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. 10,719,848

PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,719, 848

TABLE OF CONTENTS

I. INTRODUCTION 1

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8 1

A. Real Parties-in-Interest 1

B. Related Matters 1

1. Related Lawsuit 1

2. Related Applications 2

C. Counsel and Service Information 4

III. PAYMENT OF FEES 5

IV. GROUNDS FOR STANDING 5

V. PRECISE RELIEF REQUESTED AND GROUNDS RAISED 5

VI. LEVEL OF ORDINARY SKILL IN THE ART 7

VII. OVERVIEW OF THE ’848 PATENT 8

VIII. CLAIM CONSTRUCTION 10

IX. EARLIEST EFFECTIVE FILING DATE OF ’848 PATENT 12

A. Requirements for Priority and Written Description Support 13

B. The Challenged Claims Are Not Entitled to a Filing Date Earlier Than 2019 14

1. The Priority Applications Do Not Provide Written Description Support for the Claimed “Video Data Samples” and Related Video Features 15

2. PO Cannot Rely on Additional Materials Mentioned in the Priority Non-Provisional Applications to Support the Claimed Video Data Features 28

3. PO Improperly Added New Matter to the Intervening '204 Application 30

C. The Challenged Claims Are Not Entitled to a Filing Date Earlier Than 2010 32

X. DETAILED EXPLANATION OF GROUNDS 34

A. Grounds 1 and 2: Ground 1: The Combination of Steuer750 and Neumeier Renders Obvious Claims 1-15 Ground 2: The Combination of Steuer768 and Neumeier Renders Obvious Claims 1-15 34

1. Claim 1 35

2. Claim 2 68

3. Claim 3 71

4. Claim 4 72

5. Claim 5 73

6. Claim 6 76

7. Claim 7 77

8. Claim 8 79

9. Claim 9 81

10. Claim 10 86

11. Claim 11 87

12. Claim 12 87

13. Claim 13 88

14. Claim 14 88

15. Claim 15 88

XI. THE RELATED LITIGATION PROVIDES NO BASIS FOR DISCRETIONARY DENIAL 89

XII. THE OTHER IPR PETITION PROVIDES NO BASIS FOR DISCRETIONARY DENIAL 89

XIII. CONCLUSION 92

LIST OF EXHIBITS

EX1001	U.S. Patent No. 10,719, 848
EX1002	Declaration of Timothy Wahlers
EX1003	Curriculum Vitae of Timothy Wahlers
EX1004	File History of U.S. Patent Application No. 16/660,615 (U.S. Patent No. 10,719,848)
EX1005	U.S. Publication No. 2005/0267750 to Steuer *et al.*
EX1006	U.S. Patent No. 8,510,768 to Steuer *et al.*
EX1007	U.S. Publication No. 2010/0306808 to Neumeier *et al.*
EX1008	Computer-generated Redline Between Specification of U.S. Publication No. 2005/0267750 to Steuer *et al.* (EX1005) and Specification of U.S. Patent No. 8,510,768 to Steuer *et al*.(EX1006)
EX1009	Computer-generated Redline Between Claims 1-15 of U.S. Patent No. 10,719,848 (EX1001) and Claims 1-15 of U.S. Patent No. 8,510,768 (EX1006)
EX1010	File History of U.S. Provisional Application No. 60/574,836
EX1011	File History of U.S. Patent Application No. 11/139,330
EX1012	File History of U.S. Patent Application No. 12/954,604
EX1013	File History of U.S. Patent Application No. 13/914,870
EX1014	File History of U.S. Patent Application No. 14/175,811
EX1015	File History of U.S. Patent Application No. 16/403,204 (U.S. Patent No. 10,572,896)
EX1016	U.S. Publication No. 2007/0174059 to Rhoads *et al.*

EX1017	Computer-generated Redline Between As-Filed Specifications in U.S. Patent Application No. 11/139,330 (EX1011) and U.S. Patent Application No. 12/954,604 (EX1012)
EX1018	Computer-generated Redline Between As-Filed Specifications in U.S. Patent Application No. 11/139,330 (EX1011) and U.S. Patent Application No. 13/914,870 (EX1013)
EX1019	Computer-generated Redline Between As-Filed Specifications in U.S. Patent Application No. 11/139,330 (EX1011) and U.S. Patent Application No. 14/175,811 (EX1014)
EX1020	U.S. Patent Publication No. 2002/0083060
EX1021	WO2004/044820
EX1022	WO2004/030341
EX1023	WO2004/040475
EX1024	Memorandum by Director Vidal (June 21, 2022)
EX1025	Amended Docket Control Order (Dkt. No. 31-1) in *Anonymous Media Research Holdings, LLC v. Samsung Electronics Co., Ltd. et al.*, Case No. 2:23-cv-00439-JRG (E.D. Tex. Sep. 22, 2023)
EX1026	Plaintiff's Disclosure of Asserted Claims and Infringement Contentions in *Anonymous Media Research Holdings, LLC v. Samsung Electronics Co., Ltd. et al.*, Case No. 2:23-cv-00439-JRG (E.D. Tex. Jan. 22, 2024)
EX1027	Order Granting Motion to Transfer to Northern District of California (Dkt. No. 66) in *Anonymous Media Research Holdings, LLC v. Roku Inc.*, Case No. 1:23-cv-01143-RP (W.D. Tex. Jul. 10, 2024)

EX1028	Comparison between video-related paragraph in U.S. Provisional Application No. 60/574,836 and video-related paragraph in U.S. Patent Application No. 16/403,204
EX1029	Federal Register Notice, 69 FR 56482 (September 21, 2004)
EX1030	TRECVID 2004 – An Overview (February, 2005)
EX1031	Guidelines for the TRECVID 2004 Evaluation (February, 2005)
EX1032	TRECVID-2005: Search Task (Dublin City University and NIST)

I. INTRODUCTION

Samsung Electronics Co., Ltd. ("Petitioner" or "Samsung") requests *inter partes* review of claims 1-15 ("the challenged claims") of U.S. Patent No. 10,719,848 ("the '848 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 '848 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"), 10,719,849 ("the '849 patent"), and 10,572,896 ("the '896 patent").

Petitioner is concurrently filing IPR petitions challenging claims of the ’849 and ’896 patents.

Roku Inc. (“Roku”) also challenged claims of the ’848 patent in IPR No. 2024-01057 (“Roku-848-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;

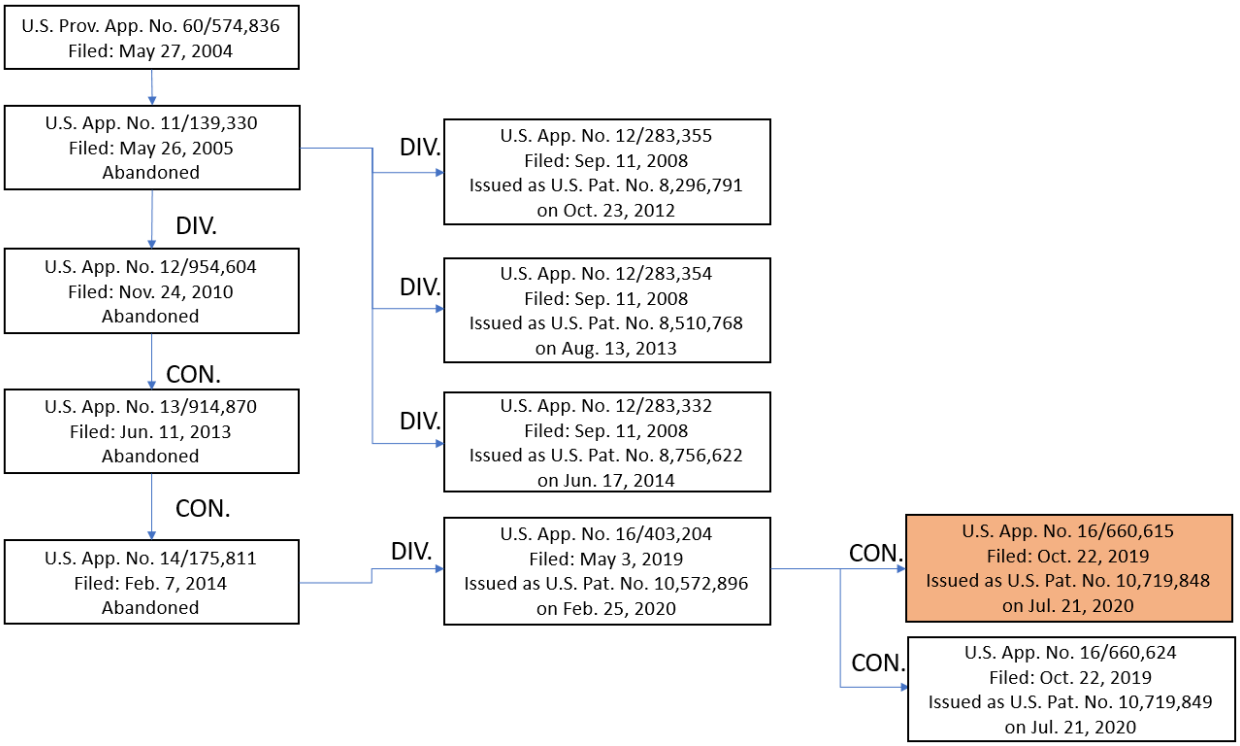
IPR No. 2024-01055, which challenges claims of the ’622 patent;

IPR No. 2024-01056, which challenges claims of the ’896 patent; and

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

2. Related Applications

The ’848 patent relates to several patents and/or patent applications, as shown in the table below:



As shown above, U.S. patent application no. 16/660,615 ("the '615 application") issued as the '848 patent (highlighted). (*See also* EX1001, cover (Related U.S. application data section), 1:6-18.) The '615 application is a continuation of U.S. patent application no. 16/403,204 ("the '204 application"), which issued as the '896 patent (asserted in the 439 action). The '204 application is a divisional of U.S. patent application no. 14/175,811 ("the '811 application"). 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 U.S. patent application no. 16/660,624 ("the '624 application"), also claiming priority to the '204 application (like the '615 application). The '624 application issued as the '849 patent (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).

---

[1] The chart above shows patent applications to which the '848 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 '848 patent family, e.g., those applications that also claim priority to the '836 provisional but are not part of the priority chain of the '848 patent.

Service information is Paul Hastings LLP, 2050 M Street NW, Washington, DC 20036, Tel.: 202.551.1700, Fax: 202.551.1705, email: 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 '848 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 1-15 ("the challenged claims") of the '848 patent, and cancellation of these claims as unpatentable.

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

Ground 1: Claims 1-15 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 1-15 are unpatentable under AIA 35 U.S.C. § 103 over U.S. Patent No. 8,510,768 to Steuer *et al.* ("Steuer768") (EX1006) in view of Neumeier.

The '848 patent issued from the '615 application, which claims priority through various applications back to a provisional application filed May 27, 2004. (EX1001, 1:6-18.) The challenged claims, however, are not entitled to the May 27, 2004 priority date. (*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 intervening '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]

Steuer768 issued on August 13, 2013. Thus, Steuer768 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 IN THE ART

A person of ordinary skill in the art at the time of the alleged invention of the '848 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/research experience in the field of media-related software development.

[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**.

(EX1002 ¶¶ 22-26.)[3] More education can supplement practical experience and vice versa. (*Id.*)

VII. OVERVIEW OF THE '848 PATENT

The '848 patent is directed to media usage monitoring and measurement systems and methods. (EX1001, Title, Abstract, 1:65-2:22.) The media measurement method recognizes content being consumed by a user and performs additional actions with the recognized content like scrubbing a raw play stream to create a clean play stream for the user. (EX1001, 6:24-37, 8:13-34; EX1002, ¶¶ 27-34.)

---

[3] Petitioner submits the declaration of Timothy Wahlers (EX1002), an expert in the field of the '848 patent. (EX1002 ¶¶¶ 3-17; *see also id.*, ¶¶ 18-21; EX1003.)

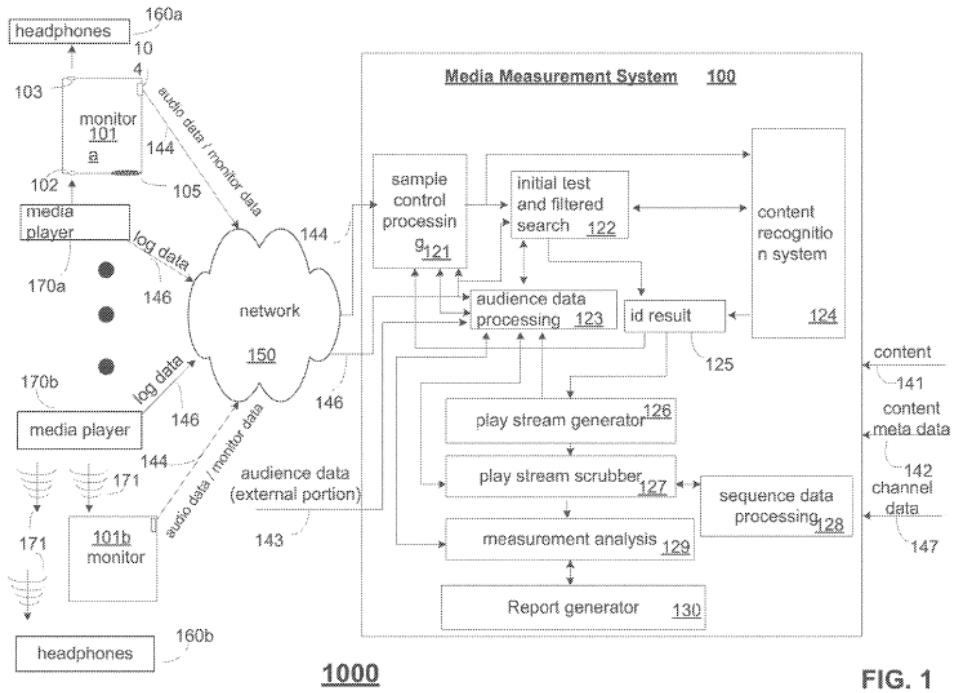


FIG. 1

(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

ssd = "sample sequence data"

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

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	TVprgm27	(0)
2	t_0+2	t_0+5	none	n/a
3	t_0+5	t_0+7	TVprgm27	(0)+2
4	t_0+7	t_0+9	TVprgm27	(0)+9
5	t_0+9	t_0+11	TVprgm27	(0)+9
6	t_0+11	t_0+12	none	n/a
7	t_0+12	t_0+14	TVprgm27	(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	TVprgm28	(0)

570

Channel Data for TV C4

row	start time	end time	content ID
1	C(0)	C(0)+31	TVprgm27
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	TVprgm28

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	TVprgm27	(0)
2	t_0+2	t_0+5	<pause for 3 units>	n/a
3	t_0+5	t_0+7	TVprgm27	(0)+2
4	t_0+7	t_0+7	<skip frwrd 5 units>	n/a
5	t_0+7	t_0+9	TVprgm27	(0)+9
6	t_0+9	t_0+9	<skip bckwrd 2 units>	n/a
7	t_0+9	t_0+11	TVprgm27	(0)+9
8	t_0+11	t_0+12	<fast frwrd 18 units>	n/a
9	t_0+12	t_0+14	TVprgm27	(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	TVprgm28	(0)

FIG. 5

(EX1001, FIG. 5.)

As discussed below, however, all the challenged claims are rendered obvious over the prior art. (*See infra*, §§IX-X; EX1002 ¶¶ 45-198.)

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 claims when necessary to resolve a controversy. *Toyota Motor Corp. v. Cellport Sys., Inc.*,

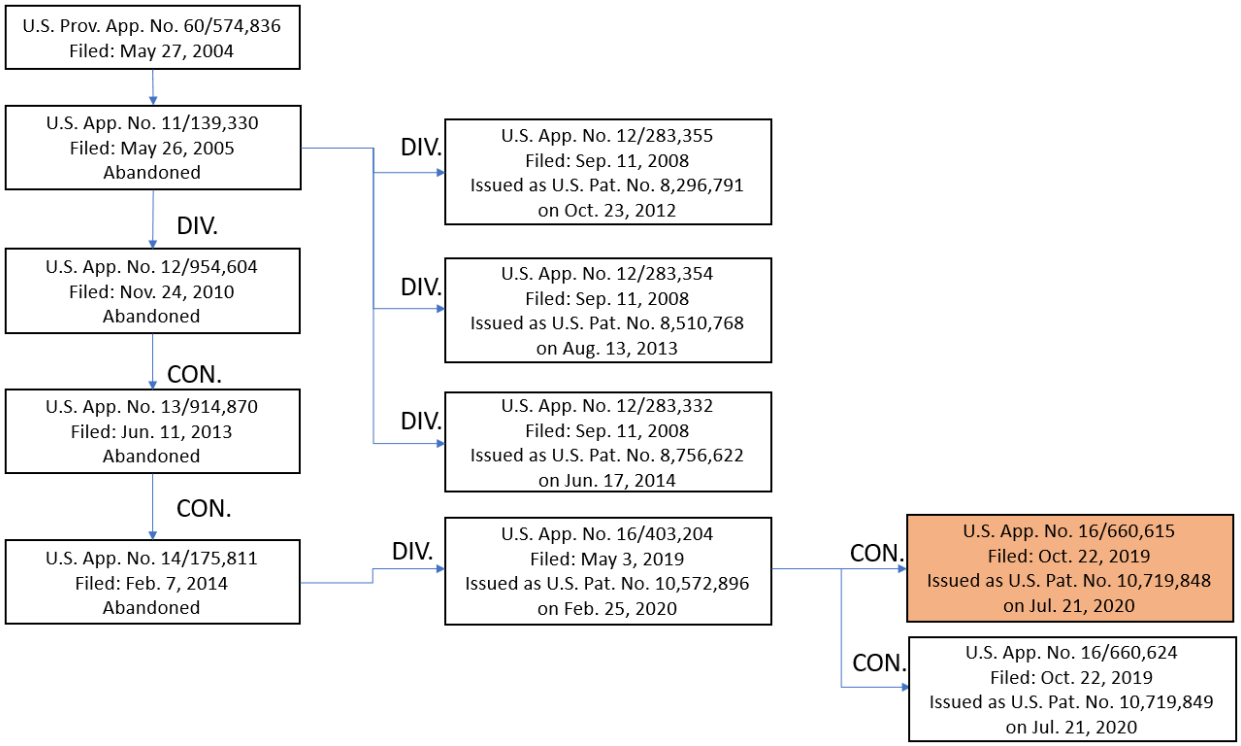
IPR2015-00633, Paper No. 11 at 16 (Aug. 14, 2015) (citation omitted). Petitioner submits that, for purposes of this proceeding, no term requires construction.[4] (EX1002 ¶ 35.)

---

[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 and accused products may raise controversies not presented here given the similarities between the references and the patent.

IX. EARLIEST EFFECTIVE FILING DATE OF '848 PATENT

The '848 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 '848 patent, as required by § 112. (EX1002, ¶¶ 45-47.)

First, the challenged claims recite features related to video data not adequately supported by the priority applications. *See infra*, §IX.B. 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, which added new matter not contained in any of the prior applications.[5] *See infra*, §IX.B.

Second, the earliest possible effective filing date of the challenged claims is no earlier than **November 24, 2010** ("**2010 EFD**"), the 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 application only if the claimed subject matter 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).

---

[5] For purposes of this proceeding only, Petitioner does not challenge whether the new matter added to the '204 application provides written description support for the challenged claims.

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 "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.

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, ¶¶ 48.)

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 '848 patent recites features relating to, amongst other things, matching captured video data samples comprising representations of video data with video data representations in an electronic database to obtain content identification results. (EX1001, 15:13-59.) Independent claim 9 recites similar features. (EX1001, 16:20-67; EX1002, ¶¶ 49-52.)

As discussed below, certain priority applications do not provide written description support for the above video data-related features. (EX1002, ¶ 53.)

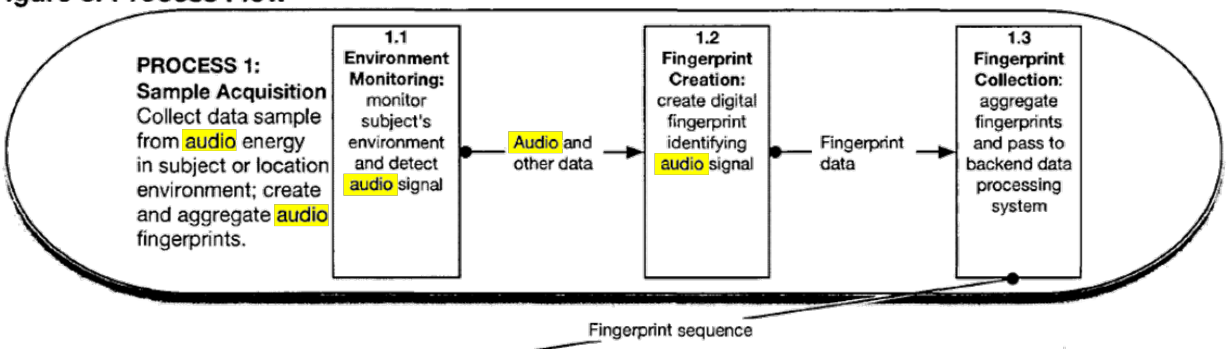
a) The '836 Provisional Application Does Not Support the Claimed Video Data Features

As shown above, the '848 patent claims priority through each of the priority non-provisional applications to the '836 provisional application.

The '836 provisional application discloses "measurement systems" for recording and reporting on individuals' media usage habits by using monitoring/detection devices to collect and recognize media. (EX1010, 2-3.) But, as explained further below, the '836 provisional application fails to adequately describe embodiments that rely on the use of video data samples, let alone in the manner claimed, and therefore does not support the challenged claims. (EX1002, ¶ 54.)

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 by 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, ¶¶ 55-56 (citing EX1010, 2-5, 9 (FIG. 3)).)[6]

Figure 3: Process Flow



(EX1010, 9 (FIG. 3) (annotated); EX1002, ¶ 56.) 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. (EX1002, ¶ 56 (citing EX1010, 3-4).) No equivalent or corresponding detailed disclosures are provided that instead rely on using video data samples from the monitored media content. (EX1002, ¶ 56.)

---

[6] Emphasis added unless otherwise noted.

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, ¶ 57 (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, ¶ 57.)

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 challenged claims. (EX1010, 4; EX1002, ¶ 58.) 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 for the reasons explained below.

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. (EX1002, ¶ 59.) 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 would have instead "involve[d] video rather than audio." (EX1002, ¶ 59.)

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, ¶ 60.) Moreover, 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, ¶ 60; 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 using video data samples (as opposed to audio data samples) for content recognition during the relevant timeframe. (EX1002, ¶ 61-62 (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 issues 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, ¶ 63.)

Therefore, a POSITA would not have understood the named inventors of the '848 patent to have had possession of the claimed subject matter at the time the '836 provisional application was filed. (EX1002, ¶ 64); *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).

A detailed review of the claims confirms that the '836 provisional application does not provide adequate support for the claims. Claim 1 of the '848 patent recites "receiving . . . data for **a sequence of video data samples, the video data samples comprising representations of video data** captured at a media monitoring device." (EX1001, 15:15-19.) A "raw play stream comprising a sequence of content identification results corresponding to the sequence of video data samples" is generated, where "the sequence of content identification results is obtained by querying [an] electronic database to attempt to determine respective **likely matches between respective video data samples in the sequence of video data samples and respective video data representations in the electronic database**." (*Id.*, 15:20-33.) But, as explained above, the '836 provisional application does not disclose using video data samples to identify content. (EX1002, ¶ 65.) The remaining limitations of claim 1 are similarly tied to video data samples. (EX1002, ¶ 66; EX1001, 15:51-56.) Thus, a POSITA would not have understood that the '836 provisional application supports the limitations of claim 1. (EX1002, ¶ 66.)

Independent claim 9, like claim 1, recites features relating to the use of video data samples comprising representations of video data, and thus the '836 provisional

application does not provide support for claim 9 for similar reasons. (*Compare* EX1001, 15:13-59 (claim 1) *with id.*, 16:20-67 (claim 9); EX1002, ¶ 68.)

Dependent claims 2-8 and 10-15 (EX1001, 15:60-16:19, 17:1-20) lack written description support for at least the same reasons as claim 1. (EX1002, ¶¶ 67, 69.)

b) The '330, '604, '870, and '811 Priority Non-Provisional Applications Do Not Provide Adequate Support For The Challenged Claims

The priority non-provisional applications at issue here, *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, 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, ¶ 70.)

In particular, the disclosures of these priority non-provisional applications do not describe any features using video data samples including representations of video data (e.g., generating a raw play stream, the raw play stream including a sequence of content identification results corresponding to the sequence of video data samples) and consequently, the subsequent related claim features. Instead, as demonstrated below, the disclosures describe only embodiments based on **audio** data samples. (EX1002, ¶ 71.)

The ’330 application’s specification is replete with the term “audio” and barely mentions the term “video.” (*See generally* EX1011, 577-599, 610-17.) The particular claim term “video data sample” appears only once 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, 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, ¶ 72.)

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. (EX1002, ¶ 73 (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 challenged claims of the '848 patent. (EX1002, ¶ 73); *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 at issue) are solely focused on recognizing content based on audio data samples 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 features of receiving **a sequence of video data samples, the video data samples comprising representations of video data** and the subsequent claim steps tied to these video data samples. (EX1002, ¶ 74.)

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.[7] For example, multiple disclosures in the '330 application describe peculiarities related to audio content that have no clear analog in the video context. (EX1002, ¶ 75 (citing EX1011, 577 ([0002]); 578 ([0006]), 580 ([0017]), 584-585 ([0025])).)

Accordingly, the '330 application (and other priority non-provisional applications at issue) do not provide support for the challenged claims. (EX1002, ¶ 76; *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 above-noted priority non-provisional

---

[7] 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.

applications provides adequate support for the video-related claims. Not so. (EX1002, ¶¶ 77-78.)

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.

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

First, the 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 understanding the audio-based disclosures of the priority non-provisional applications. (*See generally* EX1011, 577-599; EX1012, 276-298; EX1013, 21-43; EX1014, 420-442; EX1002, ¶ 79.) 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 reasons explained above. (*See supra*, §IX.B.1.a.) In other words, even if it would have been obvious to combine the '836 provisional application's disclosure with the disclosures of the priority non-provisional applications to arrive at the challenged claims, that is insufficient to provide written description support. (EX1002, ¶ 79); *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).[8] Rule 1.57 defines "essential material" as material necessary to "[p]rovide a written description of the claimed invention." 37 C.F.R. § 1.57(c)(1) (2004). Thus, a provisional application cannot be relied on for essential matter providing written description support. 37 C.F.R. §§ 1.57(c); 1.57(c)(1) (2004). Accordingly, even if the '836 provisional application provided the support needed (it does not), it cannot

---

[8] 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.

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) (citing *Droplets, Inc. v. E*TRADE Bank*, 887 F.3d 1309, 1318 (Fed. Cir. 2018)).[9]

Thus, the above-noted priority applications fail to provide written description support for the video data features set forth in the claims. (EX1002, ¶¶ 77-80.)

---

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

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, ¶ 81.)

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

First, the priority non-provisional applications do not expressly incorporate by reference the documents. (*Id.*); *see also* 37 C.F.R. § 1.57(b)(1) (2004).

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). For example, to the extent the above-noted documents disclose features related to using video data samples for content recognition, the priority non-provisional

applications do not mention specific video data sampling-related features of these documents or how their use may be incorporated into the disclosed embodiments. (EX1002, ¶¶ 82-83); *VirnetX*, 776 Fed. Appx. at 703. The documents also could not be relied on for "essential material," as all but one (EXS1021-1023) are neither U.S. patents nor U.S. patent application publications, and the one that is relates only to identification of audio and provides no disclosures related to identification of video content. (*See generally* EX1020); 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. *Id.*; (EX1002, ¶ 84); *Lockwood*, 107 F.3d at 1572.

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 Intervening '204 Application

PO's addition of new matter to the as-filed specification of the '204 application, which is another non-provisional application to which the '848 patent claims priority, in an apparent attempt to support the video-related features of the claims further reinforces the inadequate disclosures in the earlier priority non-provisional applications, *i.e.*, the '330 application, '604 application, '870 application, and '811 application. 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.

(EX1015, 232 (¶[0061]); EX1002, ¶ 85.)

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); EX1002, ¶¶ 85-86.)

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* EX1015, 189-240 (the ’204 application as-filed).)

Accordingly, to the extent the challenged claims are entitled to any filing date, it is no earlier than May 3, 2019, *i.e.*, the filing date of the '204 application. (EX1002, ¶ 87.)

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); *see also supra*, §IX.A. In *Zenon*, the patent claims included features supported by a grandparent application, but the intervening parent application did not incorporate by reference the relevant grandparent application disclosures (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 claims-at-issue were found as not being 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 '604 application's filing date because of a similar break in the continuity of disclosures in the '848 patent's priority chain.

As noted above, the priority non-provisional applications, *i.e.*, the '330 application, '604 application, '870 application, and '811 application, share substantially the same as-filed specifications. (*See supra*, §IX.B.1.b.) However, there is one notable difference. 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 (*see supra* §IX.B.1.c)—the earliest possible effective filing date of the challenged claims is still no earlier than **November 24, 2010** ("**2010 EFD**"), the '604 application's filing date. *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 1-15 Ground 2: The Combination of Steuer768 and Neumeier Renders Obvious Claims 1-15

Ground 1 relies on the combination of Steuer750 (EX1005) and Neumeier (EX1007) whereas **Ground 2** relies on the combination of Steuer768 (EX1006) and Neumeier. However, Steuer750 and Steuer768 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 Steuer768. That is, Petitioner provides citations below to Steuer750 (to support **Ground 1**) and Steuer768 (to support **Ground 2**). In doing so, Petitioner is not relying on Steuer750 for **Ground 2** or Steuer768 for **Ground 1**. (EX1002, ¶ 88.)

Of note, Steuer768 further includes claims 1-15 which are nearly identical to challenged claims 1-15 here, except the word "audio" in claims 1-15 of Steuer768 is substituted with "video" in the challenged claims. (*Compare* EX1001, claims 1-15 *with* EX1006, claims 1-15; *see also* EX1009.) Thus, under **Ground 2**, Petitioner further cites to claims 1-15 of Steuer768 as they almost verbatim disclose challenged claims 1-15 except the "video" feature. The reliance on Neumeier is the same in

both **Ground 1 and 2**, as is Petitioner's rationale for combining Neumeier with Steuer750 or Steuer768. (EX1002, ¶ 89.)

1. Claim 1

a) [pre] A media measurement method comprising:

To the extent that the preamble of claim 1 is limiting, Steuer750 and Steuer768 both independently disclose "[a] media measurement method[.]" (EX1005, Title, Abstract, FIGS. 1-2, claims 1, 19, 35, 40, 44, 48, 61-62; EX1006, Title, Abstract, FIGS. 1-2, claims 1-8; EX1002, ¶¶ 90-92.)

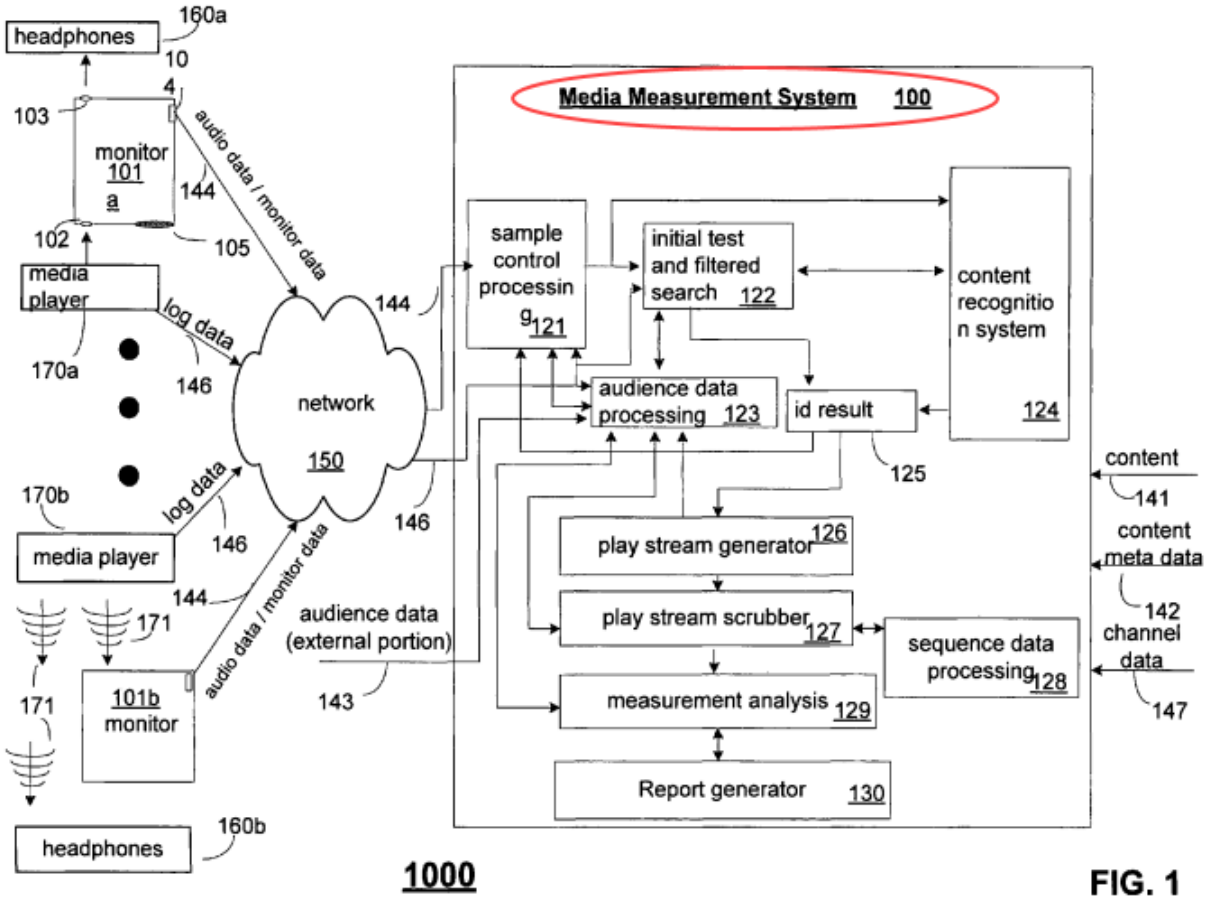


FIG. 1

(EX1005, FIG. 1 (annotated); EX1006, FIG. 1; EX1002, ¶ 91.)

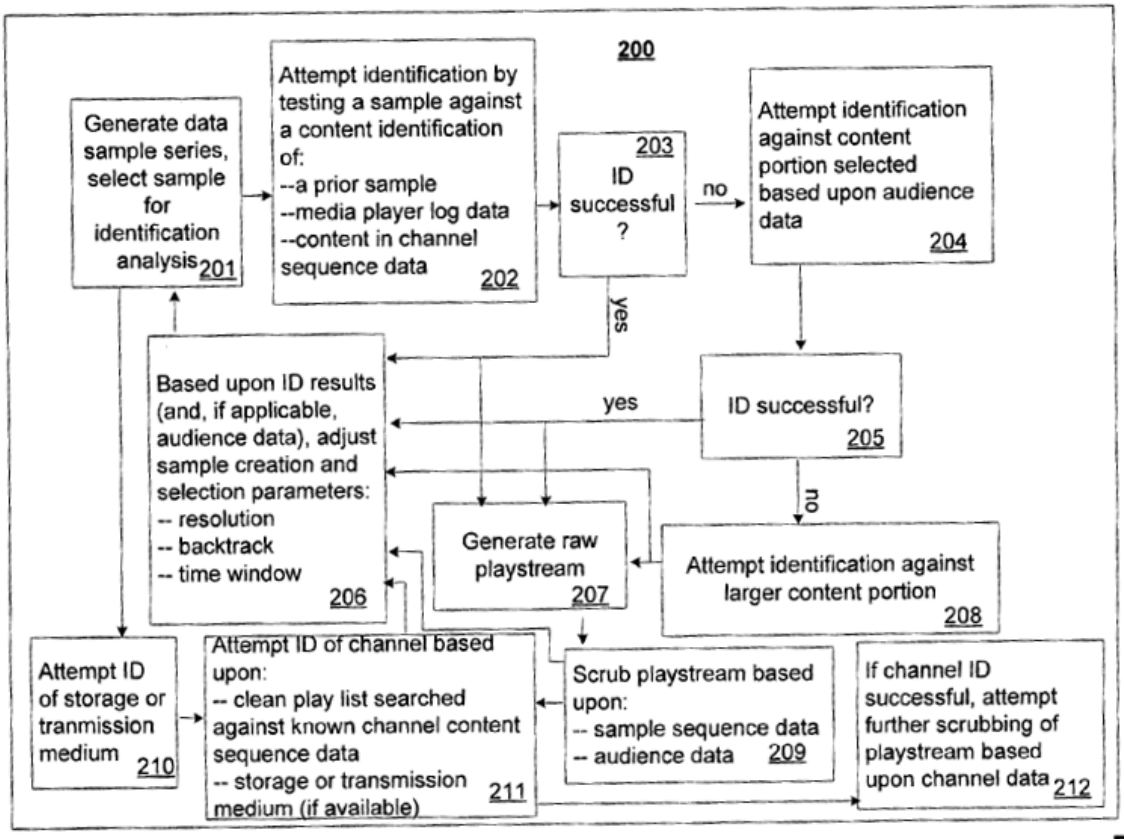


FIG. 2

(EX1005, FIG. 2; EX1006, FIG. 2; EX1002, ¶ 91; *see also infra*, §§X.A.1.b–e.)

b) (a) receiving over a network, at one or more computers, data for a sequence of video data samples, the video data samples comprising representations of video data captured at a media monitoring device, the plurality of video data samples being submitted over the network;

Steuer750 in combination with Neumeier and Steuer768 in combination with Neumeier disclose or suggest this limitation. (EX1002, ¶¶ 93-109.)

Steuer750 and Steuer768 disclose receiving over a network 150, at one or more computers (e.g., the media measurement system 100 implemented by computer

system 700), data for a sequence of data samples (e.g., audio data samples), the data samples comprising representations of audio data captured at monitors 101 ("media monitoring device"), the plurality of audio data samples being submitted over the network 150. (EX1005, [0017]-[0019], [0023], [0034], [0066], FIGS. 1, 2, 4, 7; claims 1, 19, 35; EX1006, 3:4-54, 4:49-62, 6:58-7:3, 13:54-14:11, FIGS. 1, 2, 4, 7; EX1002, ¶ 94.)

For example, similar to claim limitation 1.b, Steuer750 discloses and claims "submitting data samples corresponding to portions of audio data captured at a monitoring device for content recognition against known media content." (EX1005, claim 1; EX1002, ¶ 95.)

Steuer768's claim 1 recites almost identical language as claim limitation 1.b except it substitutes the claimed video data samples with audio data samples: "receiving over a network, at one or more computers, data for a sequence of audio data samples, the audio data samples comprising representations of audio data captured at a media monitoring device, the plurality of audio data samples being submitted over the network." (EX1006, claim 1; EX1002, ¶ 96.)

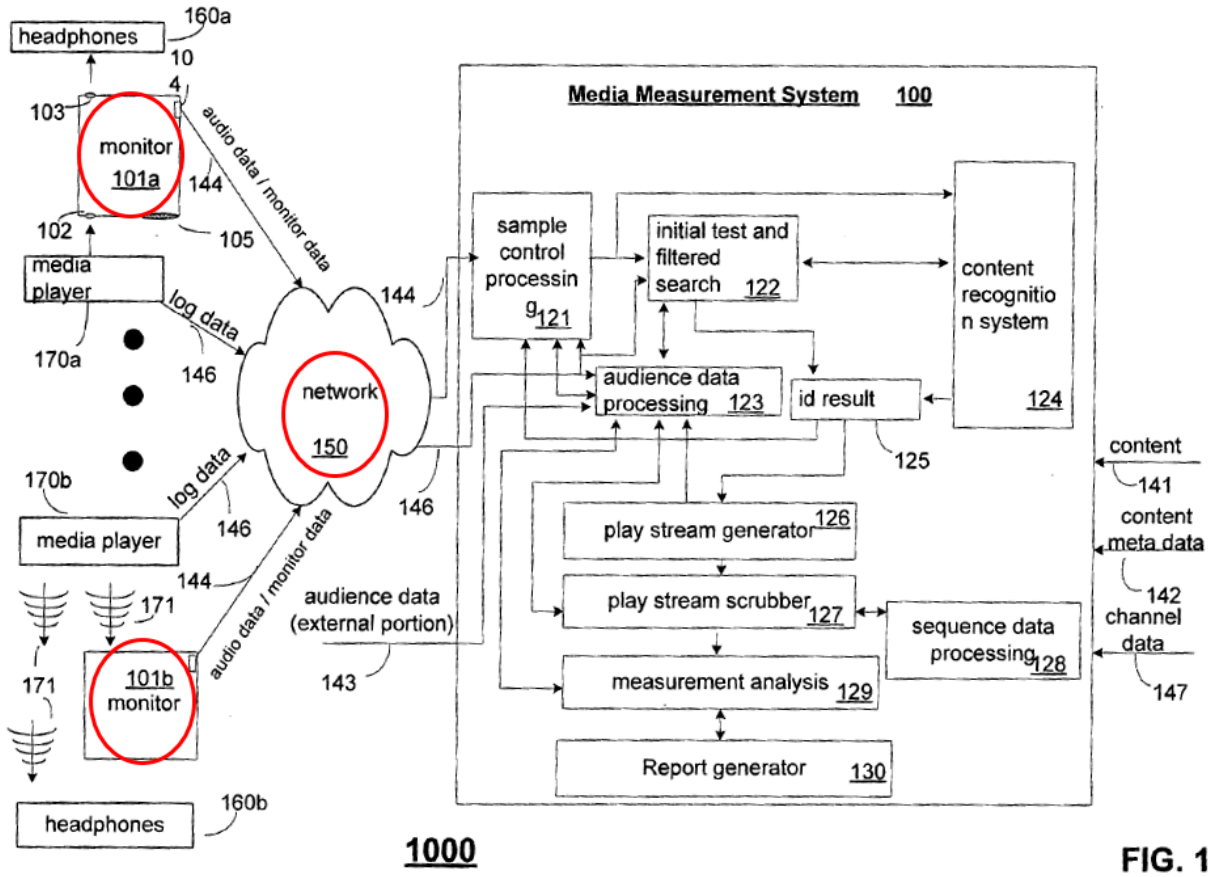


FIG. 1

(EX1005, FIG. 1 (annotated); EX1006, FIG. 1; EX1002, ¶ 97.)

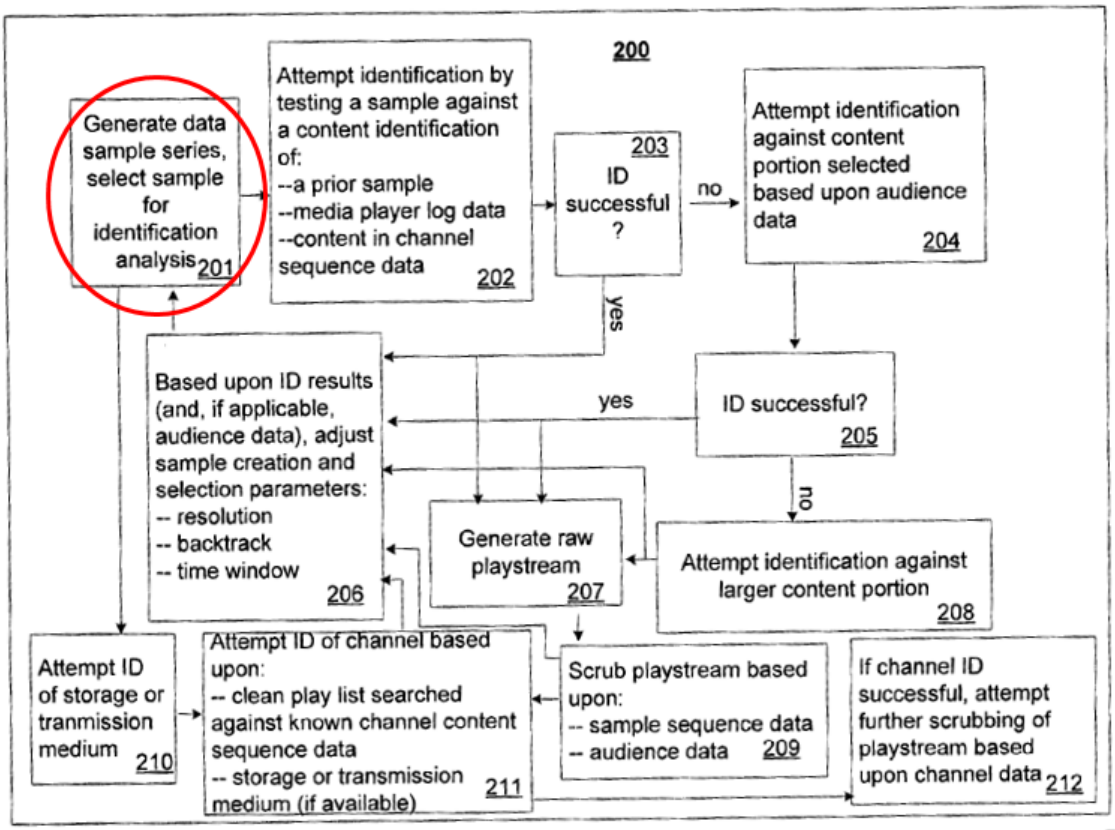


FIG. 2

(EX1005, FIG. 2 (annotated); EX1006, FIG. 2; EX1002, ¶ 98.)

The disclosures of Steuer750 and Steuer768 are limited to media measurement methods and systems for generating a play stream of content identification results corresponding to a sequence of **audio** data samples. (EX1002, ¶ 98.)[10] As such, Steuer750 and Steuer768 do not disclose that the data samples are

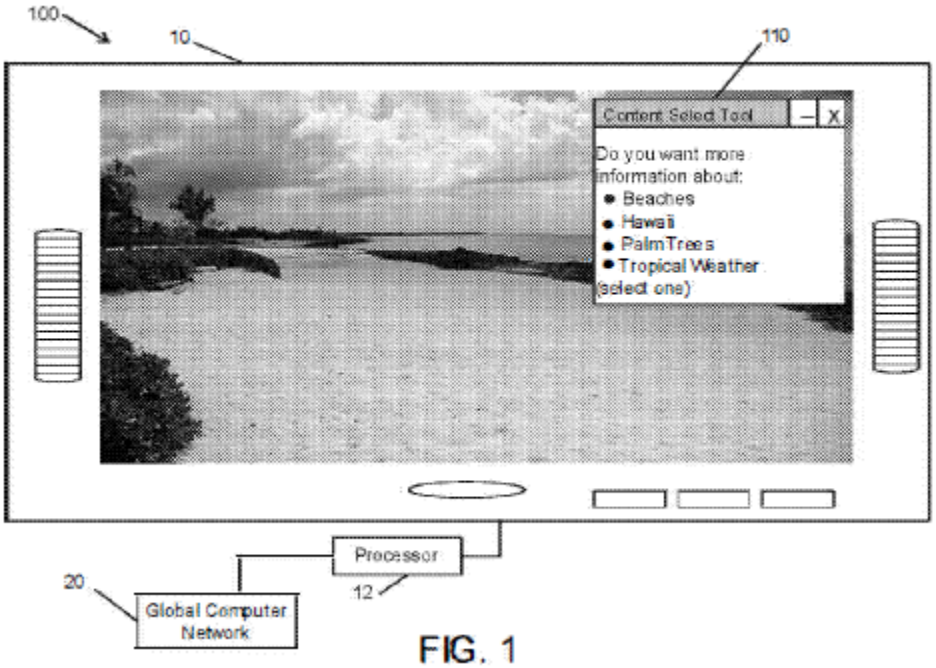
---

[10] 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*

video samples including **representations of video data** captured at a media monitoring device, as claimed. (EX1002, ¶ 98.) However, as discussed below, it would have been obvious to modify Steuer750's and Steuer768's disclosed media measurement methods such that data samples including representations of video data, e.g., video data samples, are used instead of audio based on the teachings of Neumeier. (*Id.*)

Similar to Steuer750 and Steuer768, 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 be implemented using video data samples or audio data samples. (EX1007, [0002], [0010]-[0014]; EX1002, ¶ 99; *see also id.*, ¶¶ 41-44.)

EX1002, ¶¶ 70-76.) The same is true for Steuer768 as its disclosure is nearly identical to Steuer750. (EX1008.)



(EX1007, FIG. 1; *see also id.*, [0023]; EX1002, ¶ 99.)

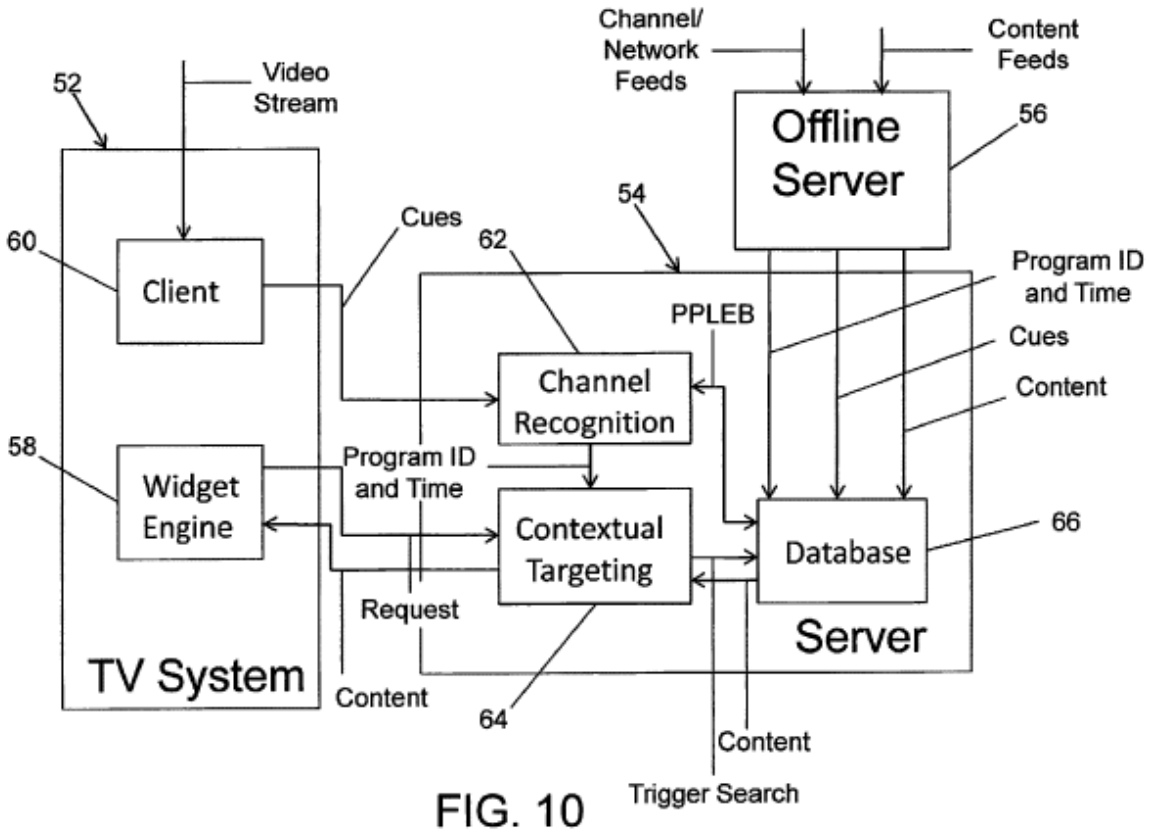


FIG. 10

(EX1007, FIG. 10; *see also id.*, [0050-[0052]; EX1002, ¶ 99.)

Thus, Neumeier discloses content identification systems and methods in the same technical field as Steuer750 and Steuer768, 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 Steuer768. (EX1002, ¶ 100.)

Neumeier discloses identifying content corresponding to a sequence of sampled pixel data ("sequence of video data samples, the video data samples comprising representations of video data") captured at a TV or the like (like the

monitoring device of Steuer750/Steuer768) associated with a user (like the monitored audience member of Steuer750/Steuer768). 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]-[0057], [0059]-[0062], [0064], [0068], [0078], [0097], [0099], [0101], claims 15, 18; EX1002, ¶ 101.)

Neumeier further discloses additional process steps related to content identification, similar to those disclosed in Steuer750 and Steuer768, such as **filtering deviations in the sample pixel data to identify content**. (EX1007, [0073]; *see also id.*, p. 18 (Appendix), §2.2[11]; EX1002, ¶¶ 102-104.)

---

[11] Neumeier's disclosure references its Appendix at pp. 13-20 which discloses an algorithm for tracking video transmission using ambiguous cues. (*See* EX1007, pp. 13-18; *see also id.*, [0021] (referencing Appendix), [0040] (same), [0045] (same),

In view of Neumeier's teachings, a POSITA would have been motivated to consider and draw from such teachings when implementing Steuer750's or Steuer768's disclosed methods and systems such that, in addition to, or as an alternative to, using audio data samples, data samples including representations of video data (e.g., video data samples) would have been used for identifying content. (EX1002, ¶ 105.)

A POSITA would have found it obvious and would have known how to modify Steuer750 and Steuer768 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, ¶ 106.) Thus, a POSITA would have recognized that applying Steuer750's or Steuer768'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.*)

[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.

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 as required by the claim, while ensuring proper operation of the Steuer750/Steuer768 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 the combined Steuer768-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, ¶ 107.)

The above modification would have been a mere combination of known technologies (e.g., using video data samples with Steuer750's/Steuer768's disclosed systems/methods for content identification), according to known methods (e.g., sampling pixel data of the video content), to achieve predictable results (e.g., comparing such samples to known content to generate content identification results). *See KSR*, 550 U.S. 398 at 416-18. (EX1002, ¶ 108.)

Therefore, the Steuer750-Neumeier system and the Steuer768-Neumeier system discloses or suggests claim limitation 1.b. (EX1002, ¶ 109.)

c) (b) using the one or more computers to query an electronic database of a plurality of video data representations and corresponding content identifiers;

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination discloses or suggests this limitation. (EX1002, ¶¶ 110-113.)

First, Steuer768's claim 1 recites almost identical language as claim limitation 1.c, albeit in the context of "audio": "using the one or more computers to query an electronic database of a plurality of audio data representations and corresponding content identifiers." (EX1006, claim 1; EX1002, ¶ 111.)

Further, Steuer750 and Steuer768 both disclose using one or more computers (e.g., the media measurement system 100 implemented by computer system 700) to query an electronic database of a plurality of video data representations and corresponding content identifiers. (EX1005, [0022]-[0031], [0034]-[0036], FIGS. 1-4; EX1006, 4:13-6:27, 6:58-7:38, FIGS. 1-4; *see also supra*, §X.A.1.b.) In particular, Steuer750 and Steuer768 disclose querying a database of known content 141 of a plurality of audio data representations (e.g., audio signatures) and corresponding content identifiers. (EX1005, [0022], [0036]; EX1006, 4:13-48; 7:17-38; EX1002, ¶ 112.)

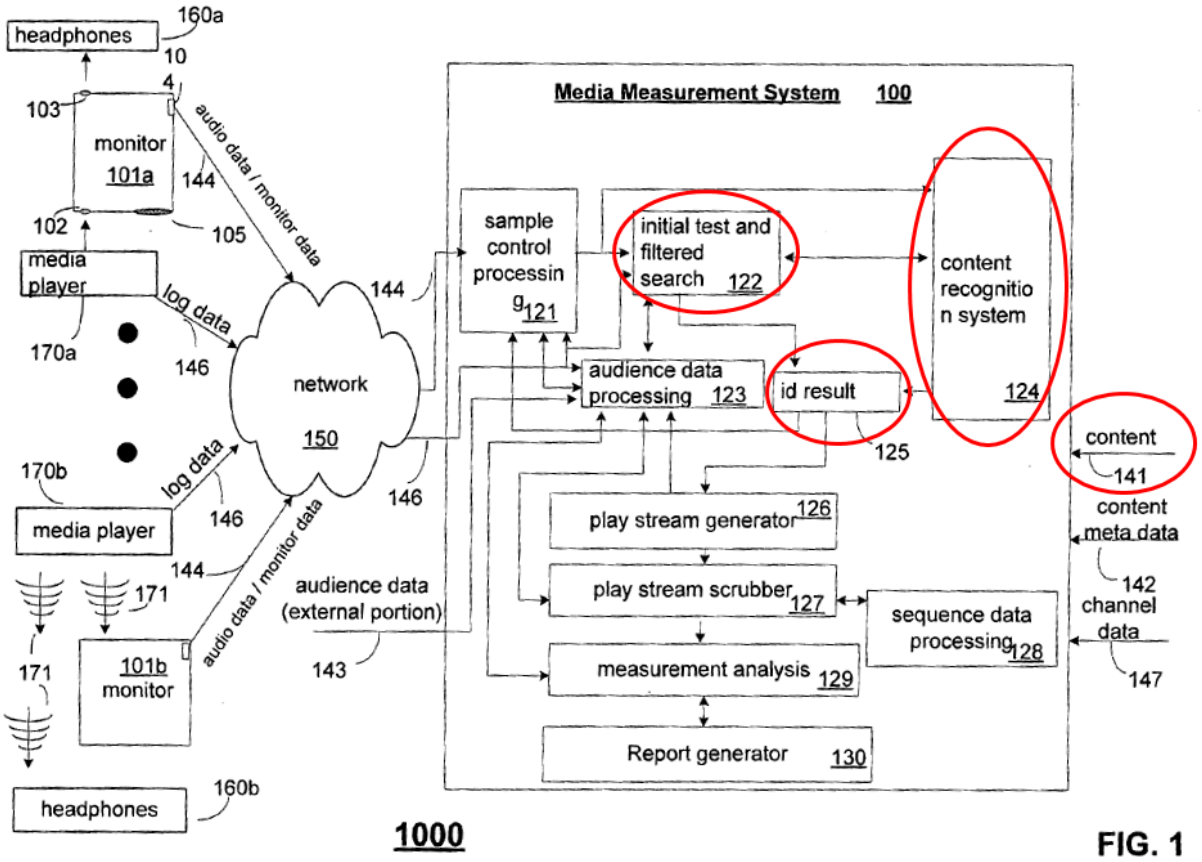


FIG. 1

(EX1005, FIG. 1 (annotated); EX1006, FIG. 1; EX1002, ¶ 112.)

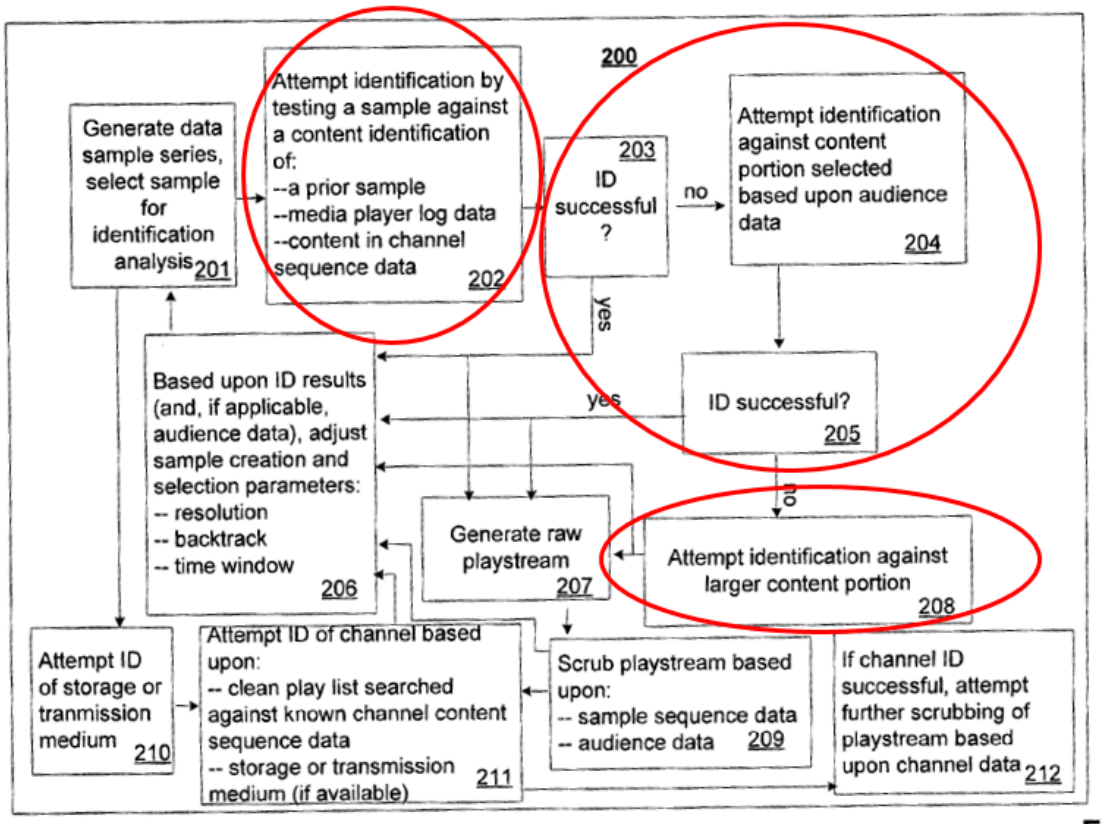


FIG. 2

(EX1005, FIG. 2 (annotated); EX1006, FIG. 2; EX1002, ¶ 112.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination disclose or suggest limitation 1.c. (EX1002, ¶ 113.)

d) (c) generating a raw play stream, the raw play stream comprising a sequence of content identification results corresponding to the sequence of video data samples;

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggests this limitation. (EX1002, ¶¶ 114-118.)

Steuer750 and Steuer768 disclose generating a raw play stream (e.g., using the play stream generator 126), the raw play stream including a sequence of content identification results corresponding to the sequence of video data samples. (EX1005, [0016]-[0031], [0040], FIGS. 1, 2, 4, 7; claims 35, 40, 44; EX1006, 2:66-6:27, 8:1-22, FIGS. 1, 2, 4, 7; EX1002, ¶ 115.)

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, ¶ 116.)

Steuer768'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: "generating a raw play stream, the raw play stream comprising a sequence of content identification results corresponding to the sequence of audio data samples." (EX1006, claim 1; EX1002, ¶ 116.)

Steuer750 and Steuer768 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], [0041]-[0042], [0045], FIGS. 1-4; EX1006, 4:49-6:27; *see also id*., 8:1-22, 8:23-49, 9:12-37, FIGS. 1-4; EX1002, ¶ 117.)

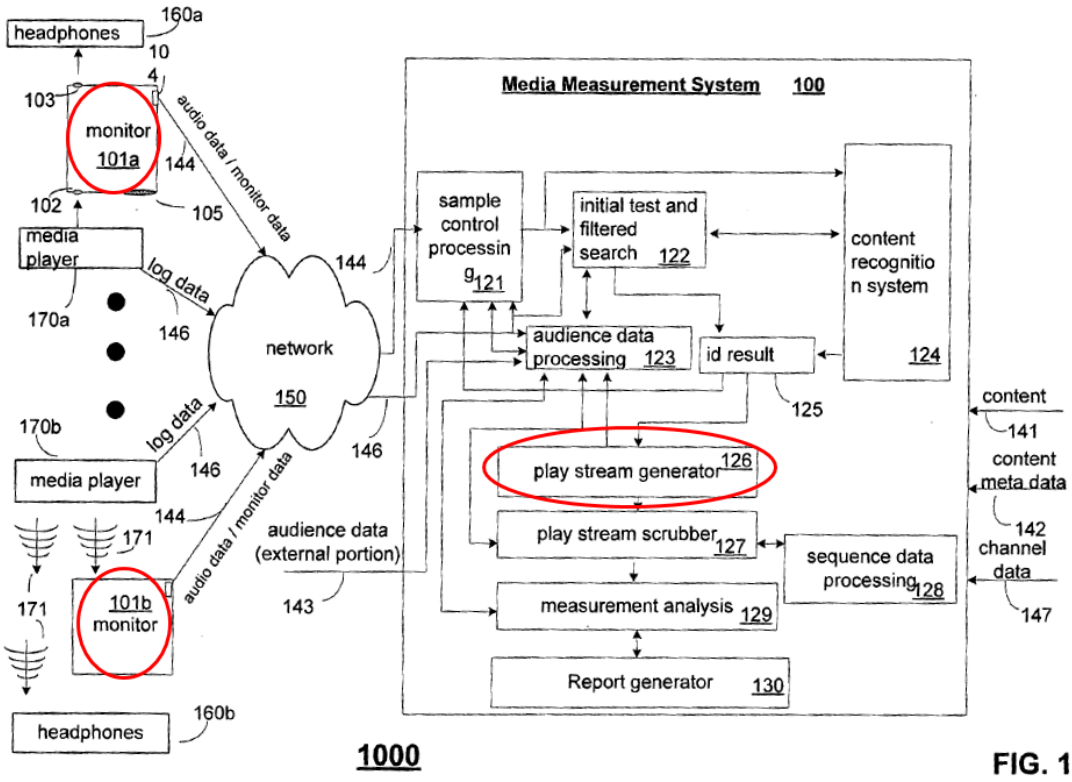


FIG. 1

(EX1005, FIG. 1 (annotated); EX1006, FIG. 1; EX1002, ¶ 117.)

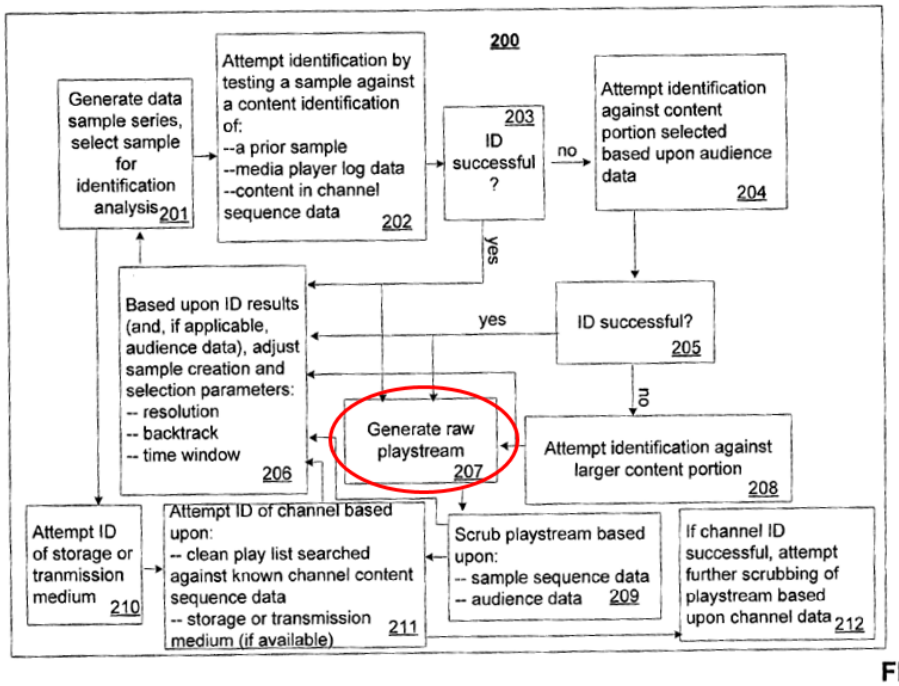


FIG. 2

(EX1005, FIG. 2 (annotated); EX1006, FIG. 2; EX1002, ¶ 117.)

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, ¶ 117.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination disclose or suggest limitation 1.d. (EX1002, ¶ 118.)

(1) wherein: the sequence of content identification results is obtained by querying the electronic database to attempt to determine respective likely matches between respective video data samples in the sequence of video data samples and respective video data representations in the electronic database;

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for at least the same reasons as those given above with respect to limitations 1.c and 1.d. (EX1002, ¶¶ 119-122.)

For example, as discussed above with respect to limitations 1.c and 1.d, Steuer750 and Steuer768 both disclose that obtaining the content identification results (e.g., the content IDs shown in raw play stream 410 in figure 4) by querying the electronic database of known content 41 to attempt to determine respective likely matches between respective audio data samples in the sequence of audio data samples and respective audio data representations e.g., audio samples) in the electronic database. (*See supra*, §§X.A.1.c-d (citing EX1005, [0016]-[0031],

[0034]-[0036], [0040], FIGS. 1-4; EX1006, 2:66-6:27, 6:58-7:38, 8:1-22, FIGS. 1-4); EX1002, ¶ 120.)

Moreover, Steuer768's claim 1 recites almost identical language as claim limitation 1.d, albeit in the context of "audio": "the sequence of content identification results is obtained by querying the electronic database to attempt to determine respective likely matches between respective audio data samples in the sequence of audio data samples and respective audio data representations in the electronic database." (EX1006, claim 1; EX1002, ¶ 121.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination discloses or suggests limitation 1.d.1. (EX1002, ¶ 122.)

(2) a content identification result of the sequence of content identification results comprises either: (i) a content identifier associated in the electronic database with a respective video data representation that is determined to be a respective likely match with a respective one of the video data samples; or (ii) an indication of the absence of a respective likely match between a respective video data sample and a video data representation in the electronic database; and[12]

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for at least the same reasons as those given above with respect to limitations 1.c and 1.d. (EX1002, ¶¶ 123-126; *see supra*, §§X.A.1.c-d.)

For example, Steuer750 and Steuer768 both disclose that a content identification result of the sequence of content identification results includes either (i) a content ID (e.g., "song51" or "movie81" in content ID column of raw play stream 410) associated in the electronic database with a respective audio data representation that is determined to be a respective likely match with a respective

---

[12] Claim limitation 1.d.2 recites alternative language in the form of the content identification result comprising "**either**: (i) . . .; **or** (ii) . . ." While the claim limitation is met by the prior art showing at least one of these alternatives, Petitioner maps the prior art to both alternatives below.

one of the audio data samples or (ii) an indication of the absence of a respective likely match (e.g., "none" in content ID column of raw play stream 410) between a respective audio data sample and an audio data representation in the electronic database. (EX1005, [0036], [0045]; EX1006, 7:17-38, 9:12-37; EX1002, ¶ 124.)

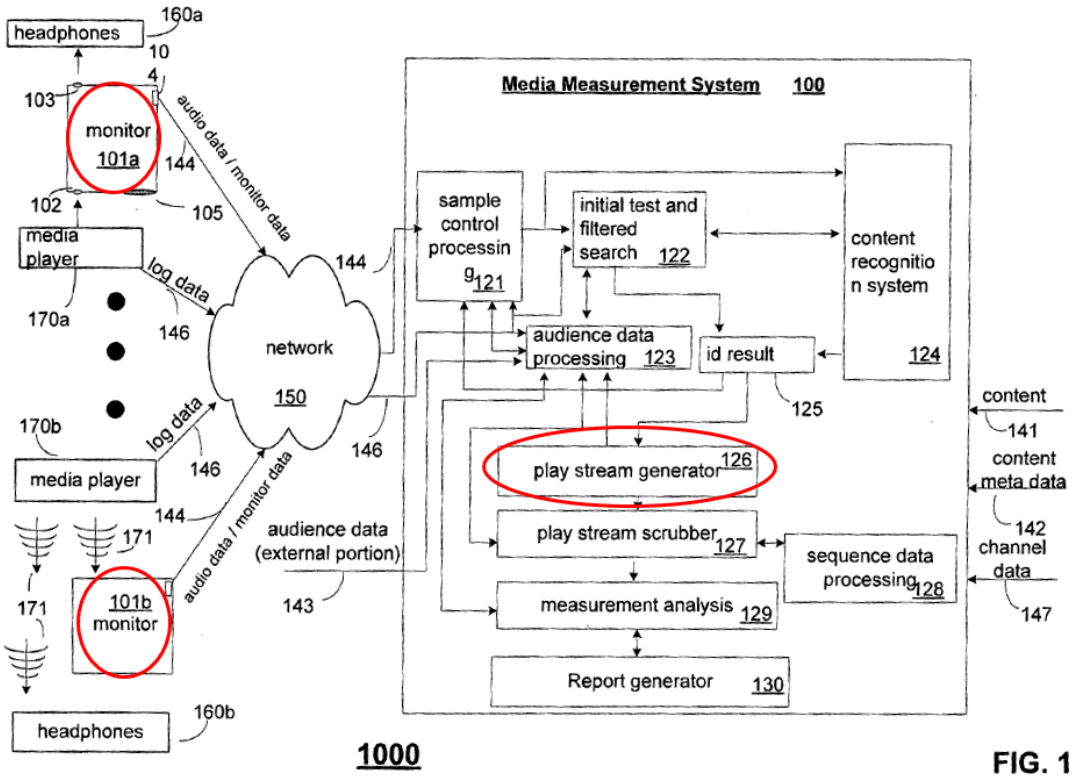


FIG. 1

(EX1005, FIG. 1 (annotated); EX1006, FIG. 1; EX1002, ¶ 124.)

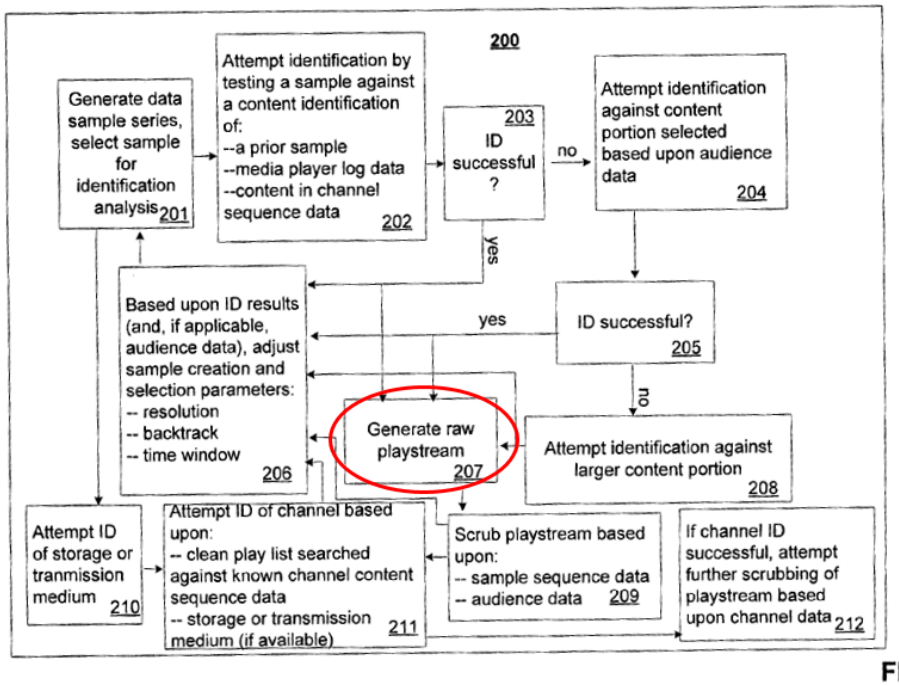


FIG. 2

(EX1005, FIG. 2 (annotated); EX1006, FIG. 2; EX1002, ¶ 124.)

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, ¶ 124.)

Moreover, Steuer768's claim 1 recites almost identical language as claim limitation 1.d, albeit in the context of "audio": "a content identification result of the sequence of content identification results comprises either: (i) a content identifier associated in the electronic database with a respective audio data representation that is determined to be a respective likely match with a respective one of the audio data samples; or (ii) an indication of the absence of a respective likely match between a respective audio data sample and an audio data representation in the electronic database." (EX1006, claim 1; EX1002, ¶ 125.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination discloses or suggests limitation 1.d.2. (EX1002, ¶ 126.)

(3) the raw play stream includes either: at least two different content identifiers obtained from the electronic database; or at least one content identifier obtained from the electronic database and at least one indication of the absence of a respective likely match between a respective video data sample and a video data representation in the electronic database;[13]

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for at least the same reasons as those given above with respect to limitations 1.c, 1.d, and 1.d.2. (EX1002, ¶¶ 127-130.)

For example, Steuer750 and Steuer768 both disclose that raw play stream 410 includes either at least two different content identifiers obtained from the electronic database (e.g., "song51" and "movie81" in content ID column of raw play stream 410) or at least one content identifier obtained from the electronic database and at least one indication of the absence of a respective likely match between a respective

---

[13] Claim limitation 1.d.3 recites alternative language in the form of the raw play stream including "**either**: [i] at least two different content identifiers . . .; **or** [ii] at least one content identifier . . . and at least one indication of the absence of a respective likely match." While the claim limitation is met by the prior art showing at least one of these alternatives, Petitioner maps the prior art to both alternatives below.

audio data sample and an audio data representation in the electronic database (e.g., "song51" and "none" in content ID column of raw play stream 410). (*See supra*, §§X.A.1.c-d, X.A.1.d.2 (citing EX1005, [0036], [0045]; EX1006, 7:17-38, 9:12-37).)

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, ¶ 128.)

Moreover, Steuer768's claim 1 recites almost identical language as claim limitation 1.d, albeit in the context of "audio": "the raw play stream includes either: at least two different content identifiers obtained from the electronic database; or at least one content identifier obtained from the electronic database and at least one indication of the absence of a respective likely match between a respective audio

data sample and an audio data representation in the electronic database." (EX1006, claim 1; EX1002, ¶ 129.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination discloses or suggests limitation 1.d.3. (EX1002, ¶ 130.)

e) (d) scrubbing the raw play stream by analyzing sample sequence data of the raw play stream to determine whether to change a result of the sequence of content of identification results in view of a pattern of the sample sequence data of the raw play stream compared to an expected pattern of sample sequence data; and

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggests this limitation. (EX1002, ¶¶ 131-135.)

Similar to claim limitation 1.e, Steuer750 discloses and claims "scrubbing the raw play stream by, with respect to samples that are not identified or appear to be misidentified, analyzing sample sequence data to attempt selection of corrected content identifications." (EX1005, claim 35; EX1002, ¶ 132.)

Steuer768's claim 1 recites almost identical language as claim limitation 1.e, albeit in the context of "audio": "scrubbing the raw play stream by analyzing sample sequence data of the raw play stream to determine whether to change a result of the

sequence of content of identification results in view of a pattern of the sample sequence data of the raw play stream compared to an expected pattern of sample sequence data." (EX1006, claim 1; EX1002, ¶ 133.)

Further, Steuer750 and Steuer768 disclose scrubbing the raw play stream (e.g., by play stream scrubber 127) by analyzing sample sequence data of the raw play stream to determine whether to change a result of the sequence of content of identification results in view of a pattern of the sample sequence data of the raw play stream compared to an expected pattern of sample sequence data. (EX1005, [0031], [0040] (step 209), [0042] (steps 301 and 302), [0044] (step 307), [0045] (discussing clean play stream 450 and clean play list 490 of figure 4), [0046]-[0049], FIGS. 1-4, claims 7, 35, 39; EX1006, 6:14-27, 8:1-22 (step 209), 8:30-49 (steps 301 and 302), 9:4-11 (step 307), 9:12-31, 9:32-10:27, FIGS. 1-4, claims 1, 9; EX1002, ¶ 134.)

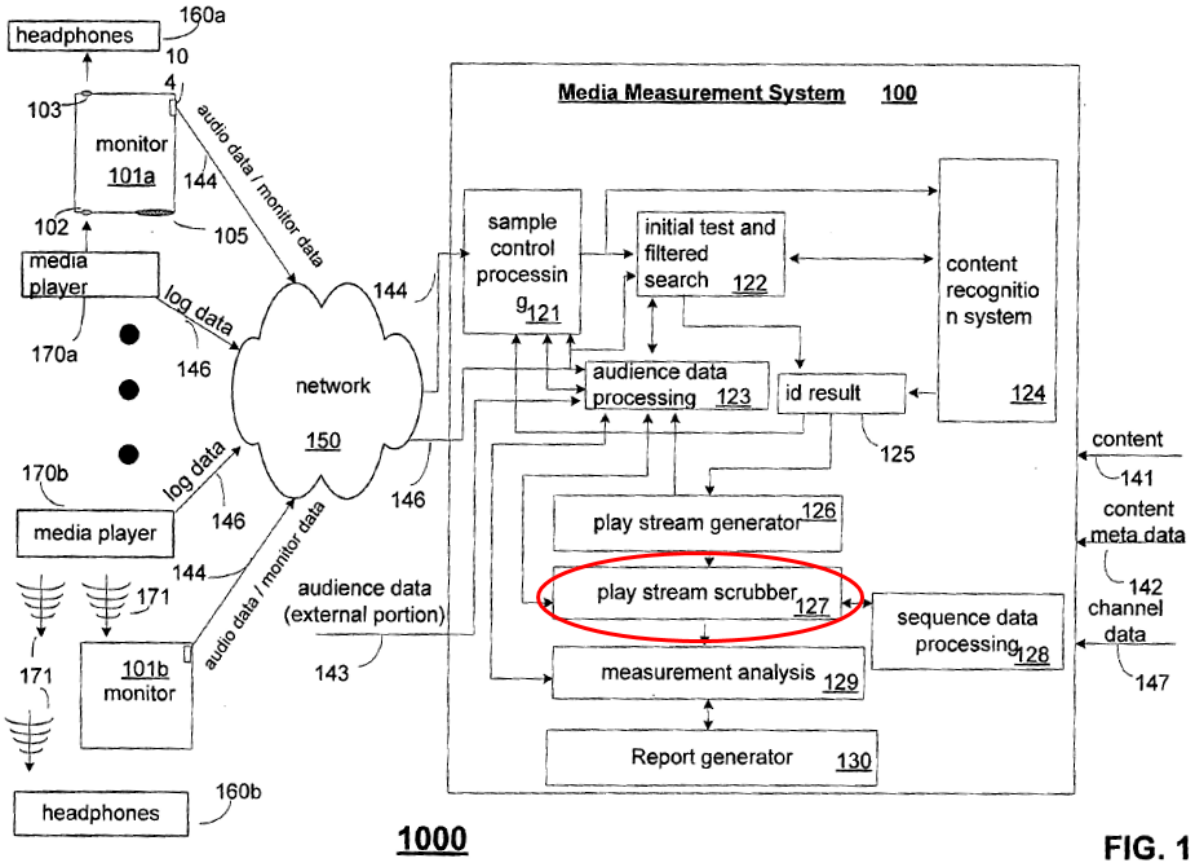


FIG. 1

(EX1005, FIG. 1 (annotated); EX1006, FIG. 1; EX1002, ¶ 134.)

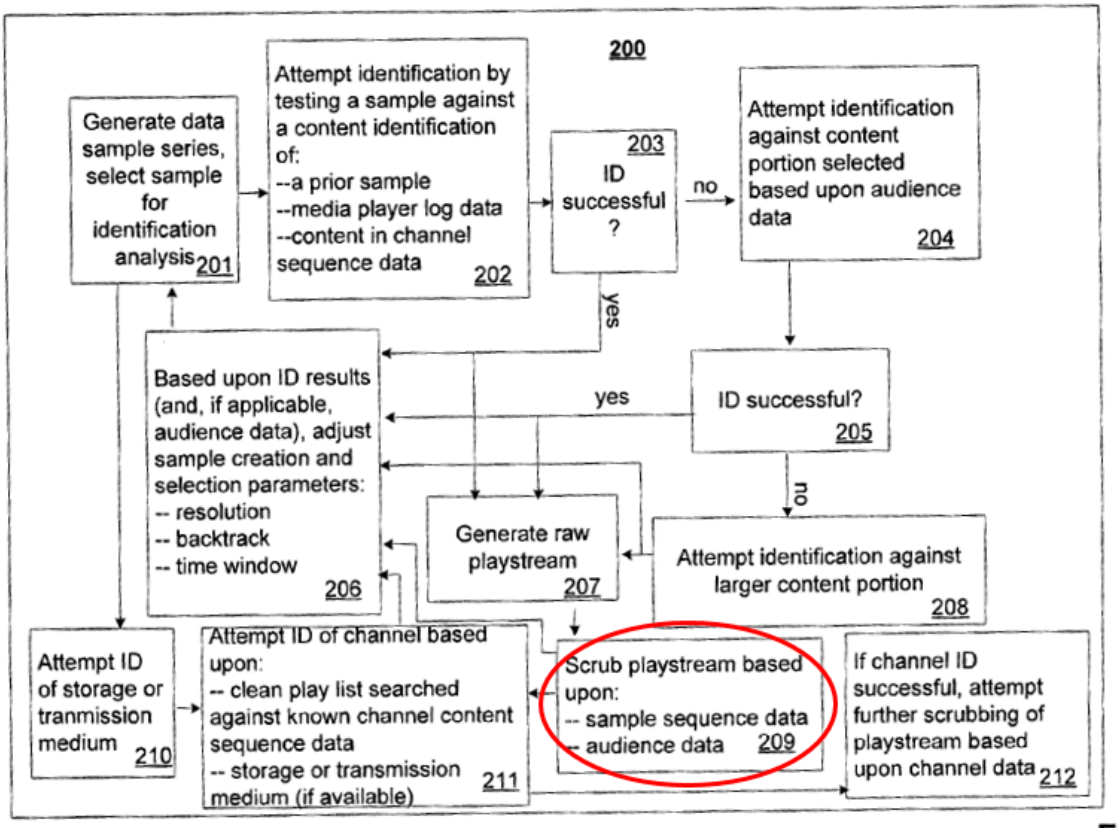


FIG. 2

(EX1005, FIG. 2 (annotated); EX1006, FIG. 2; EX1002, ¶ 134.)

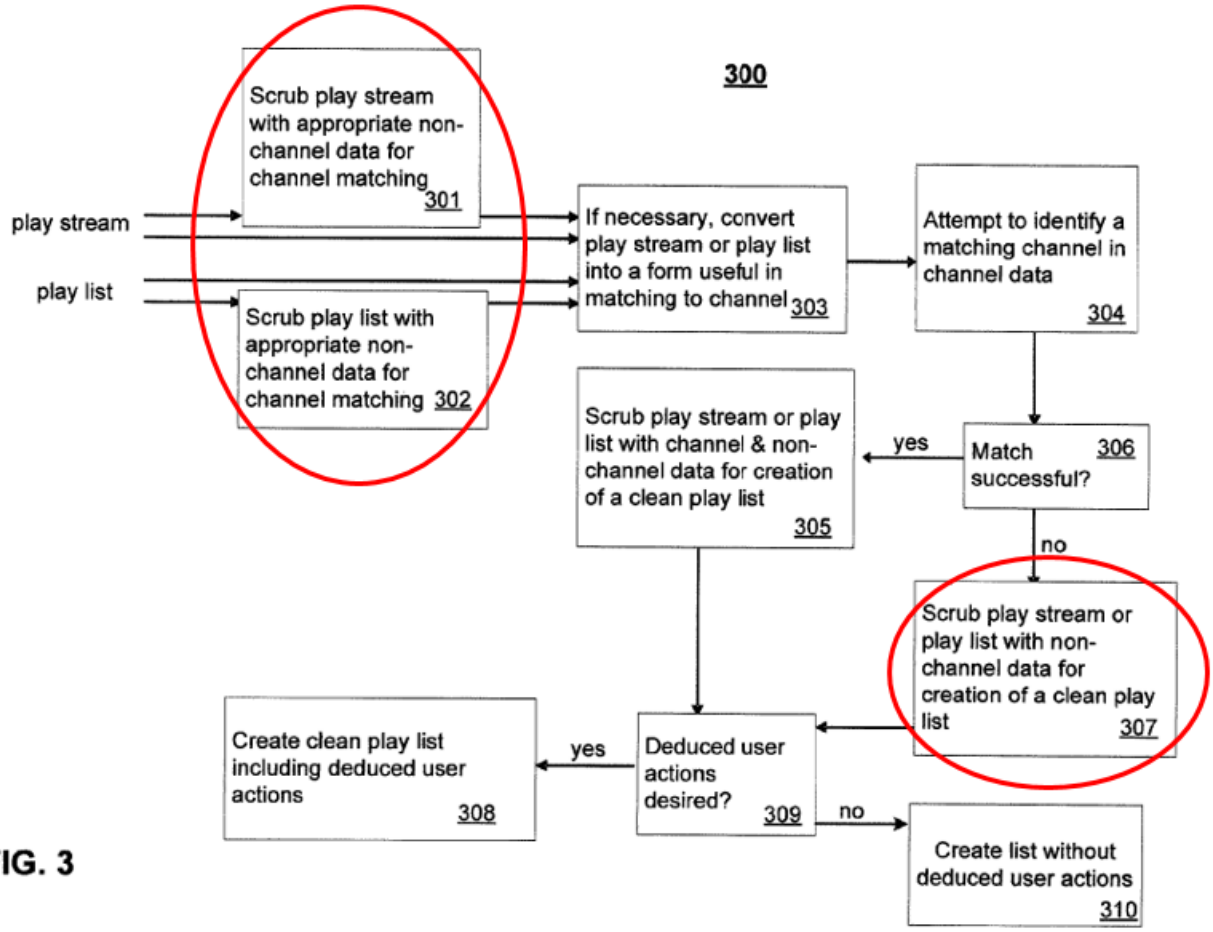


FIG. 3

(EX1005, FIG. 3 (annotated); EX1006, FIG. 3; EX1002, ¶ 134.)

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, ¶ 134.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination disclose or suggest limitation 1.e. (EX1002, ¶ 135.)

f) (e) generating a clean play stream from the raw play stream by making any changes to the raw play stream that are determined to be made by the scrubbing.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggests this limitation for at least reasons similar to those given above with respect to claim limitation 1.e. (EX1002, ¶¶ 136-139.)

First, Steuer768's claim 1 recites almost identical language as claim limitation 1.c, albeit in the context of "audio": "generating a clean play stream from the raw play stream by making any changes to the raw play stream that are determined to be made by the scrubbing." (EX1006, claim 1; EX1002, ¶ 137.)

Moreover, Steuer750 and Steuer768 disclose generating a clean play stream (e.g., clean play stream 450 in figure 4) by making any changes to the raw play stream (e.g., raw play stream 410) that are determined to be made by the scrubbing. (*See supra*, §X.A.1.e. (citing EX1005, [0031], [0040] (step 209), [0042] (steps 301 and 302), [0044] (step 307), [0045] (discussing clean play stream 450 of figure 4), [0046]-[0049], FIGS. 1-4, claims 7, 35, 39; EX1006, 6:14-27, 8:1-22 (step 209), 8:30-49 (steps 301 and 302), 9:4-11 (step 307), 9:12-31, 9:32-10:27, FIGS. 1-4, claims 1, 9); EX1002, ¶ 138.)

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, ¶ 138.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination disclose or suggest claim limitation 1.f. (EX1002, ¶ 139.)

2. Claim 2

a) The method of claim 1 wherein sample sequence data includes at least one of log times, content identifiers, and content offsets.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation. (EX1002, ¶¶ 140-143.)

First, Steuer768's claim 2 recites almost identical language as claim 2, albeit in the context of "audio": "wherein sample sequence data includes at least one of log times, content identifiers, and content offsets." (EX1006, claim 2; EX1002, ¶ 141.)

Moreover, Steuer750 and Steuer768 disclose sample sequence data includes at least one of log times, content identifiers, and content offsets as they disclose:

> However, note that in other examples, such as that of FIG. 5, **sample sequence data ("ssd") includes content offset data**. For purposes of presenting and analyzing sample sequence data as described herein, the times in list 410 may be . . . **a log time** . . . indicat[ing] the actual time the sample started to be captured.

(EX1005, [0045], FIGS. 1-5; EX1006, 9:12-37, FIGS. 1-5; EX1002, ¶ 142.)

> **Sample sequence data can be used to derive portions of Clean Play Stream 450 from raw play list 410 in the following manner:** Referring to Raw Play Stream 410, **the content IDs** associated with samples 1, 3, 4, 6, and 7 all indicate the same media content referenced as "song51." The content ID value associate with sample 2 indicates that no content has yet been successfully associated with that sample and the content ID value associated with sample 5 indicates "movie81." **Given this pattern of sample sequence data, it is reasonable to assume that the person using the corresponding monitor listened to song51 through the time period associated with the audio data of samples 1-7, and thus, the "scrubbed" version of the play stream, i.e. Clean Play Stream 450, indicates song51 for each of samples 1-7**.

(EX1005, [0047, FIG. 4]; *see also id.*, [0053]-[0055]; EX1006, 9:38-51, FIG. 4]; *see also id.*, 11:10-55; EX1002, ¶ 142.)

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, ¶ 142.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination disclose or suggest claim 2. (EX1002, ¶ 143.)

3. Claim 3

a) The method of claim 1 wherein: scrubbing the raw play stream further comprises analyzing channel data as part of determining whether to change a result of the sequence of content of identification results.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation. (EX1002, ¶¶ 144-147.)

As discussed above, Steuer750 and Steuer768 disclose scrubbing the raw play stream by analyzing sample sequence data of the raw play stream. (*See supra*, §X.A.1.e.) Steuer750 and Steuer768 further disclose that scrubbing the raw play stream also includes analyzing channel data as part of determining whether to change a result of the sequence of content of identification results. (EX1005, [0040] ("If step 211 successfully identifies the channel, information such as content sequence data for the identified channel may be used by step 212 to further scrub or rescrub the play stream, . . ."); *see also id.*, [0043], [0048]-[0049]; EX1006, 8:1-22; *see also id.*, 8:58-65, 9:52-10:27; EX1002, ¶ 145.)

Further, Steuer768's claim 3 recites almost identical language as claim 3, albeit in the context of "audio": "scrubbing the raw play stream further comprises analyzing channel data as part of determining whether to change a result of the sequence of content of identification results." (EX1006, claim 3; EX1002, ¶ 146.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination disclose or suggest claim 3. (EX1002, ¶ 147.)

4. Claim 4

a) The method of claim 1 wherein: scrubbing the raw play stream further comprises using audience data as part of determining whether to change a result of the sequence of content of identification results.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation. (EX1002, ¶¶ 148-151.)

As discussed above, Steuer750 and Steuer768 disclose scrubbing the raw play stream by analyzing sample sequence data of the raw play stream. (*See supra*, §X.A.1.e.) Steuer750 and Steuer768 disclose that scrubbing the raw play stream further comprises using audience data as part of determining whether to change a result of the sequence of content of identification results. (EX1005, [0031] ("Based on analysis of sequence data and, where appropriate, analysis of audience data via interaction with audience data module 123, play stream scrubber 127 generates a clean play stream and clean play list."), [0040], [0050]; *see also id.*, claim 38; EX1006, 6:13-27, 8:1-22, 10:28-33; EX1002, ¶ 149.)

Further, Steuer768's claim 4 recites almost identical language as claim 4, albeit in the context of "audio": "scrubbing the raw play stream further comprises

using audience data as part of determining whether to change a result of the sequence of content of identification results." (EX1006, claim 4; EX1002, ¶ 150.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination disclose or suggest claim 4. (EX1002, ¶ 151.)

5. Claim 5

a) The method of claim 1 wherein a clean play list is generated from the clean play stream.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation. (EX1002, ¶¶ 152-156.)

For example, similar to claim 5, Steuer750 discloses and claims that "a clean play list is generated from the scrubbed play stream." (EX1005, claim 39; EX1002, ¶ 153.) Steuer768's claim 5 recites almost identical language as claim 5, albeit in the context of "audio": "wherein a clean play list is generated from the clean play stream." (EX1006, claim 5; EX1002, ¶ 154.)

Steuer750 and Steuer768 disclose additional details regarding generation of a clean play list from the clean play stream, including that "[t]he resulting clean play stream [from step 209 of Figure 2] may be converted to a play list listing the content

captured and indicating the order in which it was captured." (EX1005, [0040]; *see also id.*, [0042]-[0044]; EX1006, 8:1-22; *see also id.*, 8:30-9:11; EX1002, ¶ 155.)

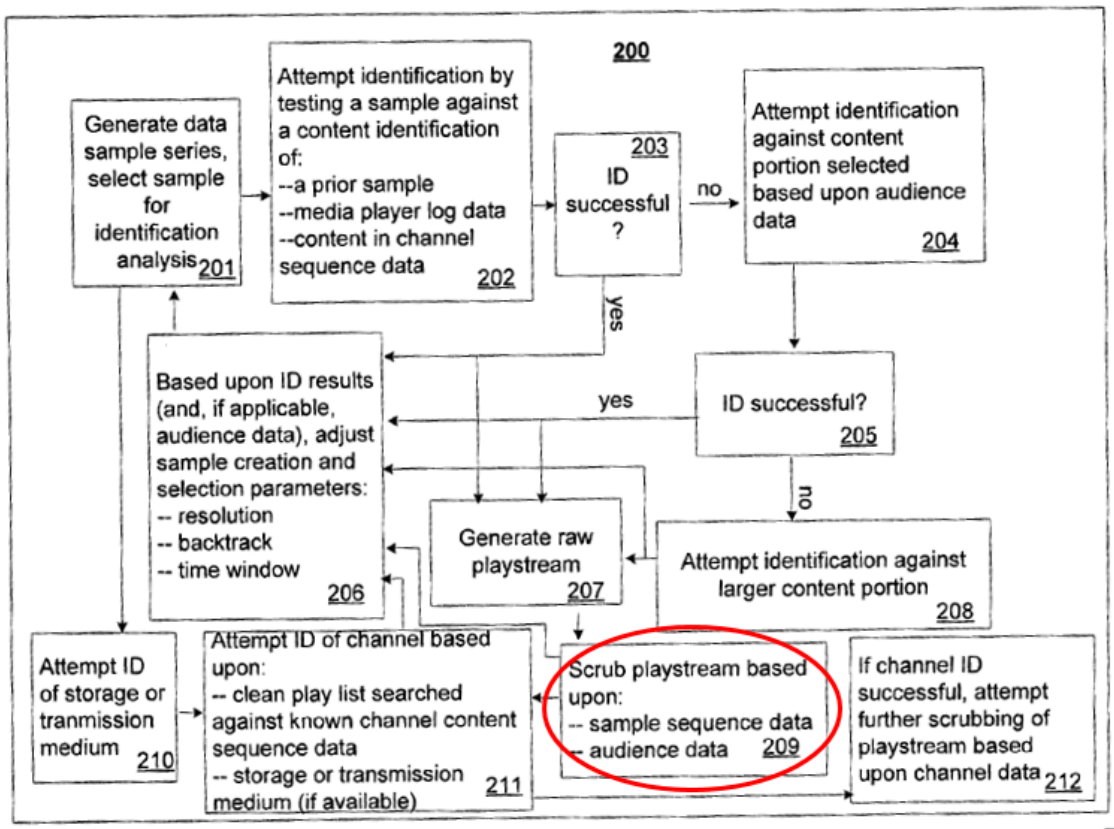


FIG. 2

(EX1005, FIG. 2 (annotated); EX1006, FIG. 2; EX1002, ¶ 155.)

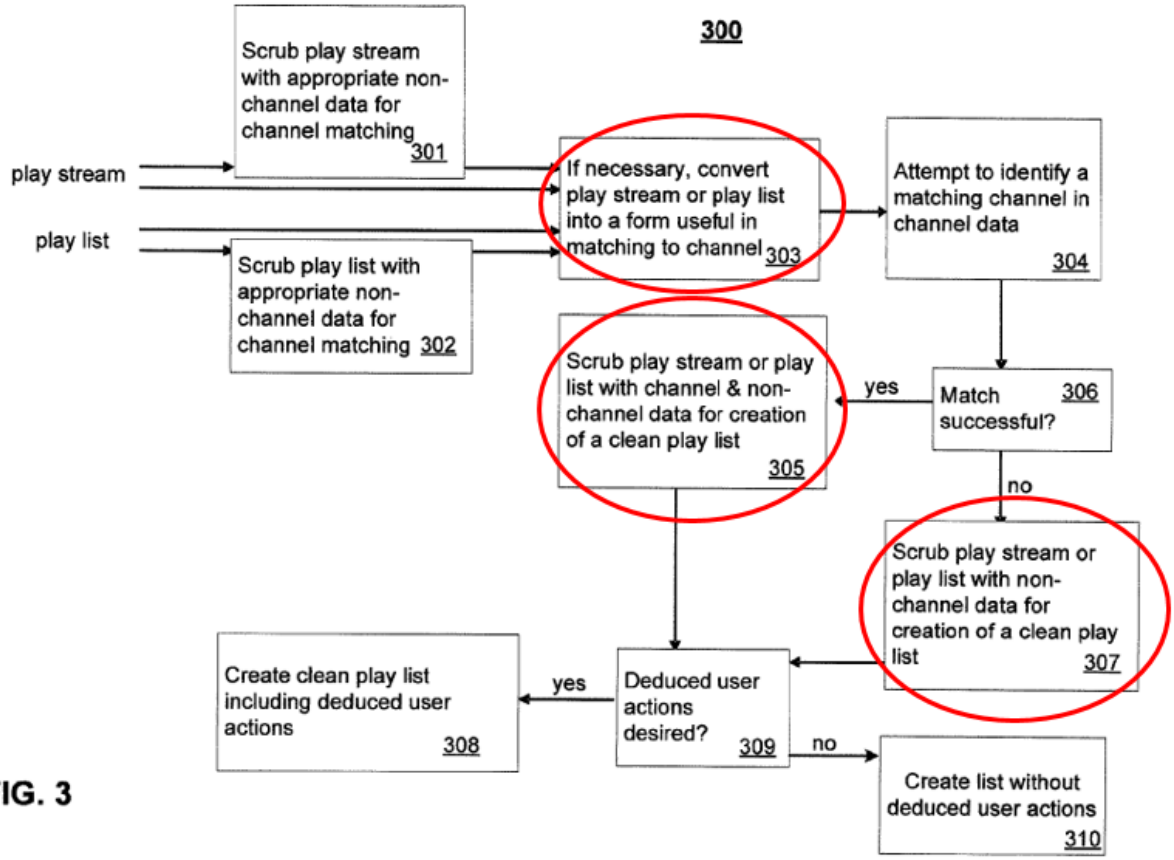


FIG. 3

(EX1005, FIG. 3 (annotated); EX1006, FIG. 3; EX1002, ¶ 155.)

It would have been obvious to implement Steuer750's and Steuer768'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 Steuer768-Neumeier combination disclose or suggest claim 5. (EX1002, ¶ 156.)

6. Claim 6

a) The media measurement method of claim 1 wherein the plurality of video data representations include a plurality of video signatures.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation. (EX1002, ¶¶ 157-160.)

For example, as discussed above with respect to claim limitation 1.c, Steuer750 and Steuer768 disclose querying a database of known content 141 of a plurality of audio data representations (e.g., audio signatures). (*See supra*, §X.A.1.c (citing EX1005, [0022]; EX1006, 4:13-48); EX1002, ¶ 158.)

Steuer768's claim 6 recites almost identical language as claim 6, albeit in the context of audio data representations: "wherein the plurality of audio data representations include a plurality of audio signatures." (EX1006, claim 6.)

As discussed above for claim limitation 1.b, Neumeier discloses that "the video segment is identified by sampling a subset of the pixel data being displayed on the screen (or associated audio data) and then finding similar pixel (or audio) data in a content database." (*See supra*, §X.A.1.b; EX1002, ¶ 160; EX1007, [0011]; *see also id.*, [0054]-[0057], [0059]-[0062].) Neumeier further discloses using audio signatures for content recognition. (*Id.*, [0025], [0040], [0045].) Using video signatures for content recognition was also known at the **2010 EFD** and the **2019 EFD**. (EX1016, Abstract, [0015] (describing derivation of content signature),

[0045] (describing content signature calculation for video).) Thus, for the reasons given above for claim limitation 1.b, a POSITA would have found it obvious to implement Steuer750's and Steuer768's disclosed content identification systems using video data samples (and thus matching the video data samples with video data representations including a plurality of video data signatures) instead of its disclosed audio-based approach. (*See supra*, §X.A.1.b.)

Thus, the Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest claim 6. (EX1002, ¶ 160.)

7. Claim 7

a) The media measurement method of claim 1 wherein a video data representation of the plurality of video data representations includes a plurality of signal landmarks.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation. (EX1002, ¶¶ 161-164.)

For example, Steuer750 and Steuer768 disclose querying a database of known content 141 of a plurality of audio data representations (e.g., signal landmarks). (EX1005, [0022] ("However, it will be understood by those skilled in the art that "content" in the sense of the known content 141 received by system 100 may, in some embodiments, simply refer to data about **signals representing the content** and does not necessarily refer to a stored version of the media content itself; e.g. "content" may be stored signatures and **landmarks** derivable from a song's audio,

but not necessarily an audio file useable to play the song itself . . ."); EX1006, 4:13-48; EX1002, ¶ 162.)

Steuer768's claim 7 recites almost identical language as claim 7, albeit in the context of audio data representations: "wherein an audio data representation of the plurality of audio data representations includes a plurality of signal landmarks." (EX1006, claim 7; EX1002, ¶ 163.)

As discussed above for claim limitation 1.b, Neumeier discloses that "the video segment is identified by sampling a subset of the pixel data being displayed on the screen (or associated audio data) and then finding similar pixel (or audio) data in a content database." (*See supra*, §X.A.1.b; EX1002, ¶ 164; EX1007, [0011]; *see also id.*, [0054]-[0057], [0059]-[0062].) Neumeier further discloses using other representations of the sampled data such as audio signatures for content recognition. (*Id.*, [0025], [0040], [0045].) Using video representations such as watermarks (an example of a signal landmark) in combination with video signatures for content recognition was also known at the **2010 EFD** and the **2019 EFD**. (EX1016, Abstract, [0015] (describing derivation of content signature), [0040] (describing combination of watermarks and content signatures), [0045] (describing content signature calculation for video).) Thus, for the reasons given above for claim limitation 1.b, a POSITA would have found it obvious to implement Steuer750's and Steuer768's disclosed content identification systems using video data samples

(and thus matching the video data samples with video data representations including a plurality of signal landmarks) instead of its disclosed audio-based approach. (*See supra*, §X.A.1.b.)

Thus, the Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest claim 7. (EX1002, ¶ 164.)

8. Claim 8

a) The media measurement method of claim 1 wherein a video data representation of the plurality of video data representations includes a signal usable for generating video energy corresponding to video energy captured at the media monitoring device.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for at least reasons similar to those given above with respect to claim limitations 1.b-1.d.1. (EX1002, ¶¶ 165-166; *see supra*, §§X.A.1.b-X.A.1.d.1.)

In particular, as discussed above for claim limitation 1.b, Neumeier discloses that "the video segment is identified by sampling a subset of the pixel data being displayed on the screen (or associated audio data) and then **finding similar pixel (or audio) data in a content database**." (*See supra*, §X.A.1.b; EX1007, [0011]; *see also id.*, [0054]-[0057], [0059]-[0062].) Neumeier specifically discloses sampling pixel data at the client side and searching for corresponding pixel data in a database on the server side. (EX1007, [0054]-[0057], [0059]-[0062].) The sampled pixel

information is a signal usable for generating video energy corresponding to video energy captured at the media monitoring device because the captured pixel values at the client side represent, e.g., the light intensity at a given location in the video frame. (EX1002, ¶ 166; EX1016, [0045].)[14]

Thus, the Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest claim 8. (EX1002, ¶ 166.)

---

[14] Moreover, Steuer768's claim 8 recites almost identical language as claim 8, albeit in the context of "audio": "wherein an audio data representation of the plurality of audio data representations includes a signal usable for generating audio energy corresponding to audio energy captured at the media monitoring device." (EX1006, claim 8.) Steuer750 discloses that the uploaded audio data may represent a raw signal corresponding to audio energy received at monitor 101. (EX1005, [0019].) Implementing the content identification techniques of Steuer750 and Steuer768 based on audio data representations in the context claimed would have been obvious for all the reasons discussed above with respect to limitation 1.b.

9. Claim 9

a) [pre] A computer program product in a non-transitory computer readable medium comprising instructions executable by one or more processors of one or more computers, the one or more computers being coupled to a network to receive, over the network, data for a sequence of video data samples, the video data samples comprising representations of video data captured at a media monitoring device, the plurality of video data samples being submitted over the network, the instructions comprising instructions for:

To the extent that the preamble of claim 9 is limiting, the Steuer750-Neumeier combination and the Steuer768-Neumeier combination discloses or suggests this limitation. (EX1002, ¶¶ 167-172.)

For example, Steuer750 and Steuer768 disclose with reference to figure 7 "an example of a computer system that may be used to execute instruction code contained in a computer program product, the computer program product being in accordance with an embodiment of the present invention." (EX1005, [0014], FIGS. 1-2, 7; EX1006, 2:47-50, FIGS. 1-2, 7.) Steuer750 and Steuer768further disclose:

> **FIG. 7 shows an example of a computer system 700 that may be used to execute instruction code contained in a computer program product 760 in accordance with an embodiment of the present invention. Computer program product 760 comprises executable code in an electronically readable medium that may instruct one or more computers such as computer system 700 to perform processing that implements**

> **the system 100 of FIG. 1 and/or accomplishes the exemplary method 200 of FIG. 2. The electronically readable medium may be any medium that either stores or carries electronic signals . . . The executable instruction code in an electronically readable medium directs the illustrated computer system 700 to carry out various exemplary tasks described herein** . . .
>
> **The code or a copy of the code contained in computer program product 760 may be stored in memory 710 for execution by processor 720a** . . .
>
> Those skilled in the art will appreciate computer system 700 illustrates just one example of a system in which a computer program product in accordance with an embodiment of the present invention may be implemented . . .

(EX1005, [0066]-[0067]; *see also id.*, [0068], FIGS. 1-2, 7; EX1006, 13:54-14:25; EX1002, ¶ 168.)

Moreover, Steuer768's claim 9 includes an identical preamble, albeit in the context of "audio": "A computer program product in a non-transitory computer readable medium comprising instructions executable by one or more processors of one or more computers, the one or more computers being coupled to a network to receive, over the network, data for a sequence of audio data samples, the audio data samples comprising representations of audio data captured at a media monitoring device, the plurality of audio data samples being submitted over the network, the

instructions comprising instructions for: . . ." (EX1006, claim 9; EX1002, ¶ 169.) Similarly, Steuer750 includes claims directed to "[a] computer program product for measuring media usage, the computer program product comprising executable instruction code in an electronically readable medium for at least: . . ." (EX1006, claims 54-60; EX1002, ¶ 170.)

Moreover, as discussed above with respect to limitation 1.b, the Steuer750-Neumeier combination and the Steuer768-Neumeier combination discloses or suggests that the one or more computers being coupled to a network to receive, over the network, data for a sequence of video data samples, the video data samples comprising representations of video data captured at a media monitoring device, the plurality of video data samples being submitted over the network. (*See supra*, §X.A.1.b; EX1002, ¶ 171.)

Thus, the Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest the claim 9 preamble. (*See also infra*, §§X.A.9.b–e; EX1002, ¶ 172.)

b) (a) using the one or more computers to query an electronic database of a plurality of video data representations and corresponding content identifiers;

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.c. (EX1002, ¶¶ 173-174; *see supra*, §X.A.1.c; *see also*

EX1006, claim 9 (reciting almost identical language albeit in the context of "audio data representations").)

c) (b) generating a raw play stream, the raw play stream comprising a sequence of content identification results corresponding to the sequence of video data samples;

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.d. (EX1002, ¶¶ 175-176; *see supra*, §X.A.1.d; *see also* EX1006, claim 9 (reciting almost identical language albeit in the context of "audio data samples").)

(1) wherein: the sequence of content identification results is obtained by querying the electronic database to attempt to determine respective likely matches between respective video data samples in the sequence of video data samples and respective video data representations in the electronic database;

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.d.1. (EX1002, ¶¶ 177-178; *see supra*, §X.A.1.d.1; *see also* EX1006, claim 9 (reciting almost identical language albeit in the context of "audio data samples").)

(2) a content identification result of the sequence of content identification results comprises either: (i) a content identifier associated in the electronic database with a respective video data representation that is determined to be a respective likely match with a respective one of the video data samples; or (ii) an indication of the absence of a respective likely match between a respective video data sample and a video data representation in the electronic database; and

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.d.2. (EX1002, ¶¶ 179-180; *see supra*, §X.A.1.d.2; *see also* EX1006, claim 9 (reciting almost identical language albeit in the context of "audio data samples").)

(3) the raw play stream includes either: at least two different content identifiers obtained from the electronic database; or at least one content identifier obtained from the electronic database and at least one indication of the absence of a respective likely match between a respective video data sample and a video data representation in the electronic database;

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.d.3. (EX1002, ¶¶ 181-182; *see supra*, §X.A.1.d.3; *see also* EX1006, claim 9 (reciting almost identical language albeit in the context of "audio data samples").)

d) (c) scrubbing the raw play stream by analyzing sample sequence data of the raw play stream to determine whether to change a result of the sequence of content of identification results in view of a pattern of the sample sequence data of the raw play stream compared to an expected pattern of sample sequence data; and

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.e. (EX1002, ¶¶ 183-184; *see supra*, §X.A.1.e; *see also* EX1006, claim 9 (reciting almost identical language albeit in the context of "audio data samples").)

e) (d) generating a clean play stream from the raw play stream by making any changes to the raw play stream that are determined to be made by the scrubbing.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for limitation 1.f. (EX1002, ¶¶ 185-186; *see supra*, §X.A.1.f; *see also* EX1006, claim 9 (reciting almost identical language albeit in the context of "audio data samples").)

10. Claim 10

a) The computer program product of claim 9 wherein sample sequence data includes at least one of log times, content identifiers, and content offsets.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed

above for claim 2. (EX1002, ¶¶ 187-188; *see supra*, §X.A.2; *see also* EX1006, claim 10 (reciting almost identical language albeit in the context of "audio data samples").)

11. Claim 11

a) The computer program product of claim 9 wherein scrubbing the raw play stream further comprises analyzing channel data as part of determining whether to change a result of the sequence of content of identification results.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for claim 3. (EX1002, ¶¶ 189-190; *see supra*, §X.A.3; *see also* EX1006, claim 11 (reciting almost identical language albeit in the context of "audio data samples").)

12. Claim 12

a) The computer program product of claim 9 wherein scrubbing the raw play stream further comprises using audience data as part of determining whether to change a result of the sequence of content of identification results.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for claim 4. (EX1002, ¶¶ 191-192; *see supra*, §X.A.4; *see also* EX1006, claim 12 (reciting almost identical language albeit in the context of "audio data samples").)

13. Claim 13

a) The computer program product of claim 9 wherein the computer program product further comprises instructions for generating a clean play list from the clean play stream.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for claim 5. (EX1002, ¶¶ 193-194; *see supra*, §X.A.5; *see also* EX1006, claim 13 (reciting almost identical language albeit in the context of "audio data samples").)

14. Claim 14

a) The computer program product of claim 9 wherein the plurality of video data representations include a plurality of video signatures.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed above for claim 6. (EX1002, ¶¶ 195-196; *see supra*, §X.A.6; *see also* EX1006, claim 14 (reciting almost identical language albeit in the context of "audio data representations").)

15. Claim 15

a) The computer program product of claim 9 wherein a video data representation of the plurality of video data representations includes a plurality of signal landmarks.

The Steuer750-Neumeier combination and the Steuer768-Neumeier combination disclose or suggest this limitation for the same reasons as discussed

above for claim 7. (EX1002, ¶¶ 197-198; *see supra*, §X.A.7; *see also* EX1006, claim 15 (reciting almost identical language albeit in the context of "audio data representations").)

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-848-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 '848 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-848-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-848-patent-IPR. (*See supra*, §V.B.); Roku-848-patent-IPR, Paper 1 at 3. Further, with respect to the third factor (*GP* at 16), this Petition is being filed shortly after the Roku-848-patent-IPR was filed and before any preliminary response or institution decision in the Roku-848-patent-IPR and thus, Petitioner could not have leveraged any perceived flaws in the Roku-848-patent-IPR. *See, e.g.*, *Unified Patents Inc. v. Speakware, Inc.*, IPR2019-00495, Paper 9 at 14-15 (July 1, 2019) (instituting IPR filed after two other IPRs because petitioner did not receive any preliminary response or institution decision from the prior IPRs and thus "there is no indication that Petitioner strategically staged its prior art and arguments in order to use PO's preliminary response or the Board's decision on institution as a roadmap"); *Livanova, Inc. et al. v. Neuro and Cardiac Tech., LLC*, IPR2019-00264, Paper 7 at 30-31 (May 20, 2019) (similar). The fourth and fifth factors (*GP* at 16) are inapplicable since this is Petitioner's first petition challenging any claims of the '848 patent and because there is no overlap between the grounds of this petition and the grounds in the Roku-848-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) (instituting review and noting that "considerations of patent quality and merits of the challenges outweigh concerns about duplication of resources and potential for harassment"). Indeed, two earlier patent applications (Steuer750 and Steuer768) in the '848 patent's family qualify as prior art with respect to the '848 patent given the multiple breaks in the '848 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 Steuer768-Neumeier combinations are straightforward combinations. (*See supra*, §X.)

Accordingly, the Board should consider and institute review of the challenged claims of the '848 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. 10,719,848 contains, as measured by the word processing system used to prepare this paper, 13,959 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. 10,719,848 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