("the '791 patent"), 10,719,848 ("the '848 patent"), and 10,719,849 ("the '849 patent").

Petitioner is concurrently filing IPR petitions challenging claims of the ’848 and ’849 patents.

Roku Inc. (“Roku”) also challenged claims of the ’896 patent in IPR No. 2024-01056 (“Roku-896-patent-IPR”). The other asserted patents in the 439 action are also challenged by Roku in the following IPRs:

IPR No. 2024-01053, which challenges claims of the ’791 patent;

IPR No. 2024-01054, which challenges claims of the ’768 patent;

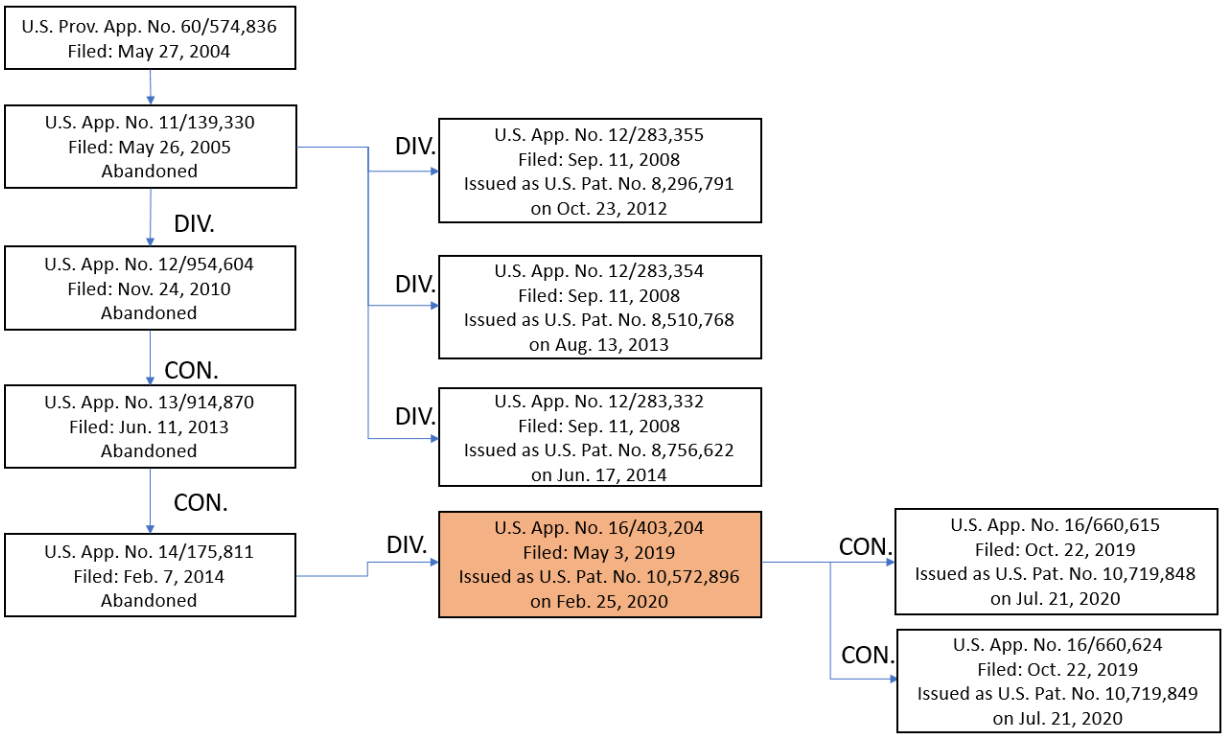
IPR No. 2024-01055, which challenges claims of the ’622 patent;

IPR No. 2024-01057, which challenges claims of the ’848 patent; and

IPR No. 2024-01058, which challenges claims of the ’849 patent.

2. Related Applications

The ’896 patent relates to several patents and/or patent applications, as shown in the table below:



As shown above, U.S. patent application no. 16/403,204 ("the '204 application") issued as the '896 patent (highlighted). The '204 application is a divisional of U.S. patent application no. 14/175,811 ("the '811 application"). (*See also* EX1001, cover (Related U.S. application data section), 1:6-17.) The '811 application is a continuation of U.S. patent application no. 13/914,870 ("the '870 application"). The '870 application is a continuation of U.S. patent application no. 12/954,604 ("the '604 application"). The '604 application is a divisional of U.S. patent application no. 11/139,330 ("the '330 application"). The '330 application is a non-provisional application claiming priority to U.S. provisional application no. 60/574,836 ("the '836 provisional application"). (*See also* EX1001, cover.)

The chart above also shows two applications (U.S. patent application nos. 16/660,615 and 16/660,624) claiming priority to the '204 application issuing as the '896 patent—these two applications issued as the '848 patent and the '849 patent which are asserted in the 439 action. The chart also shows three divisional applications (U.S. patent application nos. 12/283,355, 12/283,354, and 12/283,332) that claim priority to the '330 application—these divisional applications issued as the '791 patent, '768 patent, and '622 patent, which are asserted in the 439 action.[1]

C. Counsel and Service Information

Lead counsel: Naveen Modi (Reg. No. 46,224). Backup counsel: (1) Daniel Zeilberger (Reg. No. 65,349), (2) Quadeer Ahmed (Reg. No. 60,835), (3) Daniel J. Blake (*pro hac vice* admission to be requested).

Service information is Paul Hastings LLP, 2050 M Street NW, Washington, DC 20036, Tel.: 202.551.1700, Fax: 202.551.1705, email:

[1] The chart above shows patent applications to which the '896 patent claims priority and other related applications that issued as patents asserted in the 439 action. It does not show other patent applications that may be part of the '896 patent family, e.g., those applications that also claim priority to the '836 provisional but are not part of the priority chain of the '896 patent.

PH-Samsung-AMRH-IPR@paulhastings.com. Petitioner consents to electronic service.

III. PAYMENT OF FEES

The PTO is authorized to charge any fees due during this proceeding to Deposit Account No. 50-2613.

IV. GROUNDS FOR STANDING

Petitioner certifies that the '896 patent is available for review, and Petitioner is not barred/estopped from requesting review on the grounds herein.

V. PRECISE RELIEF REQUESTED AND GROUNDS RAISED

Petitioner respectfully requests review of claims 1-13 ("the challenged claims") of the '896 patent, and cancellation of these claims as unpatentable.

The challenged claims should be canceled as unpatentable on the following grounds:

Ground 1: Claims 1-5, 7, and 9-13 are unpatentable under pre-AIA 35 U.S.C. § 103 over U.S. Publication No. 2005/0267750 to Steuer *et al.* ("Steuer750") (EX1005) in view of U.S. Publication No. 2010/0306808 to Neumeier *et al.* ("Neumeier") (EX1007); and

Ground 2: Claims 1-13 are unpatentable under AIA 35 U.S.C. § 103 over U.S. Patent No. 8,296,791 to Steuer *et al.* ("Steuer791") (EX1006) in view of Neumeier.

The ’896 patent issued from the ’204 application filed May 3, 2019, which claims priority through a number of applications back to a provisional application filed May 27, 2004. (EX1001, 1:6-17.) As explained below, the challenged claims are not entitled to a priority date of May 27, 2004. (*See infra*, §IX.) For purposes of this proceeding, Petitioner’s grounds are based on two possible earliest effective filing dates of the challenged claims.

Ground 1 is based on Petitioner’s position that the challenged claims do not have an effective filing date (“EFD”) earlier than **November 24, 2010** (“**2010 EFD**”), the filing date of the intervening ’604 application (*see supra*, §II.B.2; *infra*, §IX.C).

Ground 2 is based on Petitioner’s position that the challenged claims do not have an EFD earlier than **May 3, 2019** (“**2019 EFD**”), the filing date of the ’204 application (*see supra*, §II.B.2; *infra*, §IX.B).

Steuer750 published on December 1, 2005. Thus, Steuer750 qualifies as prior art at least under pre-AIA § 102(b) with respect to the **2010 EFD**.[2]

[2] While Steuer750 is not relied upon under **Ground 2**, Steuer750 also qualifies as prior art under AIA § 102(a)(1) with respect to the **2019 EFD**.

Steuer791 issued on October 23, 2012. Thus, Steuer791 qualifies as prior art at least under AIA § 102(a)(1) with respect to the **2019 EFD**.

Neumeier published on December 2, 2010 and was filed May 27, 2010. Thus, Neumeier qualifies as prior art at least under pre-AIA § 102(e) with respect to the **2010 EFD** and under AIA § 102(a)(1) with respect to the **2019 EFD.**

VI. LEVEL OF ORDINARY SKILL

A person of ordinary skill in the art at the time of the alleged invention of the '896 patent ("POSITA") would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with at least four years of work experience in the field of media-related software development or in the alternative, equivalent experience, such as six years of work or research experience in the field of media-related software development. (EX1002, ¶¶ 22-26.)[3] More education can supplement practical experience and vice versa. (*Id.*)

VII. THE '896 PATENT

The '896 patent is directed to systems/methods for media usage monitoring and measurement. (EX1001, Title, Abstract, 1:65-2:22.) The media measurement

[3] Petitioner submits the declaration of Timothy Wahlers (EX1002), an expert in the field of the '896 patent. (EX1002, ¶¶ 3-17; *see also id.*, ¶¶ 18-21; EX1003.)

method recognizes content being consumed by a user and performing additional actions with the recognized content like deducing the user's play-altering activities (e.g., fast-forwarding, rewinding). (EX1001, 11:8-46, 11:59-12:10; EX1002, ¶¶ 27-34.)

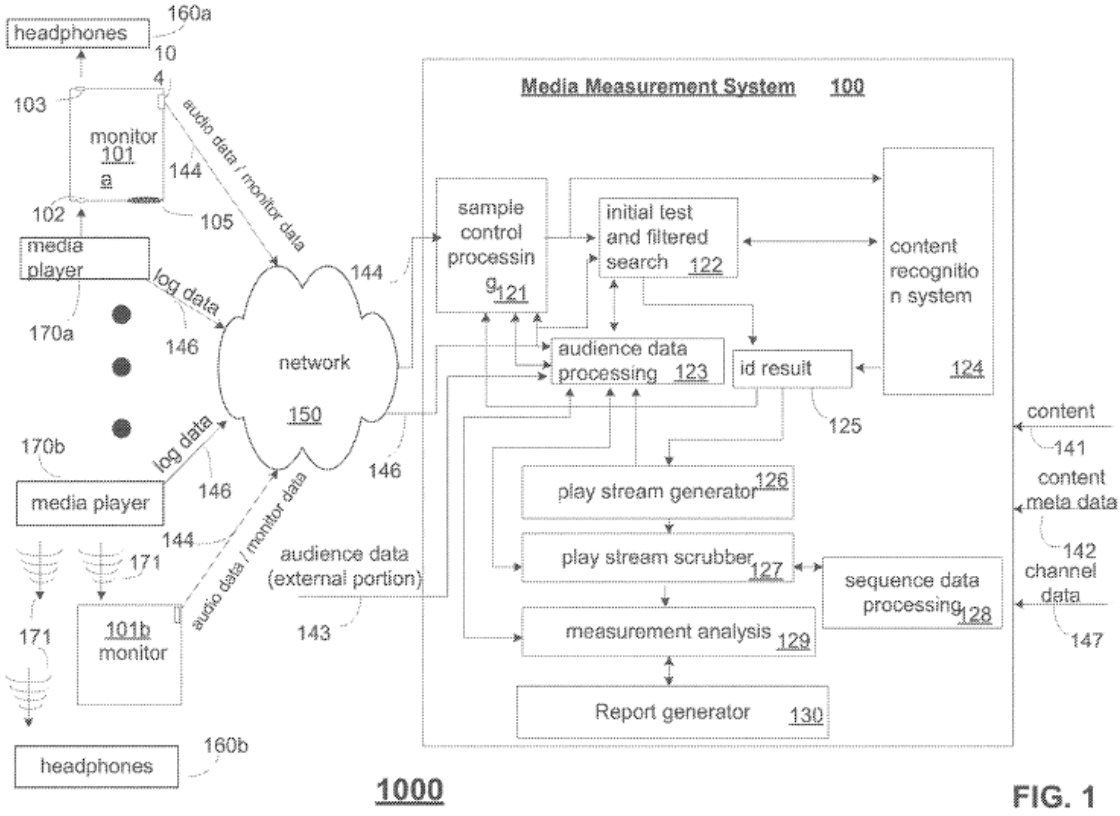
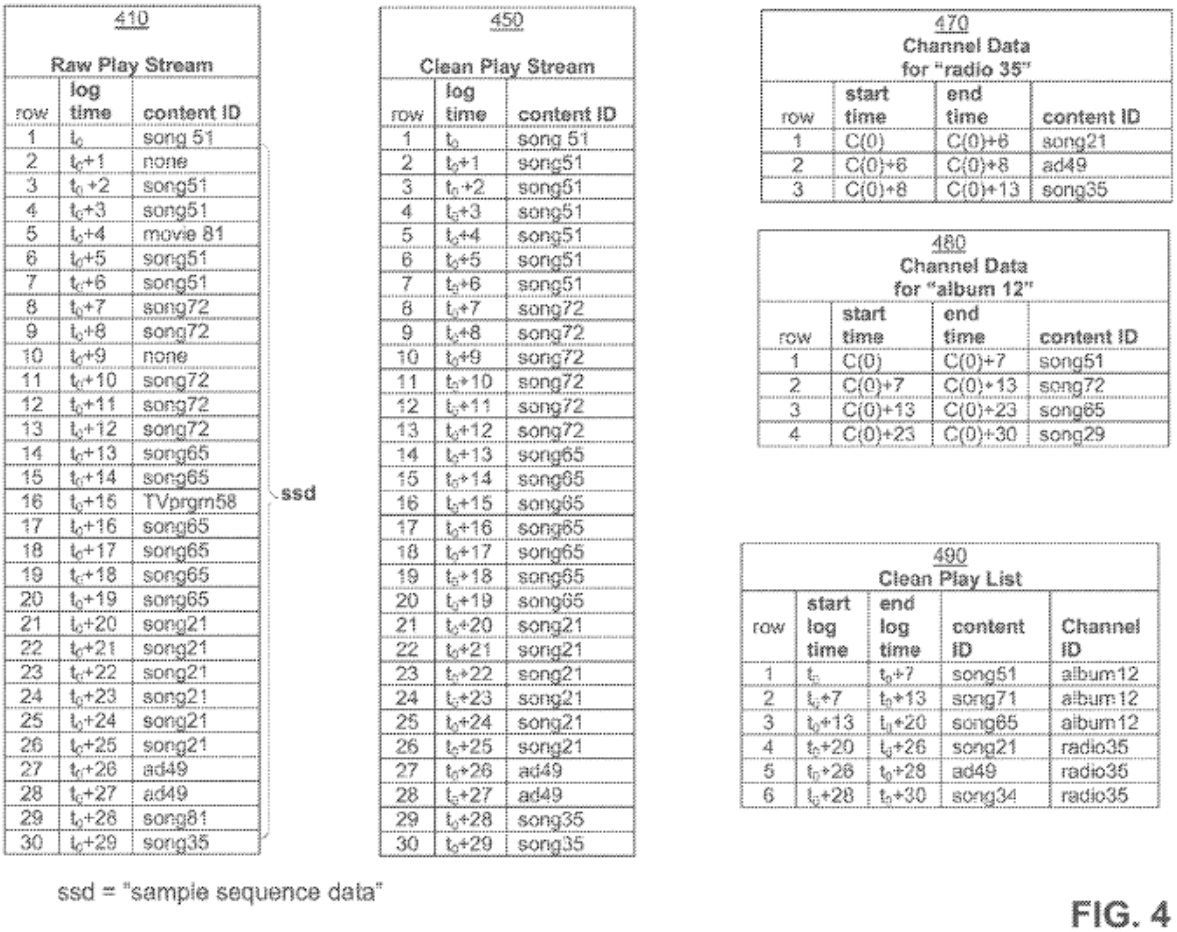


FIG. 1

(EX1001, FIG. 1.)



410

Raw Play Stream

row	log time	content ID
1	t_0	song 51
2	t_0+1	none
3	t_0+2	song51
4	t_0+3	song51
5	t_0+4	movie 81
6	t_0+5	song51
7	t_0+6	song51
8	t_0+7	song72
9	t_0+8	song72
10	t_0+9	none
11	t_0+10	song72
12	t_0+11	song72
13	t_0+12	song72
14	t_0+13	song65
15	t_0+14	song65
16	t_0+15	TVprgm58
17	t_0+16	song65
18	t_0+17	song65
19	t_0+18	song65
20	t_0+19	song65
21	t_0+20	song21
22	t_0+21	song21
23	t_0+22	song21
24	t_0+23	song21
25	t_0+24	song21
26	t_0+25	song21
27	t_0+26	ad49
28	t_0+27	ad49
29	t_0+28	song81
30	t_0+29	song35

ssd

450

Clean Play Stream

row	log time	content ID
1	t_0	song 51
2	t_0+1	song51
3	t_0+2	song51
4	t_0+3	song51
5	t_0+4	song51
6	t_0+5	song51
7	t_0+6	song51
8	t_0+7	song72
9	t_0+8	song72
10	t_0+9	song72
11	t_0+10	song72
12	t_0+11	song72
13	t_0+12	song72
14	t_0+13	song65
15	t_0+14	song65
16	t_0+15	song65
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20	t_0+19	song65
21	t_0+20	song21
22	t_0+21	song21
23	t_0+22	song21
24	t_0+23	song21
25	t_0+24	song21
26	t_0+25	song21
27	t_0+26	ad49
28	t_0+27	ad49
29	t_0+28	song35
30	t_0+29	song35

470

Channel Data for "radio 35"

row	start time	end time	content ID
1	C(0)	C(0)+6	song21
2	C(0)+6	C(0)+8	ad49
3	C(0)+8	C(0)+13	song35

480

Channel Data for "album 12"

row	start time	end time	content ID
1	C(0)	C(0)+7	song51
2	C(0)+7	C(0)+13	song72
3	C(0)+13	C(0)+23	song65
4	C(0)+23	C(0)+30	song29

490

Clean Play List

row	start log time	end log time	content ID	Channel ID
1	t_0	t_0+7	song51	album12
2	t_0+7	t_0+13	song71	album12
3	t_0+13	t_0+20	song65	album12
4	t_0+20	t_0+26	song21	radio35
5	t_0+26	t_0+28	ad49	radio35
6	t_0+28	t_0+30	song34	radio35

ssd = "sample sequence data"

FIG. 4

(EX1001, FIG. 4.)

510

Clean Playstream

row	log time	content ID	content offset
1	t_0	TVprgm 27	(0)
2	t_0+1	TVprgm 27	(0)+1
3	t_0+2	none	n/a
4	t_0+3	none	n/a
5	t_0+4	none	n/a
6	t_0+5	TVprgm 27	(0)+2
7	t_0+6	TVprgm 27	(0)+3
8	t_0+7	TVprgm27	(0)+9
9	t_0+8	TVprgm27	(0)+10
10	t_0+9	TVprgm27	(0)+9
11	t_0+10	TVprgm27	(0)+10
12	t_0+11	none	n/a
13	t_0+12	TVprgm27	(0)+29
14	t_0+13	TVprgm27	(0)+30
15	t_0+14	ad23	(0)
16	t_0+15	none	n/a
17	t_0+16	ad25	(0)+2
18	t_0+17	TVprgm28	(0)
19	t_0+18	TVprgm28	(0)+1
20	t_0+19	TVprgm28	(0)+2

560

Clean Play List

row	start log time	end log time	content ID	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	none	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+9	TVprgrm27	(0)+9
5	t_0+9	t_0+11	TVprgrm27	(0)+9
6	t_0+11	t_0+12	none	n/a
7	t_0+12	t_0+14	TVprgrm27	(0)+29
8	t_0+14	t_0+15	ad23	(0)
9	t_0+15	t_0+16	none	n/a
10	t_0+16	t_0+17	ad25	(0)+2
11	t_0+17	t_0+20	TVprgrm28	(0)

570

Channel Data for TV C4

row	start time	end time	content ID
1	C(0)	C(0)+31	TVprgrm27
2	C(0)+31	C(0)+34	ad23
3	C(0)+34	C(0)+37	ad24
4	C(0)+37	C(0)+40	ad25
5	C(0)+40	C(0)+50	TVprgrm28

590

Clean Play List with Deduced Actions

row	log time	end log time	content ID and <deduced action>	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	<pause for 3 units>	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+7	<skip frwrd 5 units>	n/a
5	t_0+7	t_0+9	TVprgrm27	(0)+9
6	t_0+9	t_0+9	<skip bckwrd 2 units>	n/a
7	t_0+9	t_0+11	TVprgrm27	(0)+9
8	t_0+11	t_0+12	<fast frwrd 18 units>	n/a
9	t_0+12	t_0+14	TVprgrm27	(0)+29
10	t_0+14	t_0+15	ad23	(0)
11	t_0+15	t_0+16	<fast frwrd 7 units>	n/a
12	t_0+16	t_0+17	ad25	(0)+2
13	t_0+17	t_0+20	TVprgrm28	(0)

FIG. 5

s

(EX1001, FIG. 5.)

As discussed below, however, all the challenged claims are rendered obvious over the prior art. (*See infra*, §§IX-X; EX1002, ¶¶ 45-172.)

VIII. CLAIM CONSTRUCTION

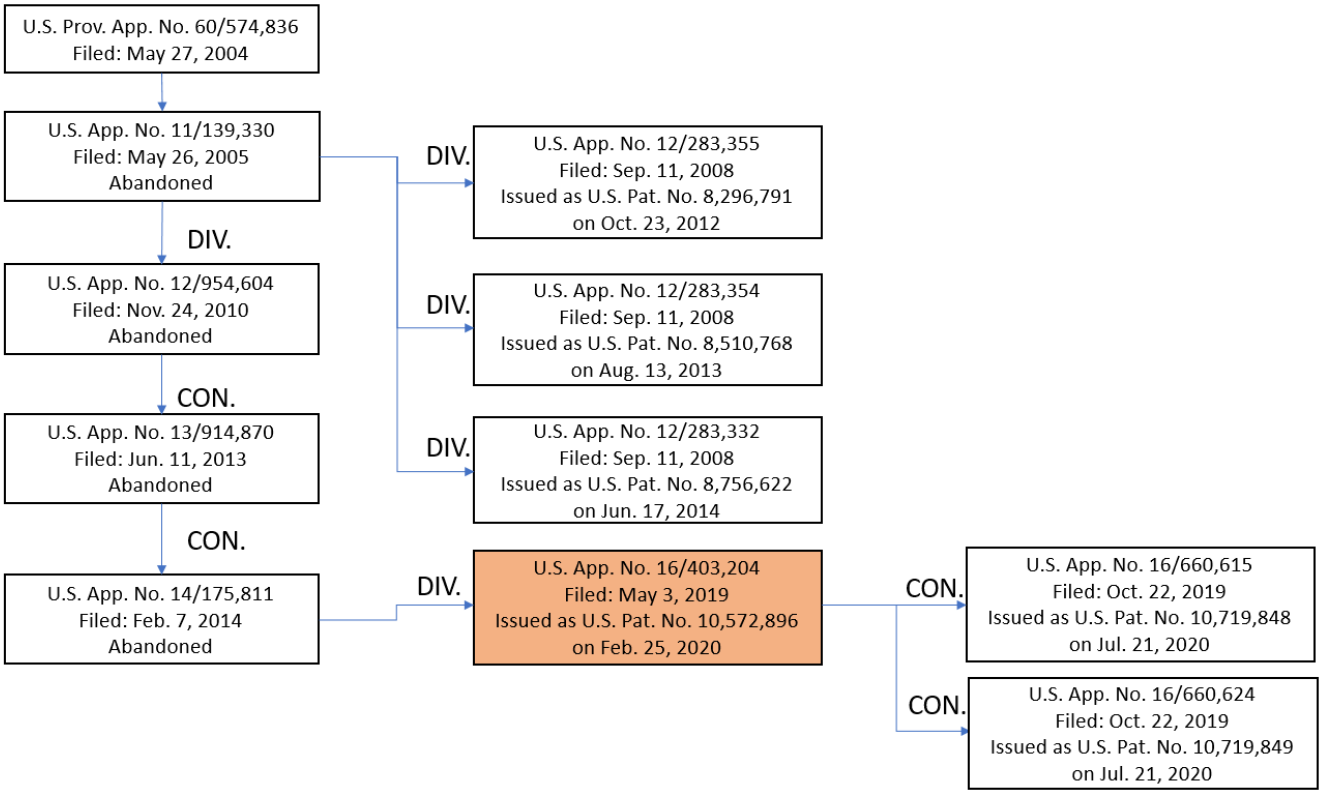
Under the applicable standard in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), claim terms are typically given their ordinary and customary meanings as understood by a POSITA at the time of the invention based on the claim language, specification, and the prosecution history of record. *Phillips*, 415 F.3d at 1313; *see also id.* at 1312–16. The Board, however, only construes the claims when necessary to resolve the controversy. *Toyota Motor Corp. v. Cellport Sys., Inc.*,

IPR2015-00633, Paper No. 11 at 16 (Aug. 14, 2015) (citation omitted). Petitioner submits that, for purposes of this proceeding, no term requires construction.[4] (EX1002, ¶ 35.)

[4] Petitioner reserves all rights to raise claim construction and other arguments in district court as relevant to those proceedings. A comparison of the claims to any accused products in litigation may raise controversies that are not presented here given the similarities between the references and the patent.

IX. EARLIEST EFFECTIVE FILING DATE OF '896 PATENT

The '896 patent claims priority to several patents and/or patent applications, as shown in the alleged priority chain below:



(*See also supra*, §II.B.2.)

However, the priority applications, namely U.S. Non-Provisional Application Nos. 11/139,330 ("the '330 application"), 12/954,604 ("the '604 application"), 13/914,870 ("the '870 application"), and 14/175,811 ("the '811 application") (collectively, "the priority non-provisional applications") and U.S. Provisional Application No. 60/574,836 ("the '836 provisional application"), do not provide

written description support for at least one feature required by the claims of the '896 patent, as required by § 112. (EX1002, ¶¶ 45-47.)

First, the challenged claims recite features related to video data that are not adequately supported by the priority applications. (*See infra*, §IX.B.) The priority applications are focused on audio-based embodiments. The only video-related disclosure in the priority applications is a brief, cursory, and vague paragraph in the '836 provisional application, which as discussed *infra*, §IX.B, is insufficient for written description support. Thus, the challenged claims are not entitled to an effective filing date earlier than **May 3, 2019** ("**2019 EFD**"), the filing date of the '204 application, from which the '896 patent issued and which added new matter not contained in any of the priority applications.[5] (*See infra*, §IX.B.)

Second, even if for the sake of argument the '836 provisional application alone, or in combination with the disclosures of the priority non-provisional applications, provided description that could otherwise support the challenged video-related claims—and it does not—the earliest possible effective filing date of the challenged claims is still no earlier than **November 24, 2010** ("**2010 EFD**"), the

[5] Petitioner does not concede the '896 patent has adequate §112 support in any application, including the '204 application.

filing date of the '604 application. This is because the '330 application, which is the intervening application between the '836 provisional application and the '604 application, does not incorporate the '836 provisional application by reference. (*See infra*, §IX.C.)

A. Requirements for Priority and Written Description Support

A claim in a U.S. patent is entitled to the benefit of the filing date of an earlier filed U.S. or PCT application only if the subject matter of the claim is disclosed in the earlier filed application in accordance with the written description requirement. *PowerOasis, Inc. v. T-Mobile USA, Inc*., 522 F.3d 1299, 1306-11 (Fed. Cir. 2008).

When the subject patent claims priority to a chain of priority applications, "[i]n order to gain the benefit of the filing date of an earlier application under 35 U.S.C. § 120, each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. § 112." *Zenon Envtl. v. U.S. Filter*, 506 F.3d 1370, 1378 (Fed. Cir. 2007) (quoting *Lockwood v. Am. Airlines, Inc.*,107 F.3d 1565, 1571 (Fed. Cir. 1997)) (citing *Reiffin v. Microsoft Corp.,* 214 F.3d 1342, 1346 (Fed.Cir.2000)). And to comply with the written description requirement, the specification of any application including a priority application "must describe the invention sufficiently to convey to a person of skill in the art that the patentee had possession of the claimed invention at the time of the application, i.e., that the patentee invented what is claimed." *LizardTech, Inc. v.*

Earth Res. Mapping, Inc., 424 F.3d 1336, 1345 (Fed Cir. 2005); *see also Lockwood*, 107 F.3d at 1572. Whether the claimed subject matter is an obvious variant of the disclosed subject matter is irrelevant. *Lockwood*, 107 F.3d at 1572.

As discussed below, the challenged claims are not entitled to the filing dates of any of the priority applications as the priority applications do not provide written description support for the claims.

B. The Challenged Claims Are Not Entitled to a Filing Date Earlier Than 2019

At least for the reasons discussed below, the challenged claims are not entitled to an effective filing date earlier than **May 3, 2019**, the filing date of the '204 application. (EX1002, ¶¶ 34, 45-90.)

1. The Priority Applications Do Not Provide Written Description Support for the Claimed "Video Data Samples" and Related Video Features

Independent claim 1 of the '896 patent recites features relating to the use of video data samples. (EX1001, 15:12-35.) Specifically, the claim first recites generating a play stream of content identification results that correspond to a sequence of captured and submitted **video data samples**. (EX1002, ¶¶ 49-50.) Next, the claim recites deducing play-altering activity by comparing timing information related to the content identification results that were derived from the video data samples; specifically, capture timing and a time position within the content. Finally, the claim recites generating a media measurement report based on

the play-altering activity deduced from the aforementioned information determined from the video data samples. (EX1002, ¶ 50.) Independent claim 9 recites similar features. (EX1002, ¶ 50; EX1001, 16:10-36.)

As discussed below, the priority applications do not provide written description support for the above video data-related features. (EX1002, ¶ 51.)

a) The '836 Provisional Application Does Not Support the Claimed Video Data Features

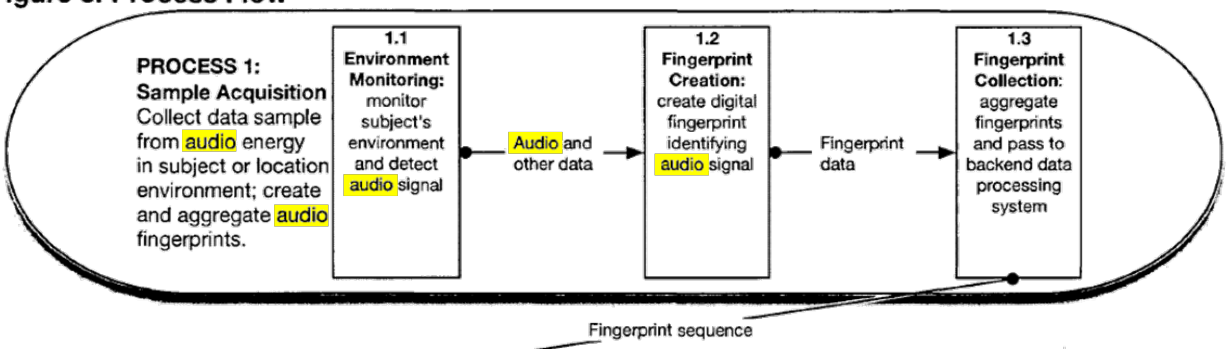
As shown above, the '896 patent claims priority through each of the priority non-provisional applications to the '836 provisional application. However, the '836 provisional application fails to provide written description support for all the features in the claims of the '896 patent at least because it does not describe any specific features or embodiments that rely on video data samples and the related claim features. (EX1002, ¶ 52.)

The '836 provisional application discloses "measurement systems" that involve recording and reporting on individuals' media usage habits. (EX1010, 2.) The '836 provisional application discloses that this is accomplished by using monitoring devices to collect and recognize media broadcast by a playback device. (EX1010, 2-3.) But, as explained further below, the disclosures of the '836 provisional application fail to adequately describe embodiments that rely on the use

of video data samples, let alone in the manner claimed, and therefore the '836 provisional application does not support the challenged claims. (EX1002, ¶ 53.)

The '836 provisional application does not disclose any features relating to using video data samples for content recognition. Instead, throughout the '836 provisional application, its disclosures focus on identifying media content using **audio** data associated with the content. For example, the '836 provisional application consistently discusses collecting specifically *audio* media content and using "**audio** fingerprinting" technology in order to recognize the content. (EX1002, ¶ 54 (citing EX1010, 2-5, 9 (FIG. 3)).)[6]

Figure 3: Process Flow



(EX1010, 9 (FIG. 3) (annotated).)

Similarly, the '836 provisional application asserts that once the audio fingerprints have been generated, the media content is recognized, or matched, using those audio fingerprints.

[6] Emphasis added unless otherwise noted.

> [A]n exemplary method . . . **generate[s] digital fingerprints of the audio signal portion** of the media content itself and identifies media played in the environment by means of **matching such fingerprints** against a database of known media.

(*Id.*, 3; EX1002, ¶ 54 (citing EX1010, 4).)

All of the various disclosures rely on using audio fingerprints and the '836 provisional application provides no equivalent or corresponding detailed disclosures that instead rely on using video data samples from the monitored content. (EX1002, ¶ 54.) Even where the '836 provisional application mentions video content, those features are limited to "content including at least some audio elements." (EX1010, 2.) Indeed, throughout the '836 provisional application, it focuses on audio data or only the audio portion of video content. (EX1002, ¶ 55 (citing EX1010, 3, 6).)

Thus, that the monitored media may include visual elements is inconsequential to each of the exemplary methods described because only the audio portion of video content is analyzed and processed. (EX1002, ¶ 55.)

The '836 provisional application does include a brief, vague, and conclusory portion that mentions video data, but it fails to provide adequate written description support for the claimed video data features of the claims of the '896 patent. This generic disclosure states:

> Another exemplary method creates a record of individual media usage over time by means of an open-ended measurement system that employs portable and stationary detection devices to generate digital fingerprints of the video signal portion of the media content itself and identifies media played in the environment by means of matching such fingerprints against a database of known media. Such a video-based system may be built upon direct electrical connections and optical sensors (rather than microphones).
>
> These various exemplary methods may involve video rather than audio.

(EX1010, 4.) This disclosure is insufficient to provide written description support for the claimed video data features of the '896 patent for the reasons explained below. (EX1002, ¶ 56.)

First, where the '836 provisional application states that "[t]hese various exemplary methods may involve video rather than audio," it is unclear what methods the phrase "[t]hese various exemplary methods" refers to. For example, one disclosed exemplary method relates to "detect[ing] the simultaneous playback of more than one media source in a measured environment," and illustrates such a scenario with an example where content is recognized when a "TV and radio are on at the same time," or "if music is the background of an advertisement." (EX1010,

3.) It is unclear how these examples, which refer to content that only includes an audio portion—content played by radio and music content—would have instead "involve[d] video rather than audio." (EX1002, ¶ 57.)

Further, the conclusory disclosure related to video appears only around halfway into '836 provisional application, at the end of a section with the heading "Detailed Specification," and after which are additional disclosures. (EX1010, 4.) It is therefore further unclear whether the phrase "[t]hese various exemplary methods" refers to the purported methods described prior to this disclosure, in the "Detailed Specification" section, to the later disclosed methods, or something else. (EX1002, ¶ 58.) Moreover, regardless of the examples to which the conclusory disclosure is directed, the '836 provisional application provides no details whatsoever on what changes would be made in order for the "various exemplary methods" to "involve video rather than audio." (EX1002, ¶ 58; EX1010, 4.)

PO may argue that there are no substantive differences between audio and video when substituting video data samples for audio data samples in the context of the '836 provisional application. But the '836 provisional application does not support such a conclusion. To the contrary, a POSITA would have recognized the different challenges and obstacles faced with collection and recognition of audio versus video (i.e., using audio data samples for content recognition as opposed to using video data samples for content recognition, and for performing the subsequent

claim steps like deducing play-altering activities using the content identification results). (EX1002, ¶¶ 59-60 (explaining that government-funded efforts at the time demonstrated around a 10-30% accuracy rate for video content recognition) (citing EX1030, 1-3, 10; EX1031, 1-3, 5; EX1032, 9).) The '836 provisional application is silent on such differences and how the disclosed audio-based embodiments would have been implemented in the context of video in light of any unique challenges posed by video data. (EX1002, ¶ 61.)

Without any disclosures similarly describing ways of dealing with difficulties unique to the video context or explaining how the disclosures for dealing with difficulties in the audio context would have extended to the video context or could be adapted to the video context, a POSITA would not have understood the named inventors of the '896 patent to have had possession of the claimed subject matter at the time the '836 provisional application was filed. (EX1002, ¶ 62); *Ariad Pharms., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1349-50 (Fed. Cir. 2010) (en banc) ("[A]n adequate written description of a claimed genus requires more than a generic statement of an invention's boundaries.") (citation omitted); *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 323 F.3d 956, 968 (Fed. Cir. 2002) (holding that generic claim language appearing in *ipsis verbis* in the original specification did not satisfy the written description requirement because it failed to support the scope of the genus claimed); *LizardTech*, 424 F.3d at 1346.

A detailed review of the claims confirms that the '836 provisional application does not provide adequate support for the claims. Claim 1 of the '896 patent recites "generate a play stream of content identification results corresponding to a sequence of submitted data samples, the submitted data samples corresponding to video data samples captured at a monitoring device associated with a monitored audience member." (EX1001, 15:13-18.) The "content identification results" of claim 1 refer to, e.g., using video data samples to recognize media content. The claim specifically requires that the content identification results correspond to a sequence of video data samples. (EX1001, 15:13-18.) But, as explained above, the '836 provisional application does not disclose using video data samples to identify content. Thus, a POSITA would not have understood that the '836 provisional application discloses this limitation of claim 1 of the '896 patent. (EX1002, ¶¶ 63-64.)

Claim 1 of the '896 patent next recites "utiliz[ing] sample sequence data and content offset data to deduce play-altering actions of the monitored audience member, the sample sequence data corresponding to a sequence of the content identification results, the content offset data including content offsets associated with the content identification results, a content offset indicating a time position of a content identification result within identified content." (EX1001, 15:19-26.) This limitation is premised on the use of "sample sequence data," which corresponds to a sequence of content identification results, which ultimately correspond to **video** data

samples. (EX1001, 15:13-26.) Thus, the '836 provisional application fails to provide written description support for this limitation as it does not disclose using video data samples for content identification. (EX1002, ¶¶ 65-67.)[7]

The next limitation of claim 1 of the '896 patent recites that the "utiliz[ing] comprises, for a particular plurality of submitted data samples and corresponding content identification results, comparing a progression of log times associated with capture timing of each of the particular plurality of submitted data samples and a progression of content offsets of the corresponding content identification results." (EX1001, 15:26-32.) The '836 provisional application fails to provide adequate written description support for this limitation for the same reasons it fails to support the previous limitation. (EX1002, ¶ 68.)

[7] The '836 provisional also does not provide sufficient written description support for a "content offset indicating a time position of a content identification result within identified content," as claimed, and the subsequent claim feature reciting "comparing a progression of log times . . . and a progression of content offsets" for deducing play-altering activities, which is an issue in the Roku-896-patent-IPR. However, this Petition focuses on the priority applications' failure to disclose the features related to video data samples.

The final limitation of claim 1, which recites "utiliz[ing] deduced play altering actions of the monitored audience member to generate a media measurement report" (EX1001, 15:33-35), is not supported for similar reasons. (EX1002, ¶ 69.)

With respect to the remaining claims of the '896 patent, claims 2-8 each depend from claim 1. (EX1001, 15:36-16:9.) These claims therefore lack written description support for at least the same reasons as claim 1. (EX1002, ¶ 70.)

Independent claim 9 of the '896 patent is nearly identical to claim 1, save for one clause, describing exemplary actions ("actions that alter at least one of a pace and a sequence of a media stream") that purportedly constitute "play-altering actions." (EX1001, 16:10-36.) This minor difference in the claim language does not affect the analysis supporting the conclusion that the '836 provisional application fails to provide adequate written description support for this claim because it still relies on content identification results that correspond to captured **video** data samples. The remaining claims, claims 10-13 depend from claim 9 and therefore lack written description support for at least the same reasons. (EX1001, 16:37-49; EX1002, ¶¶ 71-72.)

b) The Priority Non-Provisional Applications Do Not Provide Adequate Support For The Challenged Claims

The priority non-provisional applications, *i.e.*, the '330 application, '604 application, '870 application, and '811 application, share substantially the same as-

filed specifications. (EX1011, 577-599 ('330 application specification), 610-617 ('330 application abstract and drawings), EX1012, 276-298 ('604 application specification), 311-318 ('604 application abstract and drawings), EX1013, 21-43 ('870 application specification), 56-63 ('870 application abstract and drawings), EX1014, 420-442 ('811 application specification), 455 ('811 application abstract), 460-466 ('811 application drawings).) Exhibits 1017, 1018, and 1019 are computer-generated redlines comparing the as-filed specifications of the '604 application, '870 application, and '811 application to the as-filed specification of the '330 application. As shown in exhibits 1017-1019, other than the changes to the "Cross Reference to Related Applications" sections in each of the priority applications, the specifications of these priority non-provisional applications are substantively identical. Thus, while the arguments below primarily focus on the lack of support for the challenged claims in the '330 application's disclosure, the disclosures of the '604 application, '870 application, and '811 application are deficient for the same reasons. (EX1002, ¶ 73.)

In particular, the disclosures of these priority non-provisional applications do not describe using video data samples to, e.g., generate a play stream of content identification results and consequently, the subsequent related features set forth in the claims. Instead, the disclosures describe only embodiments based on **audio** data samples. (EX1002, ¶ 74.)

The ’330 application specification uses the term “audio” 37 times, including, for instance, in the specification (33 times), abstract (2 times), and figures (2 times). (*See generally* EX1011, 577-599, 610-17.) It also is replete with terms that are related only to audio (to the exclusion of video): song (24 times, excluding figures), radio (11 times, excluding figures), microphone (10 times, excluding figures), album (5 times, excluding figures), sound (2 times), music (2 times). By contrast, the ’330 application specification uses the term “video” only 4 times. (*See generally* EX1011, 577-599, 610-17; EX1002, ¶ 75.) The particular claim term “video data sample” appears only once outside of the claims in the ’330 application specification:

> At the same time, the media measurement context provides opportunities to utilize data exogenous to a particular audio or **video data sample**. Such opportunities have thus far been insufficiently exploited for the purpose of efficiently applying existing content recognition technologies in the media measurement context. Thus, an improved media measurement system and method is needed.

(EX1011, 578 ([0005]).) Even in this instance, it is unclear if the term “video data sample” is used in the context of identifying content by sampling video data or if the term, as used in the context of the sentence (“the media measurement context provides opportunities to utilize data exogenous to **a particular audio or video data sample**”), is used to reference video content which includes an audio component,

and the audio component is sampled for content recognition (since audio-sampling-based content recognition is the only type of content recognition described in the '330 application). Indeed, the '330 application does not describe any content recognition using a "video data sample." (EX1002, ¶ 75.)

And while the '330 application specification uses certain video-related terms (*e.g.*, television, TV, movie, etc.), it is clear in view of the specification as a whole that these disclosures refer to analyzing and processing the audio data portion of captured video content. In particular, while the '330 application mentions media played by a DVD player or television (which may include video content) and mentions media content such as "movie, commercial, television show, video game etc."), the specification only describes capturing the audio sample from this media content. (EX1002, ¶ 76 (citing EX1011, 580-581 ([0017]-[0019], 582-583 ([0022]-[0023], 586-588 ([0029]-[0032]), 594 [0049].)

Thus, none of the embodiments in the '330 application describes the full scope of the video data samples features in the claims of the '896 patent. *Reckitt Benckiser LLC v. Ansell Healthcare Products LLC*, IPR2017-00066, Paper 35 at 15 (Jan. 30, 2018).

Instead, the embodiments disclosed in the '330 application (and the remaining priority non-provisional applications) are solely focused on recognizing content based on audio data (e.g., the use of audio data samples to identify content) and

subsequent processing of the content recognition results. (*See generally* EX1011, 577-599, 610-17.) The '330 application does not disclose any embodiments related to, and thus does not provide any support for, the claimed feature of generating a play stream of content identification results corresponding to a sequence of video data samples, let alone the remaining related claim features. (EX1002, ¶ 77.)

Further, a POSITA would not have understood that the '330 application's disclosures of embodiments relying on audio data would have been interchangeable with embodiments that instead use video data.[8] A POSITA would have understood that a system that relies on capturing audio would operate in different environments and be subject to different obstructions, challenges, and limitations to a system that relies on capturing video. (EX1002, ¶ 78.) For example, multiple disclosures in the '330 application describe peculiarities related to audio content like "mut[ing] a broadcast," "receiv[ing] a wireless or non-wireless audio signal," "captur[ing] audio energy," and "content types (e.g. speaking audio versus music audio)," that have no clear analog in the video context. (EX1002, ¶ 78 (citing EX1011, 577 ([0002]); 578 ([0006]), 580 ([0017]), 584-585 ([0025])).)

[8] Whether the use of video data samples is an obvious variant of the disclosed use of audio data samples is irrelevant. *Lockwood*, 107 F.3d at 1572.

Accordingly, the ’330 application (and other priority non-provisional applications) do not provide support for the challenged claims. (EX1002, ¶ 79; *see also supra*, §IX.B.1.a.)

c) The ’836 Provisional Application Cannot Cure the Deficiencies of the Priority Non-Provisional Applications

PO may argue that the combination of the disclosure of the ’836 provisional application with the disclosure of the priority non-provisional applications (i.e., the ’330, ’604, ’870, and ’811 applications) provides adequate support for the video-related claims. Not so. (EX1002, ¶¶ 80-81.)

With respect to the first priority non-provisional application, i.e., the ’330 application, PO did not incorporate by reference the disclosure of the ’836 provisional application into the as-filed ’330 application specification. (*See* EX1011, 406-625 (no incorporation by reference of the ’836 provisional application); *see also id.*, *generally*.) Thus, the ’330 application does not include any video-related disclosure, e.g., by incorporating the ’836 provisional application by reference.[9]

[9] To be clear, as noted above in §IX.B.1.a and further discussed immediately below, any video-related disclosure in the ’836 provisional application is insufficient for

While the remaining priority applications (the '604, '870, and '811 applications) incorporate the contents of the '836 provisional application by reference, the disclosures of these remaining applications would still be insufficient to provide written description support for the challenged claims for at least two reasons.

First, even if the disclosure of the '836 provisional application is considered for purposes of written description support, the '330, '604, '870, and '811 priority non-provisional applications do not reference the above-noted vague paragraph from the '836 provisional application concerning video, such that a POSITA would have consulted that particular paragraph in reviewing and understanding the audio-based disclosures of the priority non-provisional applications.[10] (*See generally* EX1011, 577-599; EX1012, 276-298; EX1013, 21-43; EX1014, 420-442.) Nor would a POSITA have understood that the disclosed audio-based embodiments could have been implemented in the video context during the relevant timeframe for all the

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written description support even if it were considered in combination with the disclosures of the priority non-provisional applications.

[10] As discussed in §IX.B.1.a above, there is no other disclosure in the '836 provisional application that describes using video data samples.

reasons explained above. (*See supra*, §IX.B.1.a.) In other words, even if it would have been obvious to combine the disclosures of the '836 provisional application with the disclosures of the priority non-provisional applications to arrive at the challenged claims, that is insufficient to provide written description support. (EX1002, ¶ 82); *Lockwood*, 107 F.3d at 1572.

Second, under Rule 1.57 at the relevant time, "'[e]ssential material' may be incorporated by reference, but **only by way of an incorporation by reference to a U.S. patent or U.S. patent application publication**." 37 C.F.R. § 1.57(c) (2004).[11] Rule 1.57 defines "essential material" as material necessary to, among other things, "[p]rovide a written description of the claimed invention." 37 C.F.R. § 1.57(c)(1) (2004). Thus, a provisional application incorporated by reference cannot be relied on for essential matter providing written description support. 37 C.F.R. §§ 1.57(c) and 1.57(c)(1) (2004). Here, the only mention of any video-based embodiment in

[11] The version of 37 C.F.R. § 1.57 being applied herein became effective in 2004—before the May 27, 2005 filing date of the '330 application, which is the earliest non-provisional application in the priority chain. *See* EX1029, 1 ("DATES"), 58 (reproducing Rule 1.57 at the time). Unless otherwise noted, citations to Rule 1.57 herein are to the 2004 version.

the priority non-provisional applications is by way of the contents of the '836 provisional application incorporated by reference. But that disclosure from the provisional application, albeit insufficient as discussed above, cannot be referenced for establishing written description support for the challenged claims. *Id.*; *see also Hulu, LLC v. SITO Mobile R&D IP, LLC et al.*, IPR2021-00298, Paper 31 at 64-65 (May 17, 2022) (finding lack of written description support where an incorporated by reference U.S. non-provisional application was relied upon for essential matter because it was not a US patent or US patent application publication) (citing *Droplets, Inc. v. E*TRADE Bank*, 887 F.3d 1309, 1318 (Fed. Cir. 2018)).[12]

[12] In another case, *Samsung Electronics Co., Ltd. v. Acquis LLC*, the Board reached a different result regarding Rule 1.57's applicability when determining whether documents incorporated by reference, that were not U.S. patents/patent publications, provided written description support for a priority claim. IPR No. 2021-00608, Paper 8 at 15-18 (September 15, 2021) (citing *Droplets, Inc.*, 887 F.3d at 1318); *see also Samsung Electronics Co., Ltd. v. Acquis LLC*, IPR No. 2021-00608, Paper 10 (Decision on Rehearing) at 6-13 (December 8, 2021). While Petitioner does not necessarily agree with that decision, the challenged claims here are not entitled to

Thus, like the '836 provisional application, the priority non-provisional applications fail to provide written description support for the video data samples features set forth in the claims. (EX1002, ¶¶ 80-83); *Ariad Pharms.*, 598 F.3d at 1349-50; *Enzo Biochem*, 323 F.3d at 968; *LizardTech*, 424 F.3d at 1346.

2. PO Cannot Rely on Additional Materials Mentioned in the Priority Non-Provisional Applications to Support the Claimed Video Data Features

The '330 application (and similarly the other priority non-provisional applications) purports to be "adapted to implement one or more known content recognition methods that identify content by extracting parameters from a media signal and applying an algorithm to those parameters to search for a content match." (EX1011, 584-585 ([0025]).) The '330 application then mentions several patent applications (submitted as Exhibits 1020-1023) that allegedly describe content recognition methods without specifying any particular portions of the documents as being relevant. (*Id.*; EX1002, ¶ 84.)

These documents cannot be relied upon to support the video data features of the claims for at least three reasons.

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the filing dates of the priority applications for the additional reasons discussed above, regardless of how the Board applies Rule 1.57 here.

First, the '330 application (and the other priority non-provisional applications) does not expressly incorporate by reference the documents. (*Id.*); *see also* 37 C.F.R. § 1.57(b)(1) (2004) (requiring that an incorporation by reference must "express a clear intent to incorporate by reference by using the root words 'incorporat(e)' and 'reference.'").

Second, even if the above-noted documents were considered part of the disclosures of the priority non-provisional applications (and they should not be), they still do not remedy the lack of written description support for the video data claim features. *VirnetX Inc. v. Cisco Sys., Inc.*, 776 Fed. Appx. 698, 703 (Fed. Cir. 2019) ("[T]o incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents." (quoting *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000)). For example, to the extent the above-noted documents disclose features related to using video data samples for content recognition, none of the priority non-provisional applications make any mention of specific video data sampling-related features of these documents or how their use may be incorporated into the disclosed embodiments. (EX1002, ¶¶ 85-86); *VirnetX*, 776 Fed. Appx. at 703. Instead, the priority non-provisional applications merely generically state that the above-noted documents are examples of content recognition methods and algorithms. (EX1011, 584-585

([0025]).) The documents also could not be relied on for "essential material," as would be the case here, as all but one (EXS1021-1023) are neither U.S. patents nor U.S. patent application publications, and the one that is relates to identification of audio and provides no disclosures related to identification of video content. (*See generally* EX1020); *see also* 37 C.F.R. § 1.57(c)(1) (2004).

Third, the requirements of Rule 1.57 aside, "[i]t is not sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate as to the modifications that the inventor might have envisioned, but failed to disclose." *D Three Enters., LLC v. Sunmodo Corp.*, 890 F.3d 1042, 1050 (Fed. Cir. 2018) (internal citation omitted). A POSITA reviewing the above-noted documents in view of the priority non-provisional applications would be impermissibly required to speculate without any guidance as to what teachings should be combined, and how to accomplish such combinations, in order to adapt the disclosed embodiments to the use of video data samples. (EX1002, ¶ 87); *D Three Enters., LLC*, 890 F.3d at 1050; *Lockwood*, 107 F.3d at 1572; *Nautilus, Inc. v. Icon Health & Fitness Inc.*, IPR2017-01408, 2018 WL 6318050, at *20-23 (PTAB Dec. 3, 2018).

For these reasons, the above-noted documents do not provide written description to support the challenged claims.

3. PO Improperly Added New Matter to the '204 Application That Issued as the '896 Patent

PO's addition of new matter to the as-filed specification of the '204 application in an apparent attempt to support the video-related features of the claims further reinforces the inadequate disclosures in the priority non-provisional applications. In particular, the following single generic paragraph regarding video was added to the '204 application:

> In alternative embodiments to what is illustrated and described in FIGS. 1-6, a record is created of individual media usage over time by means of an open-ended measurement system that employs portable and stationary detection devices to generate digital fingerprints of the video signal portion of the media content itself and identifies media played in the environment by means of matching such fingerprints against a database of known media. Such a video-based system may be built upon direct electrical connections and optical sensors (rather than microphones). Thus, various alternatives to the exemplary methods discussed in the context of the audio data-based embodiments illustrated in FIGS. 1-6 rely instead on video data.

(EX1004, 232 (¶[0061]); EX1002, ¶ 88.)

While at first blush, the new paragraph above appears similar to the short paragraph regarding video in the '836 provisional application (EX1010, 4) discussed

above in §IX.B.1.a, the reference to the "**FIGS. 1-6**" embodiments and the last sentence stating that the "various alternatives to the exemplary methods discussed in the context of the **audio data-based embodiments illustrated in FIGS. 1-6 rely instead on video data**" constitutes new matter. (*See also* EX1028.) This is because Figures 1-6 and their corresponding detailed descriptions in the '204 application were not included in the '836 provisional application, and so extrapolating the application of video data to those detailed embodiments (to the extent a POSITA would have understood it as such) is not supported by the '836 provisional application. (*See generally* EX1010, 2-9; EX1011, 611-616 (FIGS. 1-6).) The new paragraph above is also not included in any of the priority non-provisional application specifications. (*See generally* EX1011, 577-599; EX1012, 276-298; EX1013, 21-43; EX1014, 420-442.) Thus, there is no support in any of the priority applications for video data being relied upon in the detailed embodiments of "FIGS. 1-6," to the extent this new paragraph from the '204 application can be understood. (EX1002, ¶¶ 88-89.)

Notably, while the above new paragraph was not present in the non-provisional applications to which the '204 application claims priority (the '330 application, '604 application, '870 application, and '811 application), PO did not notify the Examiner of the amendment to the specification (e.g., by filing an amended, red-lined version of the specification relative to the specification of the

prior non-provisional application(s) to which it claims priority). (*See* generally EX1004, 189-240 (the '204 application as-filed).)

Accordingly, to the extent the '896 patent is entitled to any filing date, it is no earlier than May 3, 2019, *i.e.*, the filing date of the '204 application. (EX1002, ¶ 90.)

C. The Challenged Claims Are Not Entitled to a Filing Date Earlier Than 2010

For a claim to gain the benefit of the filing date of an earlier application in a priority chain, "each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. § 112." *Zenon Envtl.*, 506 F.3d at 1378 (quoting *Lockwood*, 107 F.3d at 1571); *supra*, §IX.A.

In *Zenon*, the patent claims included features supported by a grandparent application of the patent-at-issue, but the intervening parent application did not incorporate by reference the relevant disclosures of the grandparent application (despite claiming priority to the grandparent application). *Zenon Envtl.*, 506 F.3d at 1378-80. Absent such proper incorporation by reference of the relevant disclosures throughout the priority chain, the Federal Circuit found the claims-at-issue are not entitled to the filing date of the grandparent application because "a lack of continuity of disclosure exists in the family chain." *Id.* at 1381-82.

The challenged claims here are not entitled to a filing date earlier than the filing date of the ’604 application because of a similar break in the continuity of disclosures in the priority chain of the ’896 patent.

As noted above, the priority non-provisional applications, *i.e.*, the ’330 application, ’604 application, ’870 application, and ’811 application, share substantially identical specifications. (*See supra*, §IX.B.1.b.) However, there is one notable difference between the “Cross Reference to Related Applications” section in the ’330 application and the same sections in the subsequent priority non-provisional applications (i.e., the’604 application, ’870 application, and ’811 application).

The ’330 application claims priority to the ’836 provisional application, but does **not** incorporate the ’836 provisional application by reference (with the provisional application being the only application with any disclosure, albeit insufficient, of video-related embodiments). (*See* EX1011, 406-625 (no incorporation by reference of the ’836 provisional application); *see also id.*, *generally*; *supra*, §IX.B.1.c.) The subsequent priority non-provisional applications claim priority to, and incorporate by reference, the ’836 provisional application.

The first application in the priority chain that incorporates the ’836 provisional application by reference is the ’604 application filed November 4, 2010. Thus, even if the disclosures of the ’836 provisional application in combination with the

disclosures of the priority non-provisional applications are considered sufficient for providing written description support for the challenged claims—they do not for the reasons discussed above in §IX.B.1.c—the earliest possible effective filing date of the challenged claims is still no earlier than **November 24, 2010**, the filing date of the '604 application. *See Zenon Envtl.*, 506 F.3d at 1378-82.

X. DETAILED EXPLANATION OF GROUNDS

A. Grounds 1 and 2: Ground 1: The Combination of Steuer750 and Neumeier Renders Obvious Claims 1-5, 7, and 9-13 Ground 2: The Combination of Steuer791 and Neumeier Renders Obvious Claims 1-13

Ground 1 relies on the combination of Steuer750 (EX1005) and Neumeier (EX1007) whereas **Ground 2** relies on the combination of Steuer791 (EX1006) and Neumeier. However, Steuer750 and Steuer791 have substantively identical specifications. (*See* EX1008; EX1002, ¶¶ 36-40.) As such, in the interest of efficiency and clarity, Petitioner presents both grounds collectively, with citations provided to both Steuer750 and Steuer791. That is, Petitioner provides citations below to Steuer750 (to support **Ground 1**) and Steuer791 (to support **Ground 2**). In doing so, Petitioner is not relying on Steuer750 for **Ground 2** or Steuer791 for **Ground 1**. (EX1002, ¶ 91.)

Of note, Steuer791 further includes claims 1-11 which are nearly identical to challenged claims 1-11 here, except the word "audio" in claims 1-11 of Steuer791

is substituted with "video" in the challenged claims.[13] (*Compare* EX1001, claims 1-11 *with* EX1006, claims 1-11; *see also* EX1009 (showing comparison of the claims).) Thus, under **Ground 2**, Petitioner further cites to claims 1-11 of Steuer791 as they almost verbatim disclose challenged claims 1-11 except the "video" feature.[14] The reliance on Neumeier is the same in both **Ground 1 and 2**, as is Petitioner's rationale for combining Neumeier with Steuer750 or with Steuer791. (EX1002, ¶ 92.)

1. Claim 1

a) A media measurement method comprising:

To the extent that the preamble of claim 1 is limiting, Steuer750 and Steuer791 both independently disclose the limitation therein. (EX1005, Title, Abstract, FIGS. 1-2, claims 1, 19, 35, 40, 44, 48, 61-62; EX1006, Title, Abstract, FIGS. 1-2, claims 1-11; EX1002, ¶ 93.) As an initial matter, both Steuer750 and Steuer791 claim "[a] media measurement method[.]" (EX1005, claims 1, 19, 35, 40, 44, 48, 61-62;

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[13] Additionally, limitations 1.e and 9.e of the challenged claims are not included in the Steuer791 claims.

[14] For this reason, challenged claims 6 and 8 are included under **Ground 2** (as claims 6 and 8 of Steuer791 recite the same features as challenged claims 6 and 8 other than the "video" feature).

EX1006, claims 1, 9.) Steuer750 and Steuer791 also refer to a media measurement method in their disclosures. (EX1005, [0006]; *see also id*., Abstract, [0002]; EX1006, 1:60-2:10; *see also id*., Abstract, 1:14-32; EX1002, ¶¶ 93-95.)

Steuer750 and Steuer791 further disclose a "Media Measurement System 100" (Figure 1) for carrying out its methods and "illustrates a media measurement method" in Figure 2 (EX1005, [0009]; EX1006, 2:26-28).

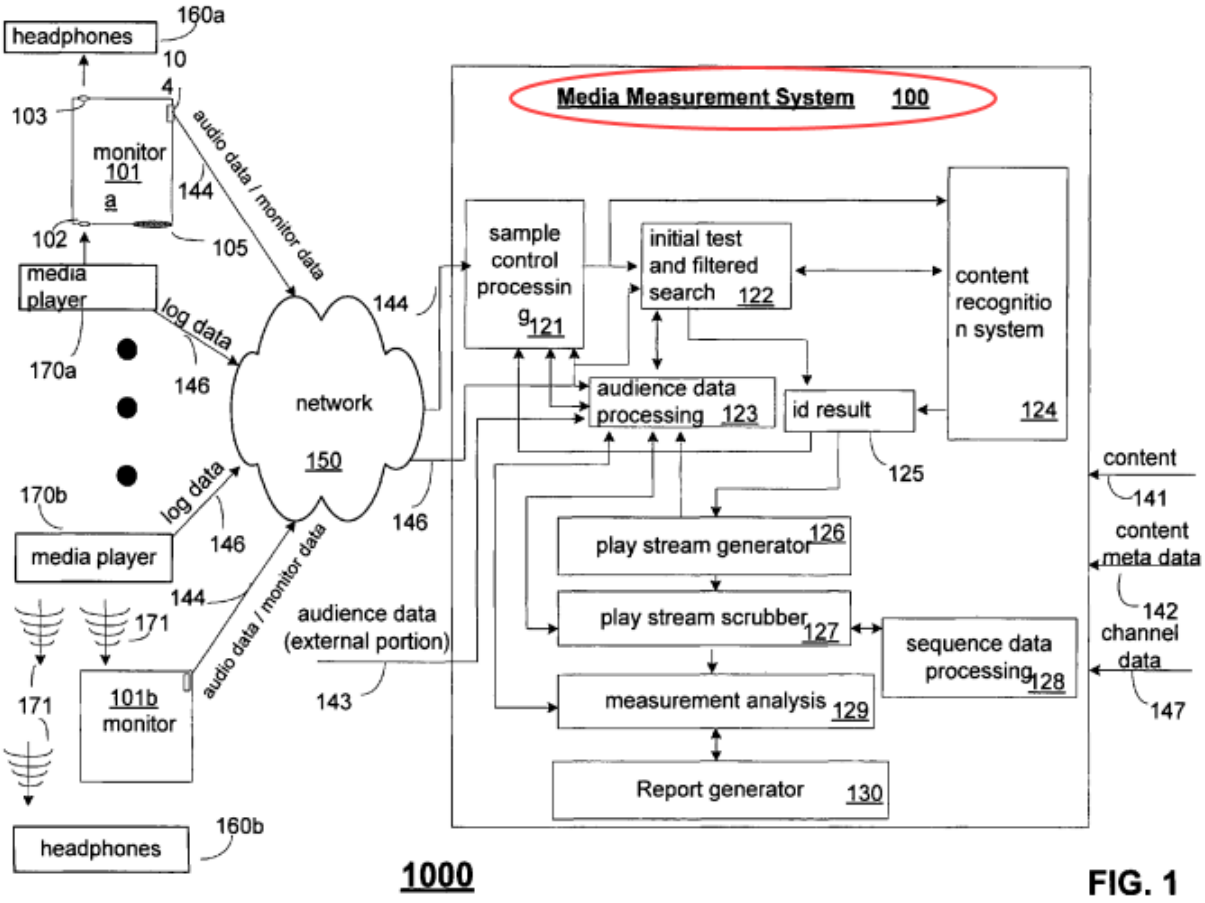


FIG. 1

(EX1005, FIG. 1 (annotated); *see also id.*, [0008], [0016]-[0017]; EX1006, FIG. 1; *see also id.*, 2:23-25, 2:66-3:25; EX1002, ¶ 94.)

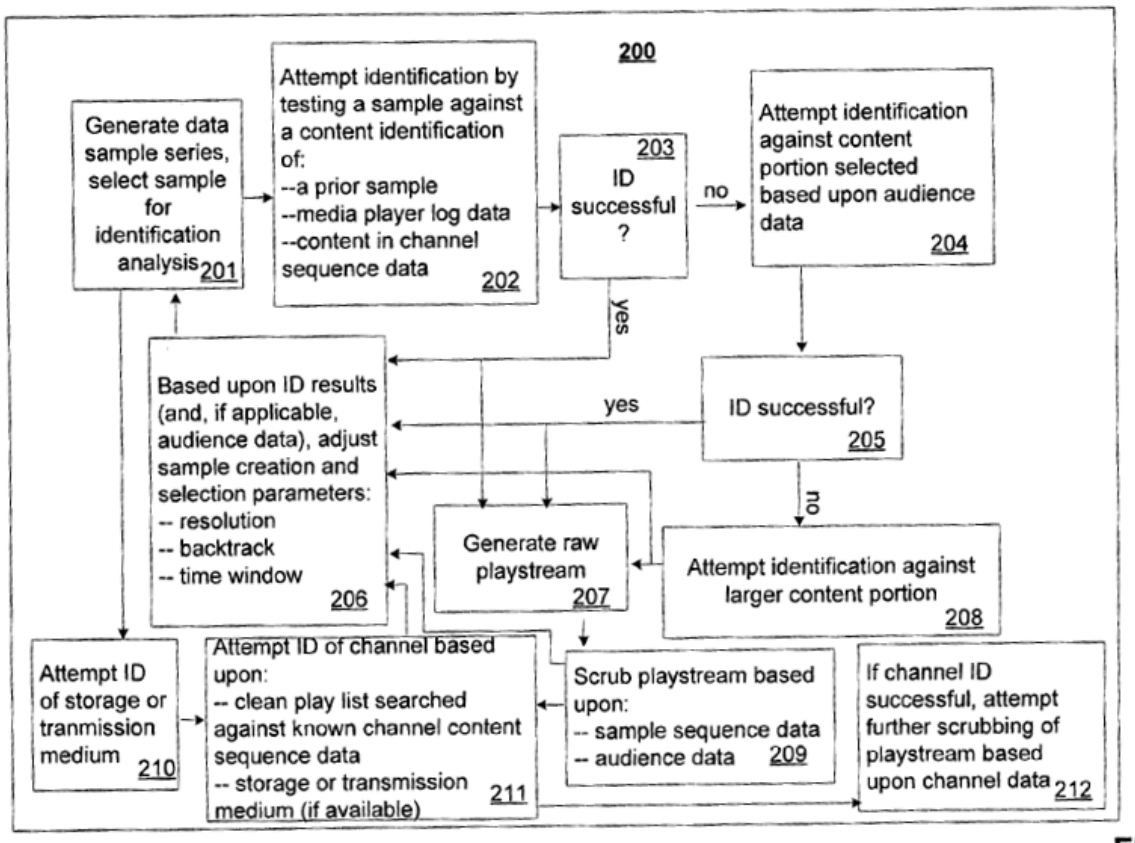


FIG. 2

(EX1005, FIG. 2; *see also id.*, [0009], [0034]; EX1006, FIG. 2; *see also id.*, 2:26-28, 6:58-7:3.)

Thus, Steuer750 and Steuer791 both disclose "[a] media measurement method," as claimed. (*See also infra*, §§X.A.1.b–e; EX1002, ¶ 95.)

b) using one or more computers to generate a play stream of content identification results corresponding to a sequence of submitted data samples, the submitted data samples corresponding to video data samples captured at a monitoring device associated with a monitored audience member;

Steuer750 in combination with Neumeier and Steuer791 in combination with Neumeier disclose or suggest this limitation. (EX1002, ¶¶ 96-112.)

Steuer750 and Steuer791 disclose using one or more computers (e.g., the media measurement system 100 implemented by computer system 700) to generate a play stream of content identification results (e.g., using the play stream generator 126) corresponding to a sequence of submitted data samples (e.g., audio data samples) captured and submitted by monitors 101. (EX1005, [0016]-[0031], [0040], [0066], FIGS. 1, 2, 4, 7; claims 35, 40, 44; EX1006, 2:66-6:27, 8:1-22, 13:58-14:15, FIGS. 1, 2, 4, 7; EX1002, ¶ 97.)

For example, similar to claim limitation 1.b, Steuer750 discloses and claims "generating a raw play stream of content identification results corresponding to a sequence of data samples." (EX1005, claims 35, 40, 44; EX1002, ¶ 98.)

Steuer791's claim 1 recites almost identical language as claim limitation 1.b except it substitutes the claimed video data samples with audio data samples: "using one or more computers to generating generate a play stream of content identification results corresponding to a sequence of submitted data samples, the submitted data

samples corresponding to audio data samples captured at a monitoring device associated with a monitored audience member." (EX1006, claim 1; EX1002, ¶ 99.)

Steuer750 and Steuer791 disclose additional details regarding generation of the play stream in relation to the play stream generator 126 of Figure 1 (which generates the play stream based on information processed at upstream modules including sample control processing module 121, initial test and filtered search module 122, audience data processing module 123, content recognition system 124, and ID result module 125). (EX1005, [0023]-[0031]; *see also id*., [0040] (describing raw play stream generation in step 207 of Figure 2), [0041]-[0042], [0045] (describing raw play stream 410 generated by step 207), FIGS. 1-4; EX1006, 4:49-6:28; *see also id*., 8:1-22, 8:23-49, 9:12-37, FIGS. 1-4; EX1002, ¶ 100.)

Steuer750 and Steuer791 disclose that the sequence of data samples is a sequence of audio data samples captured by one or more monitors 101 ("monitoring device") associated with an audience member, and then transferred ("submitted") to the media measurement system 100 via network 150. (EX1005, [0017]-[0019], FIGS. 1-2; *see also id.*, claim 1 ("submitting data samples corresponding to portions of audio data captured at a monitoring device for content recognition against known media content;"), claims 19, 48, 54; EX1006, 3:4-54, FIGS. 1-2; EX1002, ¶ 101.)

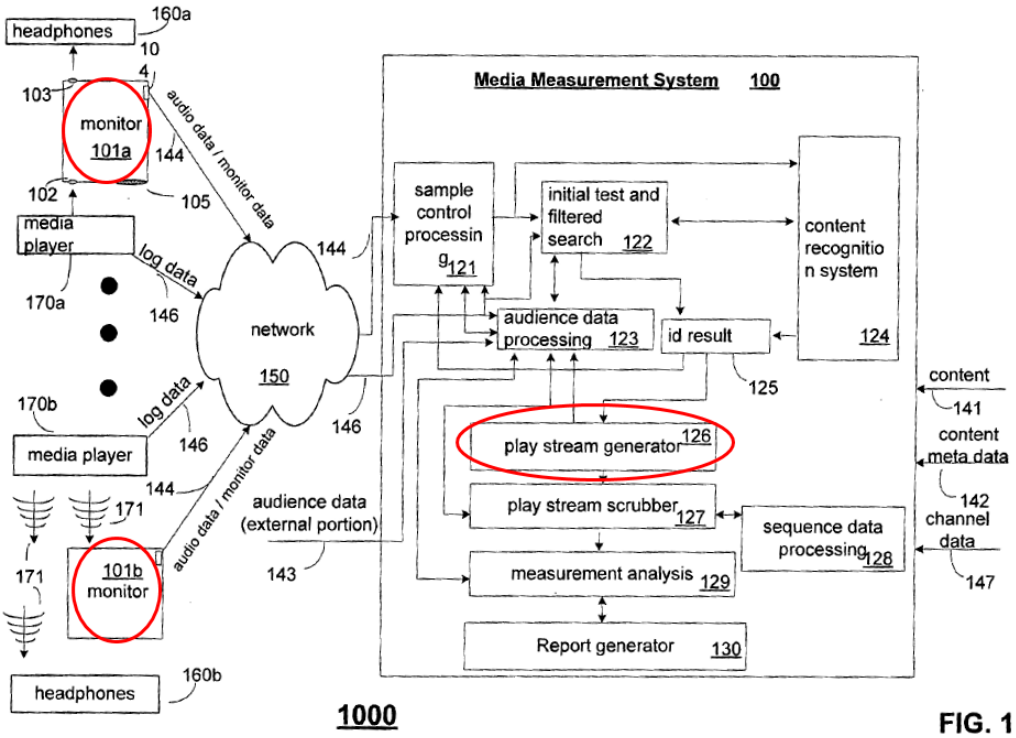


FIG. 1

(EX1005, FIG. 1 (annotated); EX1006, FIG. 1; EX1002, ¶ 101.)

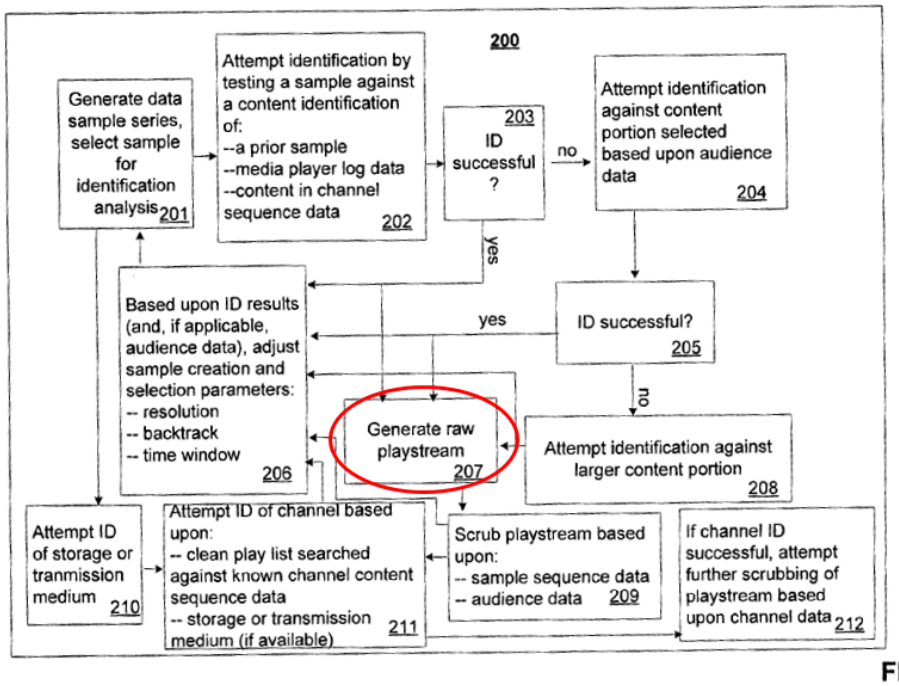
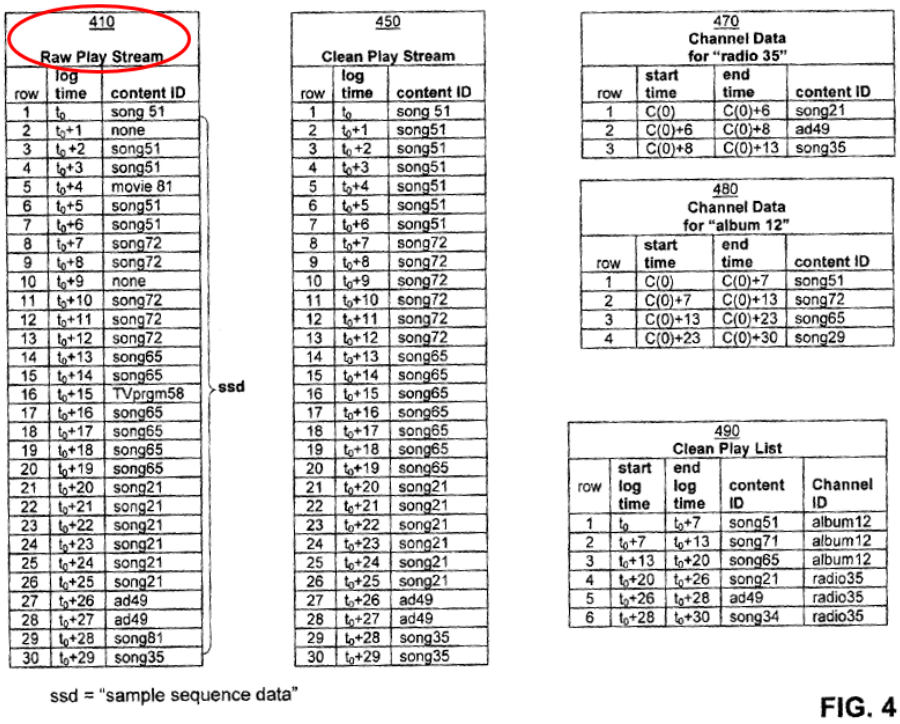


FIG. 2

(EX1005, FIG. 2 (annotated); EX1006, FIG. 2; EX1002, ¶ 101.)



410 Raw Play Stream

row	log time	content ID
1	t_0	song 51
2	t_0+1	none
3	t_0+2	song51
4	t_0+3	song51
5	t_0+4	movie 81
6	t_0+5	song51
7	t_0+6	song51
8	t_0+7	song72
9	t_0+8	song72
10	t_0+9	none
11	t_0+10	song72
12	t_0+11	song72
13	t_0+12	song72
14	t_0+13	song65
15	t_0+14	song65
16	t_0+15	TVprgm58
17	t_0+16	song65
18	t_0+17	song65
19	t_0+18	song65
20	t_0+19	song65
21	t_0+20	song21
22	t_0+21	song21
23	t_0+22	song21
24	t_0+23	song21
25	t_0+24	song21
26	t_0+25	song21
27	t_0+26	ad49
28	t_0+27	ad49
29	t_0+28	song81
30	t_0+29	song35

ssd

450 Clean Play Stream

row	log time	content ID
1	t_0	song 51
2	t_0+1	song51
3	t_0+2	song51
4	t_0+3	song51
5	t_0+4	song51
6	t_0+5	song51
7	t_0+6	song51
8	t_0+7	song72
9	t_0+8	song72
10	t_0+9	song72
11	t_0+10	song72
12	t_0+11	song72
13	t_0+12	song72
14	t_0+13	song65
15	t_0+14	song65
16	t_0+15	song65
17	t_0+16	song65
18	t_0+17	song65
19	t_0+18	song65
20	t_0+19	song65
21	t_0+20	song21
22	t_0+21	song21
23	t_0+22	song21
24	t_0+23	song21
25	t_0+24	song21
26	t_0+25	song21
27	t_0+26	ad49
28	t_0+27	ad49
29	t_0+28	song35
30	t_0+29	song35

470 Channel Data for "radio 35"

row	start time	end time	content ID
1	C(0)	C(0)+6	song21
2	C(0)+6	C(0)+8	ad49
3	C(0)+8	C(0)+13	song35

480 Channel Data for "album 12"

row	start time	end time	content ID
1	C(0)	C(0)+7	song51
2	C(0)+7	C(0)+13	song72
3	C(0)+13	C(0)+23	song65
4	C(0)+23	C(0)+30	song29

490 Clean Play List

row	start log time	end log time	content ID	Channel ID
1	t_0	t_0+7	song51	album12
2	t_0+7	t_0+13	song71	album12
3	t_0+13	t_0+20	song65	album12
4	t_0+20	t_0+26	song21	radio35
5	t_0+26	t_0+28	ad49	radio35
6	t_0+28	t_0+30	song34	radio35

ssd = "sample sequence data"

FIG. 4

(EX1005, FIG. 4 (annotated); EX1006, FIG. 4; EX1002, ¶ 101.)

The disclosures of Steuer750 and Steuer791 are limited to media measurement methods/systems for generating a play stream of content identification results corresponding to a sequence of **audio** data samples and performing subsequent data processing steps based on the content identification results. (EX1005, Abstract, [0006], [0017]-[0019], [0022]-[0023], [0034]-[0035]; *see also id.*, [0058]-[0059]; EX1006, Abstract, 1:60-2:10, 3:4-54, 4:13-62, 6:58-7:16; *see*

also id., 12:1-50.)[15] As such, Steuer750 and Steuer791 disclose "using one or more computers to generate a play stream of content identification results corresponding to a sequence of submitted data samples, the submitted data samples corresponding to [audio] data samples captured at a monitoring device associated with a monitored audience member." Steuer750 and Steuer791 do not disclose that the submitted data samples correspond to the claimed "video" data samples. (EX1002, ¶ 102.) However, as discussed below, it would have been obvious to modify Steuer750's and Steuer791's disclosed media measurement methods such that video data samples are used instead of audio based on the teachings of Neumeier. (*Id.*)

Similar to Steuer750 and Steuer791, Neumeier is directed to methods and systems used to identify media content being consumed by a user by matching samples of the consumed media content with a content database, and then performing subsequent data processing steps based on the matching. (*See, e.g.*, (EX1007, Abstract.) Neumeier discloses that its content identification method can

[15] Indeed, the '330 application published as Steuer750 and thus Steuer750 is limited to audio-based embodiments for the reasons discussed in §IX.B.1.b. (*See also* EX1002, ¶¶ 73-79) The same is true for Steuer791 as its disclosure is nearly identical to that of Steuer750. (EX1008.)

be implemented using video data samples or audio data samples. (EX1007, [0010]-[0011]; *see also id.*, [0002], [0012]-[0014]; EX1002, ¶ 103; *see also id.*, ¶¶ 41-44.)

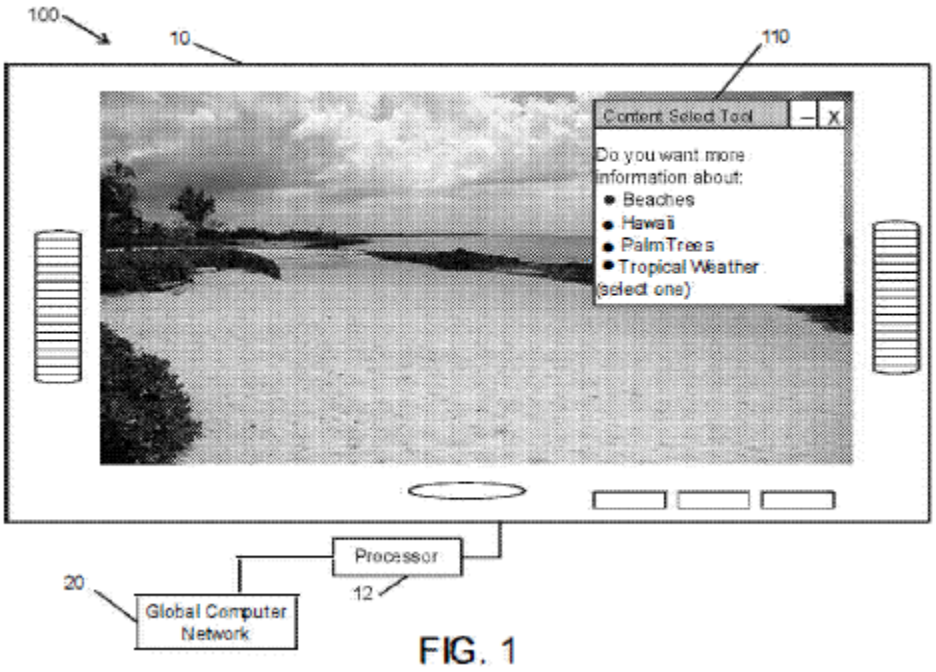


FIG. 1

(EX1007, FIG. 1; *see also id.*, [0023]; EX1002, ¶ 103.)

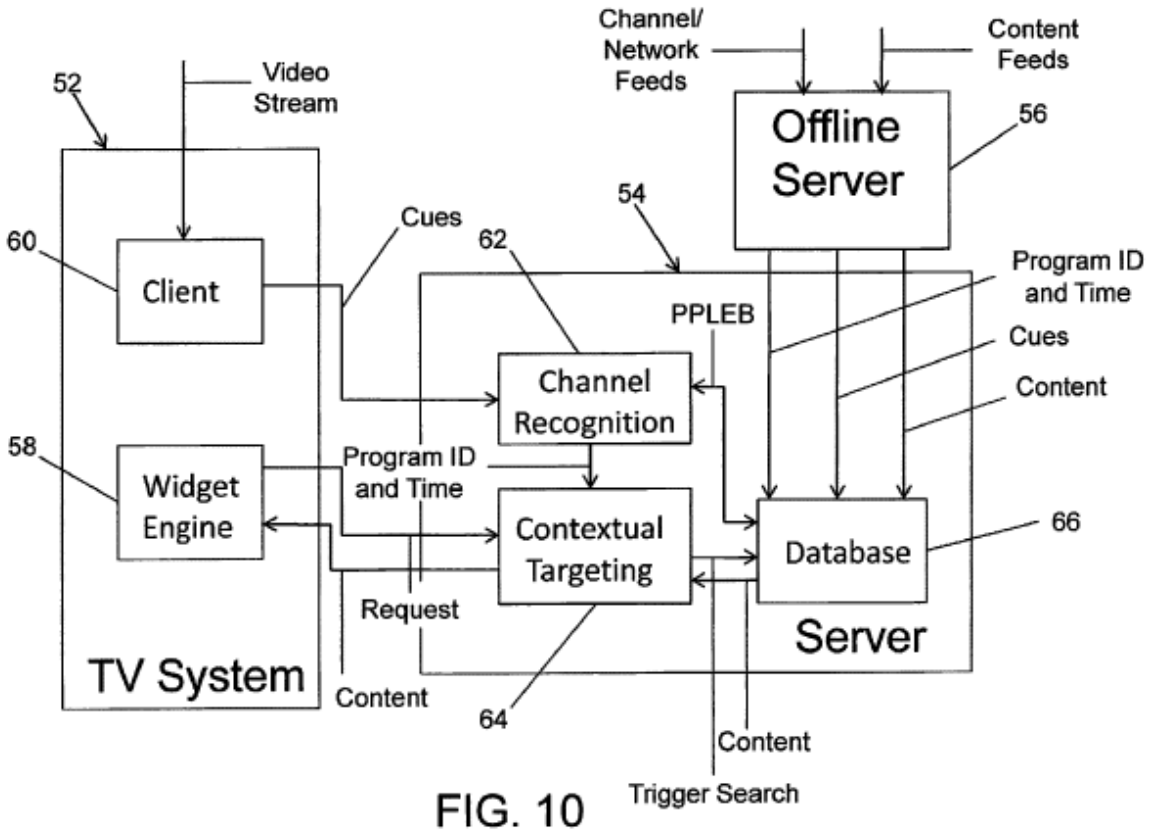


FIG. 10

(EX1007, FIG. 10; *see also id.*, [0050-[0052]; EX1002, ¶ 103.)

Thus, Neumeier discloses content identification systems and methods in the same technical field as Steuer750 and Steuer791, including content identification based on captured data samples. Accordingly, a POSITA would have had reason to consider the teachings of Neumeier when implementing Steuer750 or Steuer791. (EX1002, ¶ 104.)

Neumeier discloses identifying content corresponding to a sequence of sampled pixel data ("video data samples") captured at a TV or the like (like the monitoring device of Steuer750/Steuer791) associated with a user (like the

monitored audience member of Steuer750/Steuer791). In particular, Neumeier discloses with reference to Figure 10 that "the client module 60 [in television system 52] is programmed to **sample pixel data** and generate an HTTP request addressed to server 54 based on the sampled pixel data," which the server 54 uses to identify the content being viewed by the user by way of its channel recognition module 62 and database 66. (EX1007, [0054].) The operations performed by the channel recognition module 62 to identify content (e.g., a program ID) include matching the received sample pixel data with known content stored in database 66. (EX1007, [0056], [0059]-[0062], [0070]; *see also id.*, [0057], [0064], [0068], [0072], [0076], [0078], [0097], [0099], [0101]; EX1002, ¶ 105.)

Neumeier further discloses additional process steps related to content identification, similar to those disclosed in Steuer750 and Steuer791, such as **determining a content offset time**, **identifying a channel being viewed**, and **filtering deviations in the sample pixel data to identify content**. For example, regarding a content offset time, Neumeier discloses that in addition to identifying video content based on the video data samples, it also identifies the playing time or offset time of the video content being displayed. (EX1007, [0012]; *see also* EX1005, [0006], [0053], [0055]; EX1006, 1:60-2:10, 11:10-26, 11:38-55.) Neumeier discloses that "[t]he terms 'playing time' and 'offset time' will be used interchangeably herein and refer to a time which is offset from a fixed point in time,

such as the starting time of a particular television program or commercial." (EX1007, [0012]; *see also id.*, [0014], [0024], [0032], [0070], [0072], [0076], [0078], [0087]; p. 13 (Appendix), Abstract; EX1002, ¶¶ 106-107.)[16] .)

In view of Neumeier's teachings, a POSITA would have been motivated to consider and draw from such teachings when implementing Steuer750's or Steuer791's disclosed methods and systems such that, in addition to, or as an alternative to, using audio data samples, video data samples would have been used to generate content identification results and perform subsequent data processing steps. As explained above, Steuer750, Steuer791, and Neumeier all concern content identification processes that require collecting data samples, making content identifications based on those data samples, and comparing sequences of content identifications against known sequences. (EX1002, ¶ 108.)

[16] Neumeier's disclosure references its Appendix at pp. 13-20 which discloses an algorithm for tracking video transmission using ambiguous cues. (EX1007, pp. 13-18; *see also id.*, [0021] (referencing Appendix), [0040] (same), [0045] (same), [0070]-[0071] (same), [0075].) Thus, to the extent Petitioner cites to portions of Neumeier that reference the Appendix, Petitioner also relies on the algorithm disclosed in the Appendix.

A POSITA would have found it obvious and would have known how to modify Steuer750 and Steuer791 to incorporate Neumeier's teachings as proposed, because as discussed above, Neumeier discloses a way of identifying content based on matching video data samples with video data stored in a database. (EX1002, ¶ 109) Thus, a POSITA would have recognized that applying Steuer750's or Steuer791's use of audio data to video data could have been implemented based on obvious modifications using known technology, such as sampling video data instead of (or in addition to) sampling audio data, and using the sampled video data to identify content as taught by Neumeier. (*Id.*)

In view of the foregoing, a POSITA would have had the capability and knowledge to implement, and found it obvious to try, the above modification to include the use of video data instead of (or in addition to) audio data as required by the claim, while ensuring proper operation of the Steuer750/Steuer791 systems and methods. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). Therefore, a POSITA would have had a reasonable expectation of success that the combined Steuer750-Neumeier system and combined Steuer791-Neumeier system would have operated as expected. *See Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379-81 (Fed. Cir. 2023) (holding that Petitioner need not show that the proposed substitution was necessarily an improvement but rather would have been a suitable option). (EX1002, ¶ 110.)

The above modification would have been a mere combination of known technologies (e.g., the concept of collecting video data samples with Steuer750's/Steuer791's disclosed systems and methods for making content identifications), according to known methods (e.g., sampling pixel data of the video content), to achieve predictable results (e.g., generating content identification results by comparing video data samples with known content). *See KSR*, 550 U.S. 398 at 416-18. (EX1002, ¶ 111.)

Therefore, the Steuer750-Neumeier system and the Steuer791-Neumeier system disclose or suggest claim limitation 1.b. (EX1002, ¶ 112.)

c)

(1) using one or more computers to utilize sample sequence data and content offset data to deduce play-altering actions of the monitored audience member,

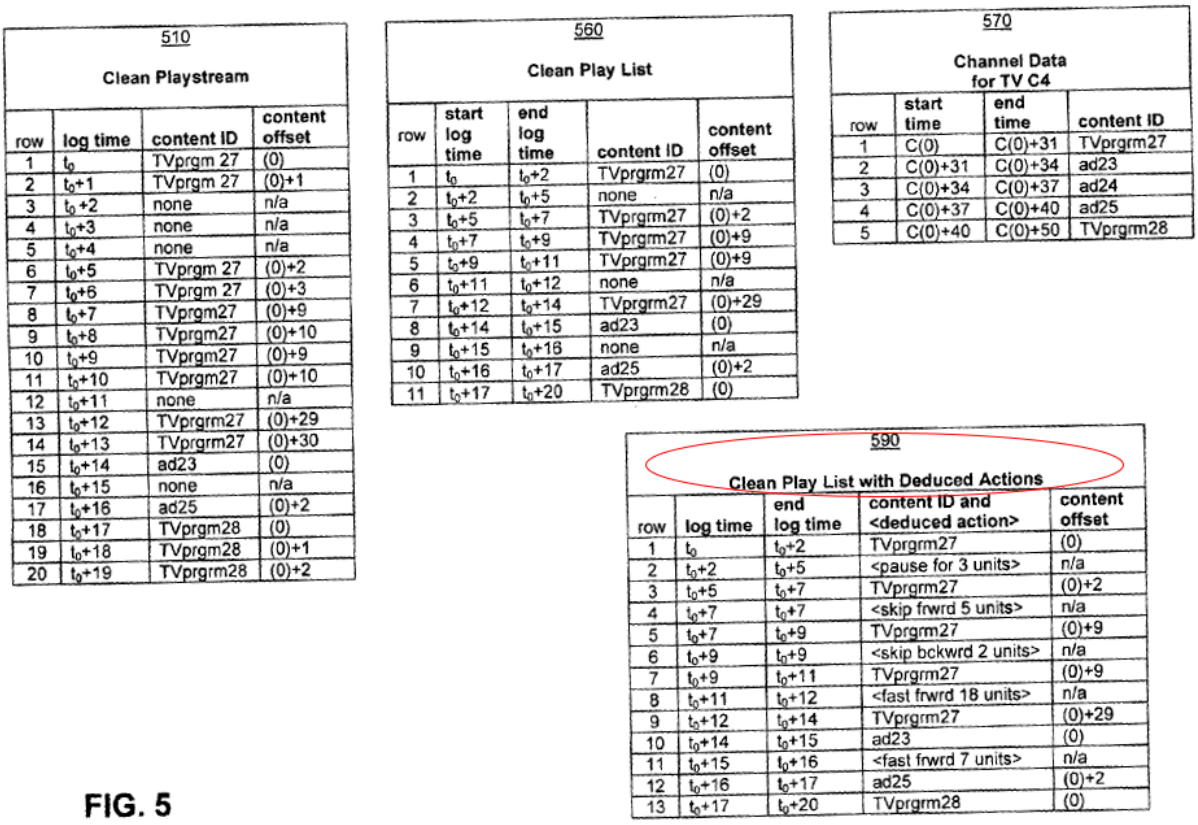
(2) the sample sequence data corresponding to a sequence of the content identification results,

(3) the content offset data including content offsets associated with the content identification results, a content offset indicating a time position of a content identification result within identified content,

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination discloses or suggests this limitation. (EX1002, ¶¶ 113-118.)

First, Steuer791's claim 1 recites almost identical language as claim limitation 1.c, albeit in the context of "audio data samples" as noted with respect to limitation 1.b: "using one or more computers to utilize sample sequence data and content offset data to deduce play-altering actions of the monitored audience member, the sample sequence data corresponding to a sequence of the content identification results, the content offset data including content offsets associated with the content identification results, a content offset indicating a time position of a content identification result within identified content." (EX1006, claim 1.)

Further, regarding limitation 1.c.1, Steuer750 and Steuer791 both disclose using one or more computers (e.g., the media measurement system 100 implemented by computer system 700) to utilize sample sequence data and content offset data to deduce play-altering actions of the monitored audience member. (EX1002, ¶ 115 (citing EX1005, Abstract, [0006], [0052], claim 44; *see also id.*, [0062], claims 45-47; EX1006, Abstract, 1:60-2:10, 10:57-11:9; *see also id.*, 13:8-20).)



510

Clean Playstream

row	log time	content ID	content offset
1	t_0	TVprgm 27	(0)
2	t_0+1	TVprgm 27	(0)+1
3	t_0+2	none	n/a
4	t_0+3	none	n/a
5	t_0+4	none	n/a
6	t_0+5	TVprgm 27	(0)+2
7	t_0+6	TVprgm 27	(0)+3
8	t_0+7	TVprgm27	(0)+9
9	t_0+8	TVprgm27	(0)+10
10	t_0+9	TVprgm27	(0)+9
11	t_0+10	TVprgm27	(0)+10
12	t_0+11	none	n/a
13	t_0+12	TVprgrm27	(0)+29
14	t_0+13	TVprgrm27	(0)+30
15	t_0+14	ad23	(0)
16	t_0+15	none	n/a
17	t_0+16	ad25	(0)+2
18	t_0+17	TVprgm28	(0)
19	t_0+18	TVprgm28	(0)+1
20	t_0+19	TVprgrm28	(0)+2

560

Clean Play List

row	start log time	end log time	content ID	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	none	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+9	TVprgrm27	(0)+9
5	t_0+9	t_0+11	TVprgrm27	(0)+9
6	t_0+11	t_0+12	none	n/a
7	t_0+12	t_0+14	TVprgrm27	(0)+29
8	t_0+14	t_0+15	ad23	(0)
9	t_0+15	t_0+16	none	n/a
10	t_0+16	t_0+17	ad25	(0)+2
11	t_0+17	t_0+20	TVprgrm28	(0)

570

Channel Data for TV C4

row	start time	end time	content ID
1	C(0)	C(0)+31	TVprgrm27
2	C(0)+31	C(0)+34	ad23
3	C(0)+34	C(0)+37	ad24
4	C(0)+37	C(0)+40	ad25
5	C(0)+40	C(0)+50	TVprgrm28

590

Clean Play List with Deduced Actions

row	log time	end log time	content ID and <deduced action>	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	<pause for 3 units>	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+7	<skip frwrd 5 units>	n/a
5	t_0+7	t_0+9	TVprgrm27	(0)+9
6	t_0+9	t_0+9	<skip bckwrd 2 units>	n/a
7	t_0+9	t_0+11	TVprgrm27	(0)+9
8	t_0+11	t_0+12	<fast frwrd 18 units>	n/a
9	t_0+12	t_0+14	TVprgrm27	(0)+29
10	t_0+14	t_0+15	ad23	(0)
11	t_0+15	t_0+16	<fast frwrd 7 units>	n/a
12	t_0+16	t_0+17	ad25	(0)+2
13	t_0+17	t_0+20	TVprgrm28	(0)

FIG. 5

(EX1005, FIG. 5 (annotated); EX1006, FIG. 5; EX1002, ¶ 115.)

Regarding limitation 1.c.2, Steuer750 and Steuer791 both disclose that the sample sequence data corresponds to a sequence of the content identification results. For example, Steuer750 and Steuer791 disclose that the "[p]lay stream generator 126 generates a raw play stream **relating a sequence of samples to content identification results** (for an example of a portion of a raw play stream, see FIG. 3 and accompanying text)." (EX1005, [0031]; *see also id.*, [0034], [0037], [0040], [0045]-[0049], [0059]-[0062] (describing the use of the content sequence data to deduce play-altering activities), claims 32, 35, 36, 40, 44, 46; EX1006, 6:13-27; *see*

also id., 6:58-7:3, 7:39-56, 8:1-22, 9:12-10:27, 12:14-13:20 (describing the use of the content sequence data to deduce play-altering activities); EX1002, ¶ 116.)

Regarding limitation 1.c.3, Steuer750 and Steuer791 both disclose that the content offset data includes content offsets associated with the content identification results, where a content offset indicates a time position of a content identification result within identified content. For example, Steuer750 and Steuer791 disclose:

> **Each content offset value represents a time offset from the beginning of a particular piece of content**. For example, row 8 of Play Stream 510 corresponds to a sample whose beginning is located 9 time units from the beginning of TV program 27, thus the content offset is referenced as (0)+9.

(EX1005, [0053]; EX1006, 11:10-26; EX1002, ¶ 117.) As Steuer750 and Steuer791 explain, the content offset data includes content offsets related to a beginning of identified contents, and thus the content offset is indicative of a time position of the content identification result within the identified content. (EX1005, [0053]; EX1006, 11:10-26; EX1002, ¶ 117.). As shown in annotated Figure 5 above, a clean play list with deduced actions 590 shows a "content offset" column with time offsets associated with the content identification results listed in the "content ID . . ." column. (EX1005, FIG. 5 (annotated above); *see also id.*, [0055]-[0058], [0061]-[0062]; EX1006, FIG. 5; *see also id.*, 11:38-12:13, 12:62-13:7; EX1002, ¶ 117.)

It would have been obvious to implement Steuer750's and Steuer791's disclosed content identification systems using video data samples instead of its disclosed audio-based approach. (*See supra*, §X.A.1.b.) Indeed, as discussed above, Neumeier discloses determination of content offsets of the content being viewed by a user, similar to Steuer750's and Steuer791's disclosures above. (*Id.* (citing (EX1007, [0012], [0014], [0024], [0032], [0070], [0072], [0076], [0078], [0087].) Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest limitation 1.c. (EX1002, ¶ 118.)

d) wherein to utilize comprises, for a particular plurality of submitted data samples and corresponding content identification results, comparing a progression of log times associated with capture timing of each of the particular plurality of submitted data samples and a progression of content offsets of the corresponding content identification results; and

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggests this limitation. (EX1002, ¶¶ 119-122.)

First, Steuer791's claim 1 recites almost identical language as claim limitation 1.d, albeit in the context of "audio data samples" as noted with respect to limitation 1.b: "wherein to utilize comprises, for a particular plurality of submitted data samples and corresponding content identification results, comparing a progression of log times associated with capture timing of each of the particular plurality of

submitted data samples and a progression of content offsets of the corresponding content identification results." (EX1006, claim 1.)

Moreover, Steuer750 and Steuer791 disclose with reference to Figure 5 that for a particular plurality of submitted data samples and corresponding content identification results (e.g., like those shown in the "content ID" column in the clean playstream 510), the utilizing step (e.g., from claim limitation 1.c) comprises comparing a progression of log times associated with capture timing of each of the particular plurality of submitted data samples and a progression of content offsets of the corresponding content identification results. (EX1005, [0055] ("Discontinuities in consumption of the identified media may be identified **by comparing the progression of sample log times to progression of corresponding content offset times** in Play Stream 510 . . ."), *see also id.*, [0056]-[0057], [0059]-[0061]; EX1006, 11:38-55, *see also id.*, 11:56-67, 12:14-13:7; EX1002, ¶ 121.)

510
Clean Playstream

row	log time	content ID	content offset
1	t_0	TVprgm 27	(0)
2	t_0+1	TVprgm 27	(0)+1
3	t_0+2	none	n/a
4	t_0+3	none	n/a
5	t_0+4	none	n/a
6	t_0+5	TVprgm 27	(0)+2
7	t_0+6	TVprgm 27	(0)+3
8	t_0+7	TVprgm27	(0)+9
9	t_0+8	TVprgm27	(0)+10
10	t_0+9	TVprgm27	(0)+9
11	t_0+10	TVprgm27	(0)+10
12	t_0+11	none	n/a
13	t_0+12	TVprgrm27	(0)+29
14	t_0+13	TVprgrm27	(0)+30
15	t_0+14	ad23	(0)
16	t_0+15	none	n/a
17	t_0+16	ad25	(0)+2
18	t_0+17	TVprgm28	(0)
19	t_0+18	TVprgm28	(0)+1
20	t_0+19	TVprgrm28	(0)+2

560
Clean Play List

row	start log time	end log time	content ID	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	none	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+9	TVprgrm27	(0)+9
5	t_0+9	t_0+11	TVprgrm27	(0)+9
6	t_0+11	t_0+12	none	n/a
7	t_0+12	t_0+14	TVprgrm27	(0)+29
8	t_0+14	t_0+15	ad23	(0)
9	t_0+15	t_0+16	none	n/a
10	t_0+16	t_0+17	ad25	(0)+2
11	t_0+17	t_0+20	TVprgrm28	(0)

570
Channel Data for TV C4

row	start time	end time	content ID
1	C(0)	C(0)+31	TVprgrm27
2	C(0)+31	C(0)+34	ad23
3	C(0)+34	C(0)+37	ad24
4	C(0)+37	C(0)+40	ad25
5	C(0)+40	C(0)+50	TVprgrm28

590
Clean Play List with Deduced Actions

row	log time	end log time	content ID and <deduced action>	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	<pause for 3 units>	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+7	<skip frwrd 5 units>	n/a
5	t_0+7	t_0+9	TVprgrm27	(0)+9
6	t_0+9	t_0+9	<skip bckwrd 2 units>	n/a
7	t_0+9	t_0+11	TVprgrm27	(0)+9
8	t_0+11	t_0+12	<fast frwrd 18 units>	n/a
9	t_0+12	t_0+14	TVprgrm27	(0)+29
10	t_0+14	t_0+15	ad23	(0)
11	t_0+15	t_0+16	<fast frwrd 7 units>	n/a
12	t_0+16	t_0+17	ad25	(0)+2
13	t_0+17	t_0+20	TVprgrm28	(0)

FIG. 5

(EX1005, FIG. 5 (annotated); EX1002, ¶ 121.)

It would have been obvious to implement Steuer750's and Steuer791's disclosed content identification systems using video data samples instead of its disclosed audio-based approach. (*See supra*, §X.A.1.b.) Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 1.d. (EX1002, ¶ 122.)

e) using one or more computers to utilize deduced play altering actions of the monitored audience member to generate a media measurement report.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation. (EX1002, ¶¶ 123-125.)

For example, Steuer750 and Steuer791 disclose that using one or more computers (e.g., the media measurement system 100 implemented by computer system 700) to utilize results of the deduced play altering actions of the monitored audience member (e.g., the play-altering actions information discussed above in relation to claim limitations 1.c-d with reference to Figure 5) to generate a media measurement report. (EX1005, [0031] ("Results of the media measurement analysis can be obtained via report generator 130."), *see also id.*, [0051] (describing the system's ability to "generat[e] a particular report that the system is asked to produce."), [0052] (describing the process of deducing play-altering activities in relation to Figure 5, and disclosing that the process is carried out by the media measurement system 100 of Figure 1); EX1006, 6:13-27, *see also id.*, 10:34-56, 10:57-11:9; EX1002, ¶ 124.)

It would have been obvious to implement Steuer750's and Steuer791's disclosed content identification systems using video data samples instead of its disclosed audio-based approach. (*See supra*, §X.A.1.b.) Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination discloses or suggests claim limitation 1.e. (EX1002, ¶ 125.)

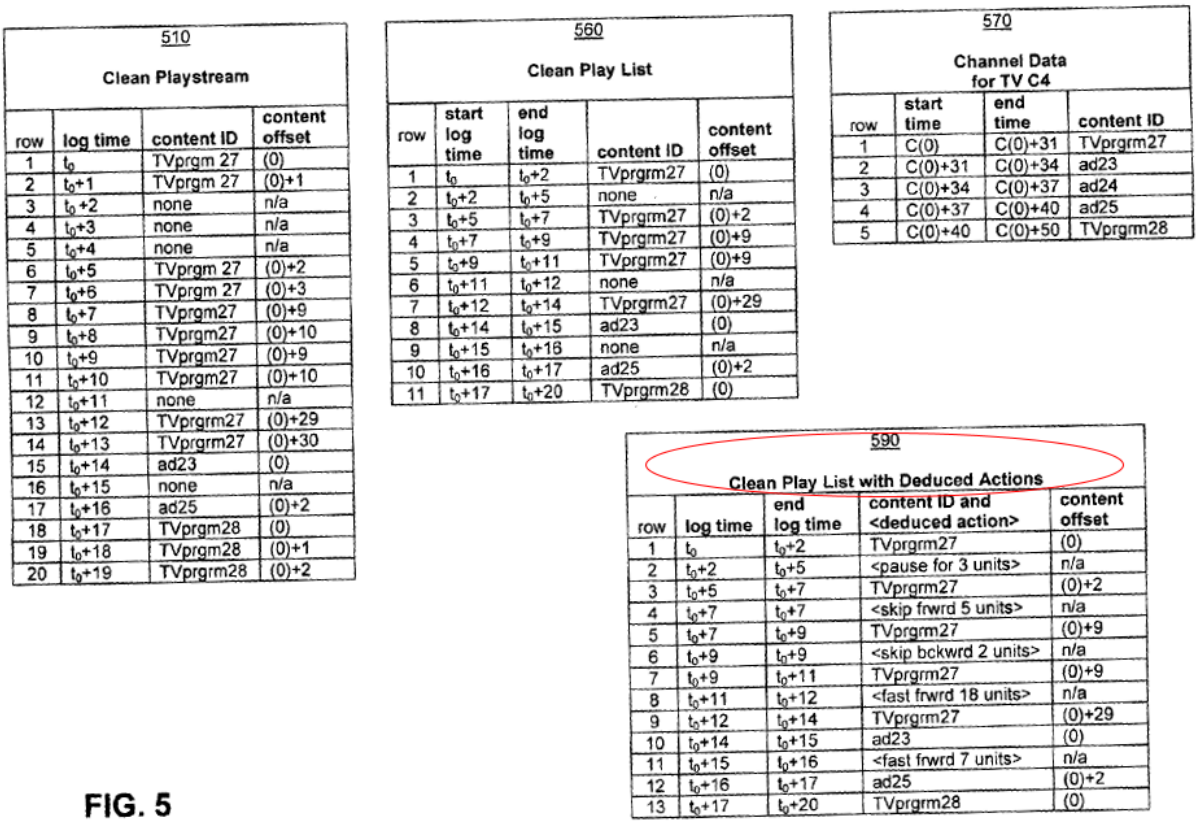
2. Claim 2

a) The method of claim 1 further comprising: generating a play list including content offset data as part of deducing media play-altering actions of a monitored audience member.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for at least reasons similar to those given above with respect to claim limitation 1.c. (EX1002, ¶¶ 126-129; *see supra*, §X.A.1.c.)

First, Steuer791's claim 2 recites almost identical language as claim limitation 2.a, albeit in the context of "audio data samples" as noted with respect to limitation 1.b: "generating a play list including content offset data as part of deducing media play-altering actions of a monitored audience member." (EX1006, claim 2; EX1002, ¶ 127.)

Moreover, Steuer750 and Steuer791 disclose generating a play list like the clean play list with deduced actions 590 shown in Figure 5, which includes content offset data as part of deducing media play-altering actions of a monitored audience member.



510

Clean Playstream

row	log time	content ID	content offset
1	t_0	TVprgm 27	(0)
2	t_0+1	TVprgm 27	(0)+1
3	t_0+2	none	n/a
4	t_0+3	none	n/a
5	t_0+4	none	n/a
6	t_0+5	TVprgm 27	(0)+2
7	t_0+6	TVprgm 27	(0)+3
8	t_0+7	TVprgm27	(0)+9
9	t_0+8	TVprgm27	(0)+10
10	t_0+9	TVprgm27	(0)+9
11	t_0+10	TVprgm27	(0)+10
12	t_0+11	none	n/a
13	t_0+12	TVprgrm27	(0)+29
14	t_0+13	TVprgrm27	(0)+30
15	t_0+14	ad23	(0)
16	t_0+15	none	n/a
17	t_0+16	ad25	(0)+2
18	t_0+17	TVprgm28	(0)
19	t_0+18	TVprgm28	(0)+1
20	t_0+19	TVprgrm28	(0)+2

560

Clean Play List

row	start log time	end log time	content ID	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	none	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+9	TVprgrm27	(0)+9
5	t_0+9	t_0+11	TVprgrm27	(0)+9
6	t_0+11	t_0+12	none	n/a
7	t_0+12	t_0+14	TVprgrm27	(0)+29
8	t_0+14	t_0+15	ad23	(0)
9	t_0+15	t_0+16	none	n/a
10	t_0+16	t_0+17	ad25	(0)+2
11	t_0+17	t_0+20	TVprgrm28	(0)

570

Channel Data for TV C4

row	start time	end time	content ID
1	C(0)	C(0)+31	TVprgrm27
2	C(0)+31	C(0)+34	ad23
3	C(0)+34	C(0)+37	ad24
4	C(0)+37	C(0)+40	ad25
5	C(0)+40	C(0)+50	TVprgrm28

590

Clean Play List with Deduced Actions

row	log time	end log time	content ID and <deduced action>	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	<pause for 3 units>	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+7	<skip frwrd 5 units>	n/a
5	t_0+7	t_0+9	TVprgrm27	(0)+9
6	t_0+9	t_0+9	<skip bckwrd 2 units>	n/a
7	t_0+9	t_0+11	TVprgrm27	(0)+9
8	t_0+11	t_0+12	<fast frwrd 18 units>	n/a
9	t_0+12	t_0+14	TVprgrm27	(0)+29
10	t_0+14	t_0+15	ad23	(0)
11	t_0+15	t_0+16	<fast frwrd 7 units>	n/a
12	t_0+16	t_0+17	ad25	(0)+2
13	t_0+17	t_0+20	TVprgrm28	(0)

FIG. 5

(EX1005, FIG. 5 (annotated); EX1002, ¶ 128.)

> FIG. 5 illustrates Clean Play Stream 510, Clean Play List 560, Channel Data 570, and Clean Play List 590 showing **deduced play-altering actions** . . . Aside from the traditional time shifting activity of, for example, recording a television broadcast and playing it at a later time, various play-altering activities may be undertaken by an audience member. **For example a media player may be paused, reversed, fast forwarded, and some media players have modes in which skipping back or forward in played content can occur almost instantly, including within the smallest time division useful for a particular data set** (e.g., less than five seconds, less than one second, etc.).

> **Generally, these activities of manipulating the pace and order in which media is consumed will be referenced as audience play-altering actions or activities**. These activities may be deduced, for example, during scrubbing step 209 of FIG. 2, or, as illustrated more expressly, during step 308 of FIG. 3.

(EX1005, [0052]; *see also id.*, [0053], [0058]-[0062]; EX1006, 10:57-11:9; *see also id.*, 11:10-26, 12:1-13:20; EX1002, ¶ 128.)

It would have been obvious to implement Steuer750's and Steuer791's disclosed content identification systems using video data samples instead of its disclosed audio-based approach. (*See supra*, §X.A.1.b.) Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 2.a. (EX1002, ¶ 129.)

3. Claim 3

a) The method of claim 1 further comprising: utilizing sample sequence data together with corresponding channel data to deduce play-altering actions of a monitored audience member.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for at least reasons similar to those given above with respect to claim limitation 1.c. (EX1002, ¶¶ 130-133; *see supra*, §X.A.1.c.)

First, Steuer791's claim 3 recites almost identical language as claim limitation 3.a, albeit in the context of "audio data samples" as noted with respect to limitation

1.b: "utilizing sample sequence data together with corresponding channel data to deduce play-altering actions of a monitored audience member." (EX1006, claim 3; EX100, ¶ 131.)

Moreover, Steuer750 and Steuer791 disclose utilizing sample sequence data (as discussed above with respect to claim limitation 1.c) together with corresponding channel data (like that shown in the channel data 570 in figure 5 below) to deduce play-altering actions of a monitored audience member and generate the clean play list with deduced actions 590. (EX1005, [0059]; *see also id.*, [0051]-[0052], [0060]-[0062]; EX1005, 12:14-50; *see also id.*, 10:34-11:9, 12:51-13:20; EX1002, ¶ 132.)

510

Clean Playstream

row	log time	content ID	content offset
1	t_0	TVprgm 27	(0)
2	t_0+1	TVprgm 27	(0)+1
3	t_0+2	none	n/a
4	t_0+3	none	n/a
5	t_0+4	none	n/a
6	t_0+5	TVprgm 27	(0)+2
7	t_0+6	TVprgm 27	(0)+3
8	t_0+7	TVprgm27	(0)+9
9	t_0+8	TVprgm27	(0)+10
10	t_0+9	TVprgm27	(0)+9
11	t_0+10	TVprgm27	(0)+10
12	t_0+11	none	n/a
13	t_0+12	TVprgrm27	(0)+29
14	t_0+13	TVprgrm27	(0)+30
15	t_0+14	ad23	(0)
16	t_0+15	none	n/a
17	t_0+16	ad25	(0)+2
18	t_0+17	TVprgm28	(0)
19	t_0+18	TVprgm28	(0)+1
20	t_0+19	TVprgrm28	(0)+2

560

Clean Play List

row	start log time	end log time	content ID	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	none	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+9	TVprgrm27	(0)+9
5	t_0+9	t_0+11	TVprgrm27	(0)+9
6	t_0+11	t_0+12	none	n/a
7	t_0+12	t_0+14	TVprgrm27	(0)+29
8	t_0+14	t_0+15	ad23	(0)
9	t_0+15	t_0+16	none	n/a
10	t_0+16	t_0+17	ad25	(0)+2
11	t_0+17	t_0+20	TVprgrm28	(0)

570

Channel Data for TV C4

row	start time	end time	content ID
1	C(0)	C(0)+31	TVprgrm27
2	C(0)+31	C(0)+34	ad23
3	C(0)+34	C(0)+37	ad24
4	C(0)+37	C(0)+40	ad25
5	C(0)+40	C(0)+50	TVprgrm28

590

Clean Play List with Deduced Actions

row	log time	end log time	content ID and <deduced action>	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	<pause for 3 units>	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+7	<skip frwrd 5 units>	n/a
5	t_0+7	t_0+9	TVprgrm27	(0)+9
6	t_0+9	t_0+9	<skip bckwrd 2 units>	n/a
7	t_0+9	t_0+11	TVprgrm27	(0)+9
8	t_0+11	t_0+12	<fast frwrd 18 units>	n/a
9	t_0+12	t_0+14	TVprgrm27	(0)+29
10	t_0+14	t_0+15	ad23	(0)
11	t_0+15	t_0+16	<fast frwrd 7 units>	n/a
12	t_0+16	t_0+17	ad25	(0)+2
13	t_0+17	t_0+20	TVprgrm28	(0)

FIG. 5

(EX1005, FIG. 5 (annotated); EX1002, ¶ 132.)

It would have been obvious to implement Steuer750's and Steuer791's disclosed content identification systems using video data samples instead of the disclosed audio-based approach. (*See supra*, §X.A.1.b.) Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 3.a. (EX1002, ¶ 133.)

4. Claim 4

a) The media measurement method of claim 1 wherein a clean play list is generated including deduced play-altering actions.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for at least reasons similar to those given above with respect to claim limitation 1.c and claim 2. (EX1002, ¶¶ 134-137; *see supra*, §§X.A.1.c, X.A.2.)

For example, as discussed above with respect to claim 2, Steuer750 and Steuer791 disclose generating a play list like the clean play list with deduced actions 590 shown in Figure 5. (*See supra*, §X.A.2.)

Moreover, Steuer791's claim 4 recites almost identical language as claim limitation 4.a, albeit in the context of "audio data samples" as noted with respect to limitation 1.b: "wherein a clean play list is generated including deduced play-altering actions." (EX1006, claim 4.)

Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 4.a. (EX1002, ¶ 137.)

5. Claim 5

a) The media measurement method of claim 1 wherein the play stream is a raw play stream.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for at least reasons similar to those given above with respect to claim limitation 1.b. (EX1002, ¶¶ 138-141; *see supra*, §X.A.1.b.)

For example, as discussed above, Steuer750 and Steuer791 disclose that the play stream is a raw play stream generated by play stream generator 126. (*See supra*, §§X.A.1.b, X.A.1.c.3.)

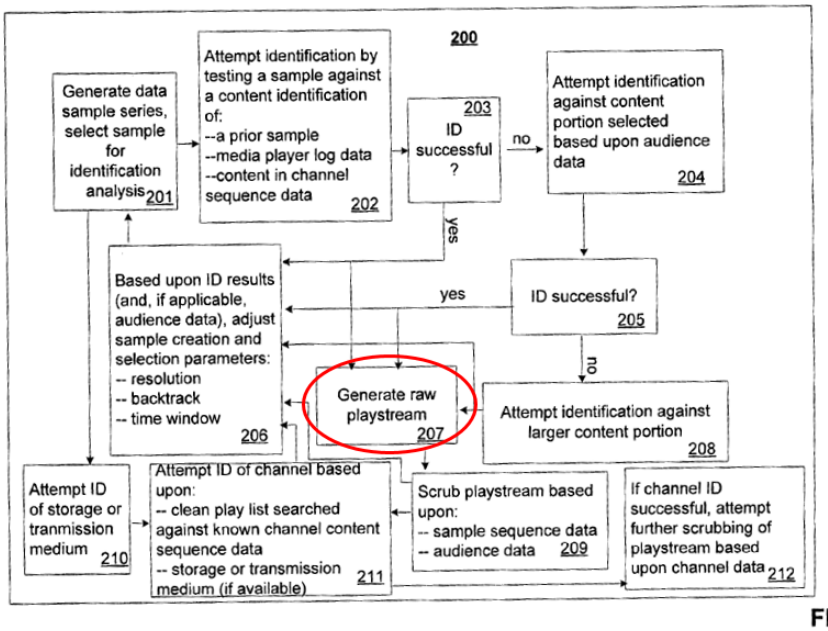
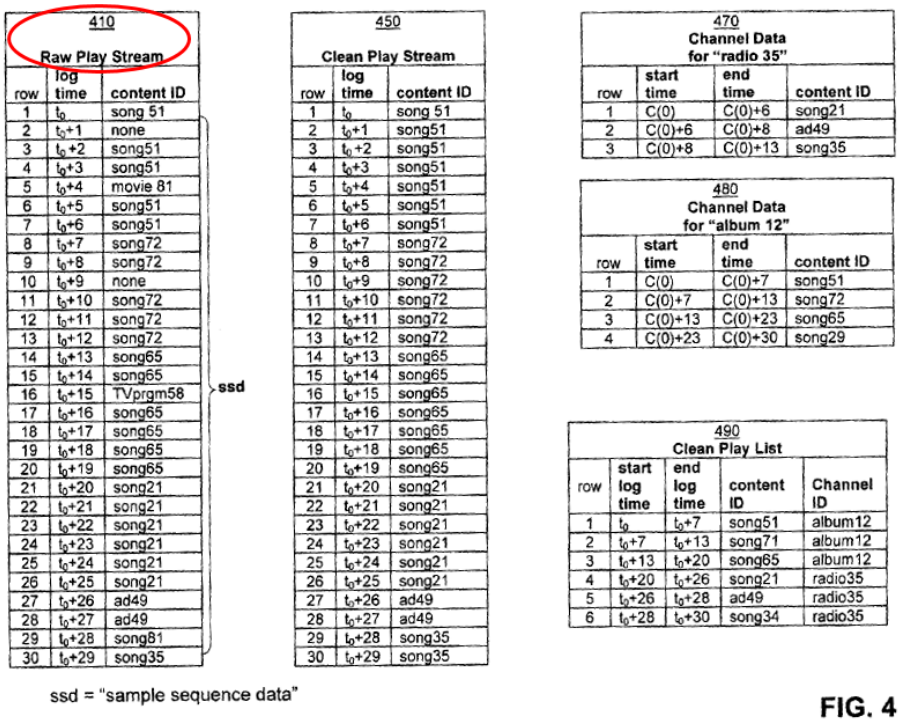


FIG. 2

(EX1005, FIG. 2 (annotated); EX1006, FIG. 2; EX1002, ¶ 139.)



410 Raw Play Stream

row	log time	content ID
1	t_0	song 51
2	t_0+1	none
3	t_0+2	song51
4	t_0+3	song51
5	t_0+4	movie 81
6	t_0+5	song51
7	t_0+6	song51
8	t_0+7	song72
9	t_0+8	song72
10	t_0+9	none
11	t_0+10	song72
12	t_0+11	song72
13	t_0+12	song72
14	t_0+13	song65
15	t_0+14	song65
16	t_0+15	TVprgm58
17	t_0+16	song65
18	t_0+17	song65
19	t_0+18	song65
20	t_0+19	song65
21	t_0+20	song21
22	t_0+21	song21
23	t_0+22	song21
24	t_0+23	song21
25	t_0+24	song21
26	t_0+25	song21
27	t_0+26	ad49
28	t_0+27	ad49
29	t_0+28	song81
30	t_0+29	song35

ssd

450 Clean Play Stream

row	log time	content ID
1	t_0	song 51
2	t_0+1	song51
3	t_0+2	song51
4	t_0+3	song51
5	t_0+4	song51
6	t_0+5	song51
7	t_0+6	song51
8	t_0+7	song72
9	t_0+8	song72
10	t_0+9	song72
11	t_0+10	song72
12	t_0+11	song72
13	t_0+12	song72
14	t_0+13	song65
15	t_0+14	song65
16	t_0+15	song65
17	t_0+16	song65
18	t_0+17	song65
19	t_0+18	song65
20	t_0+19	song65
21	t_0+20	song21
22	t_0+21	song21
23	t_0+22	song21
24	t_0+23	song21
25	t_0+24	song21
26	t_0+25	song21
27	t_0+26	ad49
28	t_0+27	ad49
29	t_0+28	song35
30	t_0+29	song35

470 Channel Data for "radio 35"

row	start time	end time	content ID
1	C(0)	C(0)+6	song21
2	C(0)+6	C(0)+8	ad49
3	C(0)+8	C(0)+13	song35

480 Channel Data for "album 12"

row	start time	end time	content ID
1	C(0)	C(0)+7	song51
2	C(0)+7	C(0)+13	song72
3	C(0)+13	C(0)+23	song65
4	C(0)+23	C(0)+30	song29

490 Clean Play List

row	start log time	end log time	content ID	Channel ID
1	t_0	t_0+7	song51	album12
2	t_0+7	t_0+13	song71	album12
3	t_0+13	t_0+20	song65	album12
4	t_0+20	t_0+26	song21	radio35
5	t_0+26	t_0+28	ad49	radio35
6	t_0+28	t_0+30	song34	radio35

ssd = "sample sequence data"

FIG. 4

(EX1005, FIG. 4 (annotated); EX1006, FIG. 4; EX1002, ¶ 139.)

Moreover, Steuer791's claim 5 recites almost identical language as claim limitation 5.a, albeit in the context of "audio data samples" as noted with respect to limitation 1.b: "wherein the play stream is a raw play stream." (EX1006, claim 5; EX1002, ¶ 140.)

Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 5.a. (EX1002, ¶ 141)

6. Claim 6[17]

a) The media measurement method of claim 1 wherein the play stream is a clean play stream.

The Steuer791-Neumeier combination discloses or suggests this limitation. (EX1002, ¶¶ 142-144.)

For example, Steuer791's claim 6 recites almost identical language as claim limitation 6.a, albeit in the context of "audio data samples" as noted with respect to limitation 1.b: "wherein the play stream is a clean play stream." (EX1006, claim 6; EX1002, ¶ 143.)

It would have been obvious to implement Steuer791's disclosed content identification systems using video data samples instead of its disclosed audio-based approach. (*See supra*, §X.A.1.b.) Thus, the Steuer791-Neumeier combination discloses or suggests claim 6. (EX1002, ¶ 144.)

7. Claim 7

a) The method of claim 1 wherein to utilize further comprises determining if one or more discontinuities exist in the progression of content offsets.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for at least reasons similar to those

[17] This claim is challenged only under Ground 2.

given above with respect to claim limitation 1.d. (EX1002, ¶¶ 145-148; *see supra*, §X.A.1.d.)

For example, as discussed above with respect to claim limitation 1.d, Steuer750 and Steuer791 disclose that "**[d]iscontinuities in consumption of the identified media may be identified by comparing the progression of sample log times to progression of corresponding content offset times** in Play Stream 510." (*See supra*, §X.A.1.d (citing EX1005, [0055]-[0057], [0059]-[0061]; EX1006, 11:38-67, 12:14-13:7); EX1002, ¶ 146.)

Moreover, Steuer791's claim 7 recites almost identical language as claim limitation 7.a, albeit in the context of "audio data samples" as noted with respect to limitation 1.b: "wherein utilizing further comprises determining if one or more discontinuities exist in the progression of content offsets." (EX1006, claim 7; EX1002, ¶ 147.)

Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 7.a. (EX1002, ¶ 148.)

8. Claim 8[18]

a) The method of claim 1 wherein the content offset data is derived from a comparison conducted by a computerized content identification system comparing the submitted data samples against known content such that content offset data is obtainable without using time codes accompanying the captured video data samples.

The Steuer791-Neumeier combination discloses or suggests this limitation. (EX1002, ¶¶ 149-151.)

For example, Steuer791's claim 8 recites almost identical language as claim limitation 8.a, albeit in the context of "audio data samples" as noted with respect to limitation 1.b: "wherein the content offset data is derived from a comparison conducted by a computerized content identification system comparing the submitted data samples against known content such that content offset data is obtainable without using time codes accompanying the captured audio data samples." (EX1006, claim 8; EX1002, ¶ 150.)

It would have been obvious to implement Steuer791's disclosed content identification systems using video data samples instead of its disclosed audio-based approach. (*See supra*, §X.A.1.b.) Thus, the Steuer791-Neumeier combination disclose or suggest claim limitation 8.a. (EX1002, ¶ 151.)

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[18] This claim is challenged only under Ground 2.

9. Claim 9

a) A media measurement method comprising:

To the extent that the preamble of claim 9 is limiting, Steuer750 and Steuer791 both independently disclose the limitation therein for the same reasons as discussed above for the preamble of claim 1. (EX1002, ¶ 152; *see supra*, §X.A.1.a.)

b) using one or more computers to generate a play stream of content identification results corresponding to a sequence of submitted data samples, the submitted data samples corresponding to video data samples captured at a monitoring device associated with a monitored audience member;

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.b. (EX1002, ¶¶ 153-155; *see supra*, §X.A.1.b.)

Moreover, Steuer791's claim 9 recites almost identical language as claim limitation 9.b except it substitutes the claimed video data samples with audio data samples: "using one or more computers to generate a play stream of content identification results corresponding to a sequence of submitted data samples, the submitted data samples corresponding to audio data samples captured at a monitoring device associated with a monitored audience member." (EX1006, claim 9; EX1002, ¶ 154.)

Thus, the Steuer791-Neumeier combination disclose or suggest claim limitation 9.b. (EX1002, ¶ 155.)

c)

(1) using one or more computers to utilize sample sequence data and content offset data to deduce play-altering actions of the monitored audience member,

(2) the sample sequence data corresponding to a sequence of the content identification results,

(3) wherein play-altering actions include actions that alter at least one of a pace and a sequence of a media stream,

(4) the content offset data including content offsets associated with the content identification results, a content offset indicating a time position of a content identification result within identified content,

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest the limitations in claims limitations 9.c.1, 9.c.2, and 9.c.4 for the same reasons as those given above with respect to claim limitations 1.c.1, 1.c.2, and 1.c.3, respectively. (EX1002, ¶¶ 156-159; *see supra*, §X.A.1.c.) Claim limitation 9.c.3 is disclosed or suggested by the Steuer750-Neumeier combination and the Steuer791-Neumeier combination for similar reasons.

For example, Steuer750 and Steuer791 disclose that the play-altering actions include actions that alter at least one of a pace and a sequence of a media stream. (EX1005, [0052] ("Generally, these activities of manipulating the pace and order in

which media is consumed will be referenced as audience play-altering actions or activities . . ."); EX1006, 10:57-11:9 (same); EX1002, ¶ 157.)

Moreover, Steuer791's claim 9 recites almost identical language as claim limitation 9.c, albeit in the context of "audio data samples" as noted with respect to limitation 9.b: "using one or more computers to utilize sample sequence data and content offset data to deduce play-altering actions of the monitored audience member, the sample sequence data corresponding to a sequence of the content identification results, wherein play-altering actions include actions that alter at least one of a pace and a sequence of a media stream, the content offset data including content offsets associated with the content identification results, a content offset indicating a time position of a content identification result within identified content." (EX1006, claim 9; EX1002, ¶ 158.)

Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 9.c.3. (EX1002, ¶ 159.)

d) wherein to utilize comprises, for a particular plurality of submitted data samples and corresponding content identification results, comparing a progression of log times associated with capture timing of each of the particular plurality of submitted data samples and a progression of content offsets of the corresponding content identification results; and

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.d. (EX1002, ¶ 160; *see supra*, §X.A.1.d.)

Moreover, Steuer791's claim 9 recites almost identical language as claim limitation 9.d, albeit in the context of "audio data samples" as noted with respect to limitation 9.b: "wherein to utilize comprises, for a particular plurality of submitted data samples and corresponding content identification results, comparing a progression of log times associated with capture timing of each of the particular plurality of submitted data samples and a progression of content offsets of the corresponding content identification results." (EX1006, claim 9.) Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 9.d. (EX1002, ¶ 161.)

e) using one or more computers to utilize deduced play altering actions of the monitored audience member to generate a media measurement report.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.e. (EX1002, ¶ 162; *see supra*, §X.A.1.e.)

10. Claim 10

a) The method of claim 9 wherein play-altering actions include at least one of fast forwarding, rewinding, and pausing a media stream.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for similar reasons as those given above with respect to claim limitation 9.c.3. (EX1002, ¶ 163; *see supra*, §X.A.9.c.)

For example, Steuer750 and Steuer791 disclose that the play-altering actions include at least one of fast forwarding, rewinding, and pausing a media stream along with skipping back or skipping forward. (EX1005, [0052]; EX1006, 10:57-11:9; EX1002, ¶ 164.)

Moreover, Steuer791's claim 10 recites almost identical language as claim limitation 10.a, albeit in the context of "audio data samples" as noted with respect to limitation 9.b: "wherein play-altering actions include at least one of fast forwarding, rewinding, and pausing a media stream." (EX1006, claim 10; EX1002, ¶ 165.)

Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim 10. (EX1002, ¶ 166.)

11. Claim 11

a) The method of claim 9 wherein play-altering actions include at least one of skipping forward and skipping backward in a media stream.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for similar reasons as those given above with respect to claim 10. (EX1002, ¶¶ 167-169; *see supra*, §X.A.10; EX1005, [0052]; EX1006, 10:57-11:9.)

Moreover, Steuer791's claim 11 recites almost identical language as claim limitation 11.a, albeit in the context of "audio data samples" as noted with respect to limitation 9.b: "wherein play-altering actions include at least one of fast forwarding, rewinding, and pausing a media stream." (EX1006, claim 10; EX1002, ¶ 168.)

Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest claim limitation 11.a. (EX1002, ¶ 169.)

12. Claim 12

a) The method of claim 9 wherein at least one of a play list and a play stream is generated, by one or more computers, including content offset data as part of deducing media play-altering actions of a monitored audience member.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for similar reasons as those given above with respect to claim 2. (EX1002, ¶¶ 170-171; *see supra*, §X.A.2; EX1005, [0052] (describing that the clean play list with deduced actions 590 is generated by the system 100 of Figure 1 which is implemented by a computer 700 of Figure 7, and includes a "content offset" column with content offset data), [0053], [0055]-[0058], [0061]-[0062], [0066], FIG. 5; EX1006, 10:57-11:9, 11:10-26, 11:56-12:61, 12:62-13:7, 13:58-14:15, FIG. 5.)

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Clean Playstream

row	log time	content ID	content offset
1	t_0	TVprgm 27	(0)
2	t_0+1	TVprgm 27	(0)+1
3	t_0+2	none	n/a
4	t_0+3	none	n/a
5	t_0+4	none	n/a
6	t_0+5	TVprgm 27	(0)+2
7	t_0+6	TVprgm 27	(0)+3
8	t_0+7	TVprgm27	(0)+9
9	t_0+8	TVprgm27	(0)+10
10	t_0+9	TVprgm27	(0)+9
11	t_0+10	TVprgm27	(0)+10
12	t_0+11	none	n/a
13	t_0+12	TVprgrm27	(0)+29
14	t_0+13	TVprgrm27	(0)+30
15	t_0+14	ad23	(0)
16	t_0+15	none	n/a
17	t_0+16	ad25	(0)+2
18	t_0+17	TVprgm28	(0)
19	t_0+18	TVprgm28	(0)+1
20	t_0+19	TVprgrm28	(0)+2

560

Clean Play List

row	start log time	end log time	content ID	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	none	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+9	TVprgrm27	(0)+9
5	t_0+9	t_0+11	TVprgrm27	(0)+9
6	t_0+11	t_0+12	none	n/a
7	t_0+12	t_0+14	TVprgrm27	(0)+29
8	t_0+14	t_0+15	ad23	(0)
9	t_0+15	t_0+16	none	n/a
10	t_0+16	t_0+17	ad25	(0)+2
11	t_0+17	t_0+20	TVprgrm28	(0)

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Channel Data for TV C4

row	start time	end time	content ID
1	C(0)	C(0)+31	TVprgrm27
2	C(0)+31	C(0)+34	ad23
3	C(0)+34	C(0)+37	ad24
4	C(0)+37	C(0)+40	ad25
5	C(0)+40	C(0)+50	TVprgrm28

590

Clean Play List with Deduced Actions

row	log time	end log time	content ID and <deduced action>	content offset
1	t_0	t_0+2	TVprgrm27	(0)
2	t_0+2	t_0+5	<pause for 3 units>	n/a
3	t_0+5	t_0+7	TVprgrm27	(0)+2
4	t_0+7	t_0+7	<skip frwrd 5 units>	n/a
5	t_0+7	t_0+9	TVprgrm27	(0)+9
6	t_0+9	t_0+9	<skip bckwrd 2 units>	n/a
7	t_0+9	t_0+11	TVprgrm27	(0)+9
8	t_0+11	t_0+12	<fast frwrd 18 units>	n/a
9	t_0+12	t_0+14	TVprgrm27	(0)+29
10	t_0+14	t_0+15	ad23	(0)
11	t_0+15	t_0+16	<fast frwrd 7 units>	n/a
12	t_0+16	t_0+17	ad25	(0)+2
13	t_0+17	t_0+20	TVprgrm28	(0)

FIG. 5

(EX1005, FIG. 5 (annotated); EX1006, FIG. 5; EX1002, ¶ 170.)

Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest limitation 12.a. (EX1002, ¶ 171.)

13. Claim 13

a) The method of claim 12 wherein the at least one of a play stream and play list including content offset data comprises the play stream of content identification results.

The Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest this limitation for similar reasons as those given above with respect to claims 2 and 12. (EX1002, ¶¶ 172-173; *see supra*, §§X.A.2,

X.A.12.) As shown above in annotated Figure 5, the clean play list with deduced actions 590 shows a "content offset" column with time offsets associated with the content identification results listed in the "content ID . . ." column (corresponding to the play stream of content identification results). (EX1005, FIG. 5 (annotated above); *see also id.*, [0055]-[0058], [0061]-[0062]; EX1006, FIG. 5; *see also id.*, 11:56-12:61, 12:62-13:7.)

Thus, the Steuer750-Neumeier combination and the Steuer791-Neumeier combination disclose or suggest limitation 13.a. (EX1002, ¶ 173.)

XI. THE RELATED LITIGATION PROVIDES NO BASIS FOR DISCRETIONARY DENIAL

Petitioner stipulates that, if the PTAB institutes this IPR petition, then Petitioner will not pursue in the parallel district court proceeding (the 439 action) any grounds that were raised or reasonably could have been raised in this IPR. *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential as to §II.A). The USPTO's updated discretionary denial guidance expressly notes that the PTAB will not discretionarily deny institution in view of parallel district court litigation if Petitioner presents a *Sotera* stipulation, as here. (EX1024, 3, 7-8.)

XII. THE OTHER IPR PETITION PROVIDES NO BASIS FOR DISCRETIONARY DENIAL

This petition is not a "follow-on" petition that the Board should deny under

General Plastics. *General Plastic Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19, 16–17 (Sept. 6, 2017) (precedential) ("*GP*"). None of the factors that the Board considers in exercising its discretion weigh in favor of a denial here in light of the Roku-896-patent-IPR (*see supra*, §II).

Under the first *General Plastic* factor, the Board considers "whether the *same* petitioner previously filed a petition directed to the same claims of the same patent." *GP* at 16. Petitioner has not previously done so. Indeed, this is Petitioner's first IPR petition directed to any claims of the '896 patent. Thus, the first factor favors institution and should be dispositive. *Amneal Pharmaceuticals LLC et al. v. Almirall, LLC*, IPR2019-00207, Paper 13 ("*Amneal*") at 12–13 (May 10, 2019) (finding factor one dispositive); *Western Digital Corp. v. Spex Technologies, Inc.*, IPR2018-00084, Paper 14 at 17 (April 25, 2018) ("Because Petitioner has not previously filed a petition against the same patent, factors 2–5 bear little relevance in this case.").

In addition, the Roku litigation is in a different district court and a different schedule relative to the 439 action. (EX1027, 1.) Indeed, unlike the 439 action, the Roku litigation was never in the Eastern District of Texas. It was initially filed in the Western District of Texas, and was recently transferred to the Northern District of California. In short, Roku is not a co-defendant, and does not have a significant relationship with Petitioner that would compel a different result based on the Roku-

896-patent-IPR. *See Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062, Paper 11 at 9-10 (Apr. 2, 2019) (precedential).

The second through fifth *General Plastic* factors have little to no bearing here given factor one favors institution. In any event, with respect to the second factor (*GP* at 16), the prior art asserted in this petition is different than the prior art asserted in the Roku-896-patent-IPR. (*See supra*, §V.B.); Roku-896-patent-IPR, Paper 1 at 1. Further, with respect to the third factor (*GP* at 16), this Petition is being filed shortly after the Roku-896-patent-IPR was filed and before any preliminary response or institution decision in the Roku-896-patent-IPR and thus, Petitioner could not have leveraged any perceived flaws in the Roku-896-patent-IPR. *See, e.g.*, *Unified Patents Inc. v. Speakware, Inc.*, IPR2019-00495, Paper 9 at 14-15 (July 1, 2019); *Livanova, Inc. et al. v. Neuro and Cardiac Tech., LLC*, IPR2019-00264, Paper 7 at 30-31 (May 20, 2019). The fourth and fifth factors (*GP* at 16) are inapplicable since this is Petitioner's first petition challenging any claims of the '896 patent and because there is no overlap between the grounds of this petition and the grounds in the Roku-896-patent-IPR. Thus, if anything, the second through fifth *General Plastic* factors favor institution.

The sixth and seventh *General Plastic* factors (*GP* at 16) also favor institution because there is no indication that the instant IPR would unduly burden Board resources or impact the Board's duty to render a FWD in this IPR, particularly given

the undeniable similarity between Petitioner's primary references and the challenged claims. *SK Hynix Inc. et al. v. Netlist, Inc.*, IPR2018-00364, Paper 7 at 35 (August 6, 2018); *Cooler Master Co. Ltd. v. Aavid Thermalloy LLC*, IPR2019-00337, Paper 7 at 44-45 (June 12, 2019). Indeed, two earlier patent applications (Steuer750 and Steuer791) in the '896 patent's family qualify as prior art with respect to the '896 patent given the multiple breaks in the '896 patent's priority chain, and thus most of the claim features are undeniably disclosed by that prior art. (*See supra*, §§IX-X.) And the proposed Steuer750-Neumeier and Steuer791-Neumeier combinations are straightforward combinations. (*See supra*, §X.)

Accordingly, the Board should consider and institute review of the challenged claims of the '896 patent.

XIII. CONCLUSION

For the reasons given above, Petitioner requests institution of IPR for the challenged claims based on each of the specified grounds.

Respectfully submitted,

Dated: August 26, 2024

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 10,572,896 contains, as measured by the word processing system used to prepare this paper, 13,667 words. This word count does not include the items excluded by 37 C.F.R. § 42.24 as not counting towards the word limit.

Respectfully submitted,

Dated: August 26, 2024

By:/Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner

CERTIFICATE OF SERVICE

I hereby certify that on August 26, 2024, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 10,572,896 and supporting exhibits to be served via express mail on the Patent Owner at the following correspondence address of record as listed on Patent Center:

Maschoff Brennan Gilmore Israelsen & Mauriel LLP
1389 Center Drive, Suite 300
Park City, UT 84098

A courtesy copy was also sent electronically to Patent Owner's litigation counsel listed below:

AMR_AZA@azalaw.com
Ahmad, Zavitsanos & Mensing PLLC
1221 McKinney, Suite 2500
Houston, TX 77010

Respectfully submitted,

Dated: August 26, 2024

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner