# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

Assignment ID: PATI169759

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| **SUBMISSION TYPE:** | NEW ASSIGNMENT |
| **NATURE OF CONVEYANCE:** | ASSIGNMENT |

**CONVEYING PARTY DATA**

| Name | Execution Date |
|---|---|
| Gracenote, Inc. | 04/15/2021 |

**RECEIVING PARTY DATA**

| | |
|---|---|
| **Company Name:** | ROKU, INC. |
| **Street Address:** | 1173 Coleman Avenue |
| **City:** | San Jose |
| **State/Country:** | CALIFORNIA |
| **Postal Code:** | 95110 |

**PROPERTY NUMBERS Total: 1**

| Property Type | Number |
|---|---|
| **Application Number:** | 18235384 |

**CORRESPONDENCE DATA**

**Fax Number:** 2023712540

***Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.***

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**Address Line 4:** Washington, DISTRICT OF COLUMBIA 20005

| | |
|---|---|
| **ATTORNEY DOCKET NUMBER:** | 5634.001000A |
| **NAME OF SUBMITTER:** | Marta Guzman |
| **SIGNATURE:** | Marta Guzman |
| **DATE SIGNED:** | 04/17/2024 |

**Total Attachments: 38**
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# PATENT ASSIGNMENT

THIS PATENT ASSIGNMENT (together with all Attachments hereto, this "**Patent Assignment**"), entered into on April 15, 2021, is made and entered into by and between Gracenote, Inc., a Delaware corporation (the "**Seller**"), and Roku, Inc., a Delaware corporation (the "**Buyer**"). The Seller and the Buyer are referred to collectively herein as the "**Parties**" and individually as a "**Party**." Capitalized terms used herein and not otherwise defined shall have the respective meanings ascribed thereto in the Purchase Agreement (as defined below).

WHEREAS, the Seller and certain of its Affiliates and the Buyer have entered into that certain Asset and Stock Purchase Agreement, dated as of February 28, 2021 (the "**Purchase Agreement**"), pursuant to which the Seller has agreed to sell to the Buyer all of the Seller's right, title and interest in and to, among other things, the Patents and other Intellectual Property included in the Acquired Assets, including the Assigned Patents (as defined below); and

WHEREAS, the Seller and the Buyer desire to execute this Patent Assignment for purposes of, among other things, recording the assignment of the Assigned Patents and filing this Patent Assignment with the United States Patent and Trademark Office and/or any other applicable agencies outside of the United States, including to indicate ownership of the Intellectual Property described below.

NOW, THEREFORE, in consideration of the premises and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. **Assignment and Transfer**. The Seller hereby irrevocably and forever, without reservation, sells, assigns, conveys, transfers and delivers to the Buyer the Seller's entire right, title and interest throughout the world in, to and under the patents and patent applications listed on Attachment 1 and the inventions and other Proprietary Information disclosed, described, embodied or claimed therein (the "**Assigned Patents**"), the same to be held and enjoyed by the Buyer for its own use and enjoyment and the use and enjoyment of its successors, assigns and other legal representatives to the full end of the term or terms for which Patents or other rights may be granted, as fully and entirely as the same would have been held and enjoyed by the Seller if this assignment had not been made and the Buyer hereby accepts from the Seller and succeeds to the Assigned Patents, including (a) all applications or counterparts in any jurisdiction pertaining to any of the foregoing, including applications filed pursuant to any international patent law treaty, together all worldwide rights and priorities afforded under any Law with respect to any of the foregoing, and any other Patents, applications or extensions that claim priority to or through any of the foregoing, and any inventions or other Proprietary Information disclosed, described, embodied or claimed in any of the foregoing, (b) continuations, continuations-in-part, divisionals, reissues, re-examinations, renewals, confirmations, substitutions and extensions thereof or related thereto, (c) all other rights of any kind whatsoever, whether statutory, common law or otherwise, in, arising out of, or associated with the foregoing in any jurisdiction worldwide, including those arising under international treaties and convention rights; (d) all rights and powers to assert, defend and recover title to any of the foregoing; (e) all rights to assert, defend, sue, and recover damages for any past, present and future infringement, misuse, misappropriation, impairment, unauthorized use or other violation of any rights in or to any of the foregoing; (f) all proceeds, income, royalties, damages and payments now or hereafter due and payable under or in respect of all of the foregoing (including with respect to past, present or future infringement or violation thereof); and (g) all administrative rights arising from the foregoing, including the right to file and prosecute applications and oppose, interfere with or challenge the applications of others and obtain legal protection pertaining to any of the foregoing.

2. **Terms of the Purchase Agreement**. None of the representations, warranties, covenants, obligations, rights or remedies of any party under the Purchase Agreement shall be deemed to be limited, qualified, enlarged, modified or altered in any way by the execution, delivery or acceptance of this Patent Assignment. In the event of any conflict or inconsistency between the terms of the Purchase Agreement and the terms hereof, the terms of the Purchase Agreement shall govern.

3. **Governing Law**. Section 10.2 of the Purchase Agreement shall apply *mutatis mutandis* to this Patent Assignment.

4. **Counterparts**. This Patent Assignment may be executed in multiple counterparts (including by means of copied or PDF signature pages), each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterpart signatures need not be on the same page and shall be deemed effective upon receipt. A signed copy of this Patent Assignment delivered by email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Patent Assignment.

*[SIGNATURE PAGES TO FOLLOW]*

IN WITNESS WHEREOF, the Parties have executed this Patent Assignment as of the date first set forth above.

**SELLER:**

GRACENOTE, INC.

By: _____
Name: George D. Callard
Title: President

**[Signature Page to Patent Assignment]**

IN WITNESS WHEREOF, the Parties have executed this Patent Assignment and as of the date first set forth above.

**BUYER:**

ROKU, INC.

By: _____

Name: Gil Fuchsberg

Title: Head of Corporate Development & Strategic Planning

Attachment 1

## Schedule of AVA Patent Assets

| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN102-AVA-CN01 | Computing System with Channel-Change-Based Trigger Feature | China | 201780008900.2 | 1/5/2017 | 108604252 | 9/28/2018 | N/A | N\A |
| GN102-AVA-CN02 | Computing System with Content-Characteristic-Based Trigger Feature | China | 201780009065.4 | 1/5/2017 | 108605150 | 9/28/2018 | N/A | N\A |
| GN102-AVA-EP01 | Computing System with Channel-Change-Based Trigger Feature | European Patent | 17736335.5 | 1/5/2017 | 3400545 | 11/14/2018 | N/A | N\A |
| GN102-AVA-EP02 | Computing System with Content-Characteristic-Based Trigger Feature | European Patent | 17736337.1 | 1/5/2017 | 3400709 | 11/14/2018 | N/A | N\A |
| GN102-AVA-HK01 | Computing System with Channel-Change-Based Trigger Feature | Hong Kong | 19122959 | 1/5/2017 | N/A | 1/24/2020 | N/A | N\A |
| GN102-AVA-HK02 | Computing System with Channel-Change-Based Trigger Feature | Hong Kong | 19122961.6 | 1/5/2017 | N/A | 1/24/2020 | N/A | N\A |
| GN102-AVA-JP01 | Computing System with Channel-Change-Based Trigger Feature | Japan | 2018-535099 | 1/5/2017 | 2019-503139 | 1/31/2019 | 6707138 | 5/21/2020 |
| GN102-AVA-JP02 | Computing System with Content-Characteristic-Based Trigger Feature | Japan | 2018-535104 | 1/5/2017 | 2019-507526 | 3/14/2019 | 6707139 | 5/21/2020 |
| GN102-AVA-JP03 | Computing System with Content-Characteristic-Based Trigger Feature | Japan | 2020-087364 | 5/19/2020 | 2020-14121 | 9/3/2020 | N/A | N\A |
| GN102-AVA-JP04 | Computing System with Channel-Change-Based Trigger Feature | Japan | 2020-087363 | 5/19/2020 | 2020-141420 | 9/3/2020 | N/A | N\A |
| GN102-AVA-KR01 | Computing System with Channel-Change-Based Trigger Feature | Korea, Republic of (KR) | 10-2018-7021995 | 1/5/2017 | N/A | N\A | 2107499 | 4/28/2020 |
| GN102-AVA-KR02 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | 10-2018-7021994 | 1/5/2017 | N/A | N\A | 2084510 | 2/27/2020 |
| GN102-AVA-KR03 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | 2020-7005587 | 1/5/2017 | N/A | N\A | 2165080 | 10/6/2020 |
| GN102-AVA-KR04 | Computing System with Channel-Change-Based Trigger Feature | Korea, Republic of (KR) | 2020-7012347 | 1/5/2017 | N/A | N\A | 2169466 | 10/19/2020 |
| GN102-AVA-KR05 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | 2020-7028625 | 10/6/2020 | N/A | N\A | 10-2203496 | 1/11/2021 |
| GN102-AVA-KR06 | Computing System with Channel-Change-Based Trigger Feature | Korea, Republic of (KR) | 2020-7029929 | 10/19/2020 | N/A | N\A | 2210075 | 1/26/2021 |
| GN102-AVA-KR07 | Computing System with Channel-Change-Based Trigger Feature | Korea, Republic of (KR) | 2021-7002549 | 1/26/2021 | N/A | N\A | N/A | N\A |
| GN102-AVA-KR08 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | 2021-7000757 | 1/11/2021 | N/A | N\A | N/A | N\A |
| GN102-AVA-US01 | Video Classifier | United States of America | 62/275,081 | 1/5/2016 | N/A | N\A | N/A | N\A |

PATENT
REEL: 067130 FRAME: 0724

# Schedule of AVA Patent Assets

| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN102-AVA-US02 | Computing System with Channel-Change-Based Trigger Feature | United States of America | 15/399,404 | 1/5/2017 | US-2017-0195714 | 7/6/2017 | 10,939,185 | 3/2/2021 |
| GN102-AVA-US03 | Computing System with Content-Characteristic-Based Trigger Feature | United States of America | 15/399,415 | 1/5/2017 | US-2017-0195752 | 7/6/2017 | 10,484,758 | 11/19/2019 |
| GN102-AVA-US05 | Computing System with Content-Characteristic-Based Trigger Feature | United States of America | 16/597,597 | 10/9/2019 | US-2020-0045380 | 2/6/2020 | 10,841,665 | 11/17/2020 |
| GN102-AVA-US06 | Computing System with Content-Characteristic-Based Trigger Feature | United States of America | 17/066,028 | 10/8/2020 | US-2021-0029417 | 1/28/2021 | N/A | N\A |
| GN102-AVA-US07 | Computing System with Channel-Change-Based Trigger Feature | United States of America | 17/175,788 | 2/15/2021 | N/A | N\A | N/A | N\A |
| GN102-AVA-WO01 | Computing System with Channel-Change-Based Trigger Feature | Patent Cooperation Treaty | PCT/US2017/012336 | 1/5/2017 | WO2017/120337 | 7/13/2017 | N/A | N\A |
| GN102-AVA-WO02 | Computing System with Content-Characteristic-Based Trigger Feature | Patent Cooperation Treaty | PCT/US2017/012338 | 1/5/2017 | WO2017/120339 | 7/13/2017 | N/A | N\A |
| GN111-AVA-CN01 | Detecting and Responding to Rendering of Interactive Video Content | China | 201880038769.9 | 5/11/2018 | 110731085 | 1/24/2020 | N/A | N\A |
| GN111-AVA-EP01 | Detecting and Responding to Rendering of Interactive Video Content | European Patent | 18816920.5 | 5/11/2018 | 3639522 | 4/22/2020 | N/A | N\A |
| GN111-AVA-HK01 | Detecting and Responding to Rendering of Interactive Video Content | Hong Kong | 62020006472.8 | 4/24/2020 | 40017015A | 9/18/2020 | N/A | N\A |
| GN111-AVA-JP01 | Detecting and Responding to Rendering of Interactive Video Content | Japan | 2019-568685 | 5/11/2018 | 2020-523871 | 8/6/2020 | N/A | N\A |
| GN111-AVA-KR01 | Detecting and Responding to Rendering of Interactive Video Content | Korea, Republic of (KR) | 2019-7036619 | 5/11/2018 | N/A | N\A | N/A | N\A |
| GN111-AVA-US01 | Detecting and Responding to Rendering of Interactive Video Content | United States of America | 15/620,440 | 6/12/2017 | US-2018-0359040 | 12/13/2018 | 10,972,203 | 4/6/2021 |
| GN111-AVA-US02 | Detecting and Responding to Rendering of Interactive Video Content | United States of America | 16/015,771 | 6/22/2018 | US-2018-0359041 | 12/13/2018 | 10,972,204 | 4/6/2021 |
| GN111-AVA-US03 | Detecting and Responding to Rendering of Interactive Video Content | United States of America | 17/249,318 | 2/26/2021 | N/A | N\A | N/A | N\A |
| GN111-AVA-WO01 | Detecting and Responding to Rendering of Interactive Video Content | Patent Cooperation Treaty | PCT/US2018/032202 | 5/11/2018 | WO2018/231393 | 12/20/2018 | N/A | N\A |
| GN117-AVA-CN02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | China | 201780013808.5 | 2/28/2017 | 108702524 | 10/23/2018 | 108702524 | 6/11/2019 |

PATENT
REEL: 067130 FRAME: 0725

# Schedule of AVA Patent Assets

| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN117-AVA-CN03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | China | 201780013813.6 | 2/28/2017 | 108702525 | 10/23/2018 | 108702525 | 9/27/2019 |
| GN117-AVA-CN04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | China | 201780014047.5 | 2/28/2017 | 108702543 | 10/23/2018 | 201780014047.5 | 8/30/2019 |
| GN117-AVA-CN05 | Media Chanel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | China | 201780013811.7 | 2/28/2017 | CN108713321A | 10/26/2018 | 201780013811.7 | 6/11/2019 |
| GN117-AVA-CN06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | China | 201780013817.4 | 2/28/2017 | 108702531 | 10/23/2018 | 201780013817.4 | 7/14/2020 |
| GN117-AVA-CN07 | Method and System for Detecting and Responding to Changing of Media Channel | China | 201780014054.5 | 2/28/2017 | 108702545 | 10/23/2018 | 201780014054.5 | 12/25/2020 |
| GN117-AVA-CN08 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | China | 201780014008.5 | 2/28/2017 | 108885629 | 11/23/2018 | 108885629 | 11/1/2019 |
| GN117-AVA-CN09 | Media Chanel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | China | 201910491796.8 | 2/28/2017 | 110149162 | 8/20/2019 | N/A | N\A |
| GN117-AVA-CN10 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | China | 201910492421.3 | 2/28/2017 | 110266418 | 9/20/2019 | N/A | N\A |
| GN117-AVA-CN11 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | China | 201910743945.5 | 2/28/2017 | CN110516111A | 11/29/2019 | N/A | N\A |
| GN117-AVA-CN12 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | China | 201910849752.8 | 9/9/2019 | 110650356 | 1/3/2020 | N/A | N\A |
| GN117-AVA-CN13 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | China | 201911035354.9 | 10/29/2019 | CN110891186A | 3/17/2020 | N/A | N\A |
| GN117-AVA-CN14 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | China | 202010710569.2 | 7/22/2020 | CN111954026A | 11/17/2020 | N/A | N\A |
| GN117-AVA-CN15 | Method and System for Detecting and Responding to Changing of Media Channel | China | 202011606627.3 | 12/30/2020 | N/A | N\A | N/A | N\A |
| GN117-AVA-DE01 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Germany (Federal Republic of) | 17760624.1 | 2/28/2017 | 3424221 | 1/9/2019 | 3424221 | 9/23/2020 |
| GN117-AVA-DE02 | Method and System for Detecting and Responding to Changing of Media Channel | Germany (Federal Republic of) | 17760641.5 | 2/28/2017 | 3424226 | 1/9/2019 | 3424226 | 12/23/2020 |
| GN117-AVA-DE03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Germany (Federal Republic of) | 17760606.8 | 2/28/2017 | 3424219 | 1/9/2019 | 3424219 | 1/20/2021 |
| GN117-AVA-EP02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | European Patent | 17760596.1 | 2/28/2017 | 3424218 | 1/9/2019 | N/A | N\A |
| GN117-AVA-EP03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | European Patent | 17760606.8 | 2/28/2017 | 3424219 | 1/9/2019 | 3424219 | 1/20/2021 |

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# Schedule of AVA Patent Assets

| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN117-AVA-EP04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | European Patent | 17760594.6 | 2/28/2017 | 3424224 | 1/9/2019 | N/A | N\A |
| GN117-AVA-EP05 | Media Chanel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | European Patent | 17760609.2 | 2/28/2017 | 3424220 | 1/9/2019 | N/A | N\A |
| GN117-AVA-EP06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | European Patent | 17760624.1 | 2/28/2017 | 3424221 | 1/9/2019 | 3424221 | 9/23/2020 |
| GN117-AVA-EP07 | Method and System for Detecting and Responding to Changing of Media Channel | European Patent | 17760641.5 | 2/28/2017 | 3424226 | 1/9/2019 | 3424226 | 12/23/2020 |
| GN117-AVA-EP08 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | European Patent | 20197250.2 | 2/28/2017 | 3780630 | 2/17/2021 | N/A | N\A |
| GN117-AVA-EP09 | Method and System for Detecting and Responding to Changing of Media Channel | European Patent | 20216175.8 | 12/21/2021 | N/A | N\A | N/A | N\A |
| GN117-AVA-EP10 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | European Patent | 21152181 | 1/18/2021 | N/A | N\A | N/A | N\A |
| GN117-AVA-FR01 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | France | 17760624.1 | 2/28/2017 | 3424221 | 1/9/2019 | 3424221 | 9/23/2020 |
| GN117-AVA-FR02 | Method and System for Detecting and Responding to Changing of Media Channel | France | 17760641.5 | 2/28/2017 | 3424226 | 1/9/2019 | 3424226 | 12/23/2020 |
| GN117-AVA-FR03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | France | 17760606.8 | 2/28/2017 | 3424219 | 1/9/2019 | 3424219 | 1/20/2021 |
| GN117-AVA-GB01 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United Kingdom | 17760624.1 | 2/28/2017 | 3424221 | 1/9/2019 | 3424221 | 9/23/2020 |
| GN117-AVA-GB02 | Method and System for Detecting and Responding to Changing of Media Channel | United Kingdom | 17760641.5 | 2/28/2017 | 3424226 | 1/9/2019 | 3424226 | 12/23/2020 |
| GN117-AVA-GB03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United Kingdom | 17760606.8 | 2/28/2017 | 3424219 | 1/9/2019 | 3424219 | 1/20/2021 |
| GN117-AVA-HK01 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | Hong Kong | 18116199.5 | 2/28/2017 | 1257063 | 10/11/2019 | HK1257063 | 8/14/2020 |
| GN117-AVA-HK02 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Hong Kong | 18115982.8 | 12/12/2018 | 1256881 | 10/4/2019 | 1256881 | 7/3/2020 |
| GN117-AVA-HK03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Hong Kong | 18116198.6 | 2/28/2017 | 1257062 | 10/11/2019 | HK1257062 | 6/5/2020 |
| GN117-AVA-HK04 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Hong Kong | 18115983.7 | 12/12/2018 | 1256882 | 7/3/2020 | 1256882 | 7/3/2020 |
| GN117-AVA-HK05 | Media Chanel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Hong Kong | 18116196.8 | 2/28/2017 | 1257060 | 6/5/2020 | 1257060 | 6/5/2020 |



PATENT
REEL: 067130 FRAME: 0727

# Schedule of AVA Patent Assets

| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN117-AVA-HK06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Hong Kong | 18116030.8 | 12/13/2018 | 1256916 | 10/4/2019 | N/A | N\A |
| GN117-AVA-HK07 | Method and System for Detecting and Responding to Changing of Media Channel | Hong Kong | 18116197.7 | 1/20/2021 | 1257061 | 10/11/2019 | N/A | N\A |
| GN117-AVA-HK08 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Hong Kong | 19129352.1 | 2/28/2017 | 40005878 | 5/15/2020 | N/A | N\A |
| GN117-AVA-HK09 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Hong Kong | 19131577.9 | 10/28/2019 | 40007997 | 6/5/2020 | N/A | N\A |
| GN117-AVA-HK10 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Hong Kong | 42019000111 | 12/19/2019 | 40010385 | 7/3/2020 | N/A | N\A |
| GN117-AVA-HK11 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Hong Kong | 42020003832.1 | 3/6/2020 | 40013816 | 8/14/2020 | N/A | N\A |
| GN117-AVA-HK12 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | Hong Kong | 42020006281.8 | 4/22/2020 | 40016289 | 9/11/2020 | N/A | N\A |
| GN117-AVA-HK13 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Hong Kong | 42020022125.7 | 12/15/2020 | N/A | N\A | N/A | N\A |
| GN117-AVA-JP02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Japan | 2018-532652 | 2/28/2017 | 2019/511138 | 4/18/2019 | 6556366 | 7/19/2019 |
| GN117-AVA-JP03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Japan | 2018-532558 | 2/28/2017 | 2019-508923 | 3/28/2019 | 6556364 | 7/19/2019 |
| GN117-AVA-JP04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Japan | 2018-532651 | 2/28/2017 | 2019-507515 | 3/14/2019 | 6556365 | 7/19/2019 |
| GN117-AVA-JP05 | Media Chanel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Japan | 2018-532646 | 2/28/2017 | N/A | N\A | 6490874 | 3/8/2019 |
| GN117-AVA-JP06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Japan | 2018-532653 | 2/28/2017 | 2019-507516 | 3/14/2019 | 6707137 | 5/21/2020 |
| GN117-AVA-JP07 | Method and System for Detecting and Responding to Changing of Media Channel | Japan | 2018-532647 | 2/28/2017 | N/A | N\A | 6490875 | 3/8/2019 |
| GN117-AVA-JP08 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | Japan | 2019-033878 | 6/21/2016 | 2019-146168 | 8/29/2019 | 6842482 | 2/24/2021 |
| GN117-AVA-JP09 | Method and System for Detecting and Responding to Changing of Media Channel | Japan | 2019-033879 | 6/21/2018 | 2019-146169 | 8/29/2019 | N/A | N\A |
| GN117-AVA-JP10 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Japan | 2019-127486 | 7/9/2019 | 2019-216425 | 12/19/2019 | 6839733 | 2/17/2021 |
| GN117-AVA-JP11 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Japan | 2019-127487 | 2/28/2017 | 2019-201415 | 11/21/2019 | N/A | N\A |

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| GN117-AVA-JP12 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Japan | 2019-127485 | 7/9/2019 | 2019-220958 | 12/26/2019 | 6818093 | 1/4/2021 |
| GN117-AVA-JP13 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | Japan | 2020-087362 | 5/19/2020 | 2020-145722 | 9/10/2020 | N/A | N\A |
| GN117-AVA-JP14 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Japan | 2020-216275 | 12/25/2020 | N/A | N\A | N/A | N\A |
| GN117-AVA-JP15 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Japan | 2021-021605 | 2/15/2021 | N/A | N\A | N/A | N\A |
| GN117-AVA-JP16 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | Japan | 2021-025105 | 2/19/2021 | N/A | N\A | N/A | N\A |
| GN117-AVA-KR02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Korea, Republic of (KR) | 10-2018-7026917 | 2/28/2017 | 10-2018-0105748 | 9/28/2018 | 10-1994204 | 6/24/2019 |
| GN117-AVA-KR03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Korea, Republic of (KR) | 10-2018-7026919 | 2/28/2017 | 10-2018-0105749 | 9/28/2018 | 10-1992705 | 6/19/2019 |
| GN117-AVA-KR04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Korea, Republic of (KR) | 10-2018-7026928 | 2/28/2017 | N/A | N\A | 10-2024105 | 9/17/2019 |
| GN117-AVA-KR05 | Media Chanel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Korea, Republic of (KR) | 10-2018-7026922 | 2/28/2017 | N/A | N\A | 1985826 | 5/29/2019 |
| GN117-AVA-KR06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Korea, Republic of (KR) | 2018-7026930 | 2/28/2017 | N/A | N\A | 10-2127851 | 6/23/2020 |
| GN117-AVA-KR07 | Method and System for Detecting and Responding to Changing of Media Channel | Korea, Republic of (KR) | 10-2018-7026927 | 2/28/2017 | N/A | N\A | 1922997 | 11/22/2018 |
| GN117-AVA-KR08 | Method And System For Detecting And Responding To Changing Of Media Channel | Korea, Republic of (KR) | 2018-7033849 | 2/28/2017 | 20180128085 | 11/30/2018 | 1969812 | 4/11/2019 |
| GN117-AVA-KR09 | Method and System for Detecting and Responding to Changing of Media Channel | Korea, Republic of (KR) | 2019-7010400 | 2/28/2017 | N/A | N\A | 2000130 | 7/9/2019 |
| GN117-AVA-KR10 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Korea, Republic of (KR) | 2019-7015434 | 5/29/2019 | N/A | N\A | 2073679 | 1/30/2020 |
| GN117-AVA-KR11 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Korea, Republic of (KR) | 2019-7018143 | 6/24/2019 | N/A | N\A | 2075447 | 2/4/2020 |
| GN117-AVA-KR12 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Korea, Republic of (KR) | 2019-7017586 | 6/19/2019 | N/A | N\A | 2131125 | 7/1/2020 |
| GN117-AVA-KR13 | Method and System for Detecting and Responding to Changing of Media Channel | Korea, Republic of (KR) | 2019-7019883 | 2/28/2017 | N/A | N\A | 2034031 | 10/14/2019 |
| GN117-AVA-KR14 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Korea, Republic of (KR) | 2019-7027093 | 2/28/2017 | N/A | N\A | N/A | N\A |

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|---|---|---|---|---|---|---|---|---|
| GN117-AVA-KR15 | Method and System for Detecting and Responding to Changing of Media Channel | Korea, Republic of (KR) | 2019-7030056 | 7/9/2019 | N/A | N\A | N/A | N\A |
| GN117-AVA-KR16 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Korea, Republic of (KR) | 2020-7002893 | 1/30/2020 | N/A | N\A | N/A | N\A |
| GN117-AVA-KR17 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Korea, Republic of (KR) | 2020-7003274 | 2/4/2020 | N/A | N\A | 2108895 | 5/4/2020 |
| GN117-AVA-KR18 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | Korea, Republic of (KR) | 2020-7012779 | 5/4/2020 | N/A | N\A | N/A | N\A |
| GN117-AVA-KR19 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Korea, Republic of (KR) | 2020-7018119 | 6/23/2020 | N/A | N\A | N/A | N\A |
| GN117-AVA-KR20 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Korea, Republic of (KR) | 2020-7019002 | 7/1/2020 | N/A | N\A | N/A | N\A |
| GN117-AVA-US01 | Method and System for Media Channel Identification with Multi-Match Detection and Disambiguation, and Channel-Changing Detection | United States of America | 62/301,293 | 2/29/2016 | N/A | N\A | N/A | N\A |
| GN117-AVA-US02 | Method and System for Media Channel Identification with Multi-match Detection and Disambiguation, and Channel-changing Detection | United States of America | 62/301,616 | 2/29/2016 | N/A | N\A | N/A | N\A |
| GN117-AVA-US03 | Method and System for Media Channel Identification with Multi-match Detection and Disambiguation, and Channel-changing Detection | United States of America | 62/301,623 | 2/29/2016 | N/A | N\A | N/A | N\A |
| GN117-AVA-US04 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | United States of America | 15/442,114 | 2/24/2017 | US-2017-0251250 | 8/31/2017 | 9,992,533 | 6/5/2018 |
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| GN117-AVA-US08 | Media Chanel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | United States of America | 15/343,895 | 11/4/2016 | US-2017-0251281 | 8/31/2017 | 10,045,073 | 8/7/2018 |
| GN117-AVA-US09 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | 15/443,580 | 2/27/2017 | US-2017-0251251 | 8/31/2017 | 10,104,426 | 10/16/2018 |
| GN117-AVA-US10 | Method and System for Detecting and Responding to Changing of Media Channel | United States of America | 15/443,615 | 2/27/2017 | US-2017-0251247 | 8/31/2017 | 10,045,074 | 8/7/2018 |
| GN117-AVA-US11 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | United States of America | 15/842,189 | 12/14/2017 | US-2018-0109841 | 4/19/2018 | 10,149,007 | 12/4/2018 |

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|---|---|---|---|---|---|---|---|---|
| GN117-AVA-US12 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | 15/842,206 | 12/14/2017 | US-2018-0109839 | 4/19/2018 | 10,057,638 | 8/21/2018 |
| GN117-AVA-US13 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United States of America | 16/015,783 | 6/22/2018 | US-2018-0316967 | 11/1/2018 | 10,567,835 | 2/18/2020 |
| GN117-AVA-US14 | Media Channel Identification and Action with Multi-Match Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | United States of America | 15/982,437 | 5/17/2018 | US-2018-0270529 | 9/20/2018 | 10,523,999 | 12/31/2019 |
| GN117-AVA-US15 | Media Channel Identification and Action with Multi-Match Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | United States of America | 16/017,190 | 6/25/2018 | US-2018-0310053 | 10/25/2018 | 10,524,000 | 12/31/2019 |
| GN117-AVA-US16 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Audio Fingerprint | United States of America | 16/017,203 | 6/25/2018 | US-2018-0310057 | 10/25/2018 | 10,440,430 | 10/8/2019 |
| GN117-AVA-US17 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | 16/017,218 | 6/25/2018 | US-2018-0310054 | 10/25/2018 | 10,412,448 | 9/10/2019 |
| GN117-AVA-US18 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | United States of America | 16/015,800 | 6/22/2018 | US-2018-0302668 | 10/18/2018 | 10,419,814 | 9/17/2019 |
| GN117-AVA-US19 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | 16/015,811 | 6/22/2018 | US-2018-0302669 | 10/18/2018 | 10,225,605 | 3/5/2019 |
| GN117-AVA-US20 | Method and System for Detecting and Responding to Changing Of Media Channel | United States of America | 16/015,827 | 6/22/2018 | US-2018-0302670 | 10/18/2018 | 10,531,150 | 1/7/2020 |
| GN117-AVA-US21 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | 16/246,746 | 1/14/2019 | US-2019-0149877 | 5/16/2019 | 10,575,052 | 2/25/2020 |
| GN117-AVA-US22 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | United States of America | 16/276,050 | 2/14/2019 | US-2019-0182540 | 6/13/2019 | 10,848,820 | 11/24/2020 |
| GN117-AVA-US23 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | 16/274,975 | 2/13/2019 | US-2019-0182539 | 6/13/2019 | 10,536,746 | 1/14/2020 |
| GN117-AVA-US24 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | United States of America | 16/274,966 | 2/13/2019 | US-2019-0182541 | 6/13/2019 | 10,631,049 | 4/21/2020 |
| GN117-AVA-US25 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United States of America | 16/276,061 | 2/14/2019 | US-2019-0182542 | 6/13/2019 | 10,567,836 | 2/18/2020 |
| GN117-AVA-US26 | Media Channel Identification and Action with Multi-Match Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | United States of America | 15/929,180 | 12/5/2019 | US-2020-0154164 | 5/14/2020 | 10,972,786 | 4/6/2021 |
| GN117-AVA-US27 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | 15/929,167 | 11/19/2019 | 15/929167 | 3/19/2020 | N/A | N\A |
| GN117-AVA-US28 | Method and System for Detecting and Responding to Changing of Media Channel | United States of America | 15/929,179 | 12/5/2019 | US-2020-0149290 | 5/14/2020 | 10,805,673 | 10/13/2020 |

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| GN117-AVA-US29 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | 15/929,193 | 12/19/2019 | US-2020-0128295 | 4/23/2020 | 10,939,162 | 3/2/2021 |
| GN117-AVA-US30 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United States of America | 15/929,203 | 1/10/2020 | US-2020-0267444 | 8/20/2020 | N/A | N\A |
| GN117-AVA-US31 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | United States of America | 16/819,657 | 3/16/2020 | US-2020-0221173 | 7/9/2020 | N/A | N\A |
| GN117-AVA-US32 | Method and System for Detecting and Responding to Changing of Media Channel | United States of America | 16/946,888 | 7/10/2020 | US-2020-0344521 | 10/29/2020 | N/A | N\A |
| GN117-AVA-US33 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | United States of America | 16/949,183 | 10/19/2020 | US-2021-0037825 | 2/4/2021 | N/A | N\A |
| GN117-AVA-US34 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | 17/248,352 | 1/21/2021 | N/A | N\A | N/A | N\A |
| GN117-AVA-US35 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | United States of America | 17/249,107 | 2/19/2021 | N/A | N\A | N/A | N\A |
| GN117-AVA-WO01 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | Patent Cooperation Treaty | PCT/US2017/019974 | 2/28/2017 | WO2017/151633 | 9/8/2017 | N/A | N\A |
| GN117-AVA-WO02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Patent Cooperation Treaty | PCT/US2017/019915 | 2/28/2017 | WO2017/151596 | 9/8/2017 | N/A | N\A |
| GN117-AVA-WO03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Patent Cooperation Treaty | PCT/US2017/019946 | 2/28/2017 | WO2017151611 | 9/8/2017 | N/A | N\A |
| GN117-AVA-WO04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Patent Cooperation Treaty | PCT/US2017/019908 | 2/28/2017 | WO2017/15191 | 9/8/2017 | N/A | N\A |
| GN117-AVA-WO05 | Media Chanel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Patent Cooperation Treaty | PCT/US2017/019949 | 2/28/2017 | WO2017/151614 | 9/8/2017 | N/A | N\A |
| GN117-AVA-WO06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Patent Cooperation Treaty | PCT/US2017/019979 | 2/28/2017 | WO2017/151636 | 9/8/2017 | N/A | N\A |
| GN117-AVA-WO07 | Method and System for Detecting and Responding to Changing of Media Channel | Patent Cooperation Treaty | PCT/US2017/020003 | 2/28/2017 | WO2017/151654 | 9/8/2017 | N/A | N\A |
| GN119-AVA-EP01 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | European Patent | 4744496.3 | 7/5/2004 | 1647144 | 4/19/2006 | N/A | N\A |

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| GN119-AVA-US01 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 10/564,297 | 7/5/2004 | US-2006-0190776 | 8/24/2006 | 8,020,000 | 9/13/2011 |
| GN119-AVA-US02 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 13/220,267 | 8/29/2011 | US-2012-0016876 | 1/19/2012 | 8,660,267 | 2/25/2014 |
| GN119-AVA-US03 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 14/151,879 | 1/10/2014 | US-2014-0130077 | 5/8/2014 | 9,066,114 | 6/23/2015 |
| GN119-AVA-US04 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 14/659,044 | 3/16/2015 | US-2015-0189380 | 7/2/2015 | 9,407,962 | 8/2/2016 |
| GN119-AVA-US05 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 15/164,605 | 5/25/2016 | US-2016-0269780 | 9/15/2016 | 9,479,831 | 10/25/2016 |
| GN119-AVA-US06 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 15/273,185 | 9/22/2016 | US-2017-0013291 | 1/12/2017 | 9,712,853 | 7/18/2017 |
| GN119-AVA-US07 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 15/622,024 | 6/13/2017 | US-2017-0289590 | 10/5/2017 | 10,045,054 | 8/7/2018 |
| GN119-AVA-US08 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 16/018,022 | 6/25/2018 | US-2019-0045240 | 2/7/2019 | 10,250,916 | 4/2/2019 |
| GN119-AVA-US09 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 16/264,134 | 1/31/2019 | US-2019-0327502 | 10/24/2019 | 10,595,053 | 3/17/2020 |
| GN119-AVA-US10 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | 16/815,720 | 3/11/2020 | US-2020-0322653 | 10/8/2020 | N/A | N\A |
| GN119-AVA-WO01 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | Patent Cooperation Treaty | PCT/IB2004/051128 | 7/5/2004 | WO2005006758 | 1/20/2005 | N/A | N\A |
| GN123-AVA-US01 | Method and System for Remotely Controlling Media Systems | United States of America | 61/170,586 | 4/17/2009 | N/A | N\A | N/A | N\A |
| GN123-AVA-US02 | Method And System For Remotely Controlling Consumer Electronic Devices | United States of America | 61/293,798 | 1/8/2010 | N/A | N\A | N/A | N\A |
| GN123-AVA-US03 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 12/760,004 | 4/14/2010 | US-2010-0269128 | 10/21/2010 | 9,015,741 | 4/21/2015 |
| GN123-AVA-US04 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 14/659,971 | 3/17/2015 | US-2015-0195597 | 7/9/2015 | 9,992,518 | 6/5/2018 |
| GN123-AVA-US05 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 15/287,116 | 10/6/2016 | US-2017-0026697 | 1/26/2017 | 9,998,767 | 6/12/2018 |
| GN123-AVA-US06 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 15/292,705 | 10/13/2016 | US-2017-0034549 | 2/2/2017 | 9,706,233 | 7/11/2017 |

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| GN123-AVA-US08 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/018,050 | 6/26/2018 | US-2019-0007712 | 1/3/2019 | 10,341,697 | 7/2/2019 |
| GN123-AVA-US09 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/390,595 | 4/22/2019 | US-2019-0306546 | 10/3/2019 | 10,979,742 | 4/13/2021 |
| GN123-AVA-US10 | Method and System for Remotely Controlling Consumer Electronic Device | United States of America | 16/390,627 | 4/22/2019 | US-2019-0261034 | 8/22/2019 | 10,972,763 | 4/6/2021 |
| GN123-AVA-US11 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/390,631 | 4/22/2019 | US-2019-0261035 | 8/22/2019 | 10,972,764 | 4/6/2021 |
| GN123-AVA-US12 | Method and System for Remotely Controlling Consumer Electronic Device | United States of America | 16/390,644 | 4/22/2019 | US-2019-0261036 | 8/22/2019 | 10,701,410 | 6/30/2020 |
| GN123-AVA-US13 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/403,075 | 5/3/2019 | N/A | N\A | N/A | N\A |
| GN123-AVA-US14 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/403,084 | 5/3/2019 | US-2019-0268636 | 8/29/2019 | N/A | N\A |
| GN123-AVA-US15 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/403,089 | 5/3/2019 | US-2019-0268637 | 8/29/2019 | 10,735,782 | 8/4/2020 |
| GN123-AVA-US16 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/403,096 | 5/3/2019 | US-2019-0306547 | 10/3/2019 | N/A | N\A |
| GN123-AVA-US17 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/403,105 | 5/3/2019 | US-2019-0268638 | 8/29/2019 | N/A | N\A |
| GN123-AVA-US18 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/403,111 | 5/3/2019 | US-2019-0268639 | 8/29/2019 | N/A | N\A |
| GN123-AVA-US19 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/568,407 | 9/12/2019 | US-2020-0007908 | 1/2/2020 | 10,701,411 | 6/30/2020 |
| GN123-AVA-US20 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/568,414 | 9/12/2019 | US-2020-0007909 | 1/2/2020 | 10,715,841 | 7/14/2020 |
| GN123-AVA-US21 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/568,438 | 9/12/2019 | US-2020-0007910 | 1/2/2020 | 10,701,412 | 6/30/2020 |
| GN123-AVA-US22 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/568,445 | 9/12/2019 | US-2020-0007911 | 1/2/2020 | 10,904,589 | 1/26/2021 |
| GN123-AVA-US23 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/775,126 | 1/28/2020 | US-2020-0177933 | 6/4/2020 | 10,972,766 | 4/6/2021 |
| GN123-AVA-US25 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/828,522 | 3/24/2020 | US-2020-0236409 | 7/23/2020 | N/A | N\A |
| GN123-AVA-US26 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/845,392 | 4/10/2020 | US-2020-0252665 | 8/6/2020 | N/A | N\A |

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|---|---|---|---|---|---|---|---|---|
| GN123-AVA-US27 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/836,280 | 3/31/2020 | US-2020-0245007 | 7/30/2020 | N/A | N\A |
| GN123-AVA-US28 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/836,417 | 3/31/2020 | US-2020-0245008 | 7/30/2020 | N/A | N\A |
| GN123-AVA-US29 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | 16/881,397 | 5/22/2020 | US-2020-0344503 | 10/29/2020 | N/A | N\A |
| GN124-AVA-US01 | Method and System for Presenting Additional Content at a Media System | United States of America | 61/409,018 | 11/1/2010 | N/A | N\A | N/A | N\A |
| GN124-AVA-US02 | Method and System for Presenting Additional Content at a Media System | United States of America | 13/286,138 | 10/31/2011 | US-2012-0117584 | 5/10/2012 | 8,863,165 | 10/14/2014 |
| GN124-AVA-US03 | Method and System for Presenting Additional Content at a Media System | United States of America | 14/475,971 | 9/3/2014 | US-2015-0089526 | 3/26/2015 | N/A | N\A |
| GN124-AVA-US04 | Method and System for Presenting Additional Content at a Media System | United States of America | 15/375,698 | 12/12/2016 | US-2017-0094351 | 3/30/2017 | 10,506,291 | 12/10/2019 |
| GN124-AVA-US05 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/017,900 | 6/25/2018 | US-2018-0310058 | 10/25/2018 | N/A | N\A |
| GN124-AVA-US06 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/017,910 | 6/25/2018 | US-2018-0302672 | 10/18/2018 | 10,341,734 | 7/2/2019 |
| GN124-AVA-US07 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/017,926 | 6/25/2018 | US-2018-0302673 | 10/18/2018 | N/A | N\A |
| GN124-AVA-US08 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/670,954 | 10/31/2019 | US-2020-0068256 | 2/27/2020 | N/A | N\A |
| GN124-AVA-US09 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/670,956 | 10/31/2019 | US-2020-0068257 | 2/27/2020 | 10,904,629 | 1/26/2021 |
| GN124-AVA-US10 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/670,961 | 10/31/2019 | US-2020-0068258 | 2/27/2020 | 10,972,764 | 4/6/2021 |
| GN124-AVA-US11 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/670,965 | 10/31/2019 | US-2020-0068259 | 2/27/2020 | 10,979,772 | 4/13/2021 |
| GN124-AVA-US12 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/670,983 | 10/31/2019 | US-2020-0068260 | 2/27/2020 | 10,869,095 | 12/15/2020 |
| GN124-AVA-US13 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/835,201 | 3/30/2020 | US-2020-0228870 | 7/16/2020 | N/A | N\A |
| GN124-AVA-US14 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/835,203 | 3/30/2020 | US-2020-0228871 | 7/16/2020 | N/A | N\A |
| GN124-AVA-US15 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/835,204 | 3/30/2020 | US-2020-0236435 | 7/23/2020 | N/A | N\A |
| GN124-AVA-US16 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/835,206 | 3/30/2020 | US-2020-0228872 | 7/16/2020 | N/A | N\A |

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|---|---|---|---|---|---|---|---|---|
| GN124-AVA-US17 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/835,209 | 3/30/2020 | US-2020-0228873 | 7/16/2020 | N/A | N\A |
| GN124-AVA-US18 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/835,213 | 3/30/2020 | US-2020-0228874 | 7/16/2020 | N/A | N\A |
| GN124-AVA-US19 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/835,215 | 3/30/2020 | US-2020-0228875 | 7/16/2020 | N/A | N\A |
| GN124-AVA-US20 | Method and System for Presenting Additional Content at a Media System | United States of America | 16/835,217 | 3/30/2020 | US-2020-0228876 | 7/16/2020 | N/A | N\A |
| | Selection of Content from a Stream of Video or Audio Data | China | 200580027251.8 | 8/9/2005 | CN101002472A | 7/18/2007 | CN100592789C | 2/24/2010 |
| GN125-AVA-DE01 | Selection of Content from a Stream of Video or Audio Data | Germany (Federal Republic of) | 5773404.8 | 8/9/2005 | 1779659 | 5/2/2007 | 1779659 | 10/7/2020 |
| GN125-AVA-EP01 | Selection of Content from a Stream of Video or Audio Data | European Patent | 5773404.8 | 8/9/2005 | 1779659 | 5/2/2007 | 1779659 | 10/7/2020 |
| | Selection of Content from a Stream of Video or Audio Data | Japan | 2007-525435 | 8/9/2005 | 2008-510345 | 4/3/2008 | 4842944 | 12/21/2011 |
| | Selection of Content from a Stream of Video or Audio Data | Korea, Republic of (KR) | 10-2007-7003067 | 2/8/2007 | 10-2007-0046846 | 5/3/2007 | N/A | N\A |
| GN125-AVA-US01 | Selection of Content from a Stream of Video or Audio Data | United States of America | 11/573,455 | 8/9/2005 | US-2009-0226148 | 9/10/2009 | 8,406,607 | 3/26/2013 |
| GN125-AVA-US02 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 13/778,439 | 2/27/2013 | US-2013-0302011 | 11/14/2013 | 9,143,718 | 9/22/2015 |
| GN125-AVA-US03 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 14/789,048 | 7/1/2015 | US-2015-0304597 | 10/22/2015 | 9,414,008 | 8/9/2016 |
| GN125-AVA-US04 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 15/204,366 | 7/7/2016 | US-2016-0323533 | 11/3/2016 | 9,736,549 | 8/15/2017 |
| GN125-AVA-US05 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 15/285,056 | 10/4/2016 | US-2017-0026716 | 1/26/2017 | 9,794,644 | 10/17/2017 |
| GN125-AVA-US06 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 15/703,687 | 9/13/2017 | US-2018-0014088 | 1/11/2018 | 9,986,306 | 5/29/2018 |
| GN125-AVA-US07 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 15/971,608 | 8/9/2005 | US-2018-0316986 | 11/1/2018 | 10,555,052 | 2/4/2020 |
| GN125-AVA-US08 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 16/734,081 | 8/9/2005 | US-2020-0145731 | 5/7/2020 | 10,945,049 | 3/9/2021 |
| GN125-AVA-US09 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 16/734,283 | 1/3/2020 | US-2020-0145732 | 5/7/2020 | 10,924,816 | 2/16/2021 |
| GN125-AVA-US10 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | 17/148,700 | 1/14/2021 | N/A | N\A | N/A | N\A |

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|---|---|---|---|---|---|---|---|---|
| GN125-AVA-WO01 | Selection of Content from a Stream of Video or Audio Data | Patent Cooperation Treaty | PCT/IB2005/052642 | 8/9/2005 | WO2006/018790 | 2/23/2006 | N/A | N\A |
| GN126-AVA-US01 | Identifying Video Content Via Fingerprint Matching | United States of America | 13/735,426 | 1/7/2013 | US-2014-0195548 | 7/10/2014 | 9,495,451 | 11/15/2016 |
| GN126-AVA-US02 | Identifying Media Content Via Fingerprint Matching | United States of America | 15/287,063 | 10/6/2016 | US-2017-0024470 | 1/26/2017 | 10,866,988 | 12/15/2020 |
| GN126-AVA-US03 | Video Fingerprinting | United States of America | 14/263,647 | 4/28/2014 | US-2014-0236988 | 8/21/2014 | 9,323,840 | 4/26/2016 |
| GN126-AVA-US04 | Video Fingerprinting | United States of America | 15/136,412 | 4/22/2016 | US-2016-0267180 | 9/15/2016 | N/A | N\A |
| GN126-AVA-US05 | Identifying Media Content Via Fingerprint Matching | United States of America | 17/096,826 | 11/12/2020 | 20210064654 | 3/4/2021 | N/A | N\A |
| GN126-AVA-WO01 | Video Fingerprinting | Patent Cooperation Treaty | PCT/US2015/027117 | 4/22/2015 | WO2015/167901 | 11/5/2015 | N/A | N\A |
| GN127-AVA-US01 | Inserting Advertisements into Video Content | United States of America | 61/749,518 | 1/7/2013 | N/A | N\A | N/A | N\A |
| GN127-AVA-US02 | Inserting Advertisements into Video Content | United States of America | 13/826,282 | 3/14/2013 | US-2014-0196085 | 7/10/2014 | 9,794,642 | 10/17/2017 |
| GN127-AVA-US03 | Inserting Advertisements Into Video Content | United States of America | 15/700,054 | 9/8/2017 | US-2018-0020265 | 1/18/2018 | 10,110,970 | 10/23/2018 |
| GN127-AVA-US04 | Inserting Advertisements Into Video Content | United States of America | 16/018,056 | 6/26/2018 | US-2019-0007748 | 1/3/2019 | 10,595,097 | 3/17/2020 |
| GN127-AVA-US05 | Inserting Advertisements into Video Content | United States of America | 16/779,547 | 1/31/2020 | US-2020-0245034 | 7/30/2020 | N/A | N\A |
| GN128-AVA-AU01 | Authorizing Devices Based on Identifying Content Distributor | Australia | 2013371482 | 12/18/2013 | 2013371482 | 8/20/2015 | 2013371482 | 12/18/2017 |
| GN128-AVA-DE01 | Authorizing Devices Based on Identifying Content Distributor | Germany (Federal Republic of) | 13870108.1 | 12/18/2013 | 2944051 | 11/18/2015 | 2944051 | 6/5/2019 |
| GN128-AVA-EP01 | Authorizing Devices Based on Identifying Content Distributor | European Patent | 13870108.1 | 12/18/2013 | 2944051 | 11/18/2015 | 2944051 | 6/5/2019 |
| GN128-AVA-FR01 | Authorizing Devices Based on Identifying Content Distributor | France | 13870108.1 | 12/18/2013 | 2944051 | 11/18/2015 | 2944051 | 6/5/2019 |
| GN128-AVA-GB01 | Authorizing Devices Based on Identifying Content Distributor | United Kingdom | 13870108.1 | 12/18/2013 | 2944051 | 11/18/2015 | 2944051 | 6/5/2019 |
| GN128-AVA-HK01 | Authorizing Devices Based on Identifying Content Distributor | Hong Kong | 16105674.4 | 5/17/2016 | HK1217835 | 1/20/2017 | 1217835 | 4/29/2020 |



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|---|---|---|---|---|---|---|---|---|
| GN128-AVA-KR01 | Authorizing Devices Based on Identifying Content Distributor | Korea, Republic of (KR) | 2015-7021476 | 12/18/2013 | 10-2015-0106904 | 9/22/2015 | 10-2017602 | 8/28/2019 |
| GN128-AVA-KR02 | Authorizing Devices Based on Identifying Content Distributor | Korea, Republic of (KR) | 2019-7025227 | 12/18/2013 | N/A | N\A | 10-2094651 | 3/23/2020 |
| GN128-AVA-KR03 | Authorizing Devices Based on Identifying Content Distributor | Korea, Republic of (KR) | 2020-7008195 | 3/20/2020 | N/A | N\A | N/A | N\A |
| GN128-AVA-US01 | Authorizing Devices Based On Identifying Content Distributor | United States of America | 61/749,524 | 1/7/2013 | N/A | N\A | N/A | N\A |
| GN128-AVA-US02 | Authorizing Devices Based on Identifying Content Distributor | United States of America | 13/826,606 | 3/14/2013 | US-2014-0196077 | 7/10/2014 | 8,997,164 | 3/31/2015 |
| GN128-AVA-US03 | Authorizing Devices Based on Identifying Content Distributor | United States of America | 14/640,253 | 3/6/2015 | US-2015-0181263 | 6/25/2015 | 9,596,490 | 3/14/2017 |
| GN128-AVA-US04 | Authorizing Devices Based on Identifying Content Distributor | United States of America | 15/406,887 | 1/16/2017 | US-2017-0127097 | 5/4/2017 | N/A | N\A |
| GN128-AVA-US05 | Authorizing Devices Based on Identifying Content Distributor | United States of America | 16/947,748 | 8/14/2020 | US-2020-0374569 | 11/26/2020 | N/A | N\A |
| GN128-AVA-WO01 | Authorizing Devices Based on Identifying Content Distributor | Patent Cooperation Treaty | PCT/US2013/076201 | 12/18/2013 | WO2014/107311 | 7/10/2014 | N/A | N\A |
| GN129-AVA-US01 | Detecting An Event Within Interactive Media Including Spatialized Multi-Channel Audio Content | United States of America | 13/795,877 | 3/12/2013 | US-2014-0274353 | 9/18/2014 | 9,372,531 | 6/21/2016 |
| GN129-AVA-US02 | Detecting an Event within Interactive Media Including Spatialized Multi-Channel Audio Content | United States of America | 15/003,658 | 1/21/2016 | US-2016-0139756 | 5/19/2016 | 10,055,010 | 8/21/2018 |
| GN129-AVA-US03 | Detecting an Event Within Interactive Media | United States of America | 16/017,170 | 6/25/2018 | US-2018-0307300 | 10/25/2018 | 10,156,894 | 12/18/2018 |
| GN129-AVA-US04 | Detecting and Responding to an Event Within an Interactive Videogame | United States of America | 16/168,412 | 10/23/2018 | US-2019-0056778 | 2/21/2019 | 10,345,892 | 7/9/2019 |
| GN129-AVA-US05 | Detecting and Responding to an Event Within an Interactive Videogame | United States of America | 16/425,490 | 5/29/2019 | US-2019-0278366 | 9/12/2019 | 10,824,222 | 11/3/2020 |
| GN129-AVA-US06 | Detecting and Responding to an Event within an Interactive Videogame | United States of America | 16/947,969 | 8/26/2020 | US-2020-0379549 | 12/3/2020 | N/A | N\A |
| GN130-AVA-US01 | Search And Identification Of Video Content | United States of America | 61/749,819 | 1/7/2013 | N/A | N\A | N/A | N\A |
| GN130-AVA-US02 | Search And Identification Of Video Content | United States of America | 13/839,782 | 3/15/2013 | US-2014-0193027 | 7/10/2014 | 9,146,990 | 9/29/2015 |
| GN130-AVA-US03 | Search And Identification Of Video Content | United States of America | 14/828,293 | 8/17/2015 | US-2015-0356178 | 12/10/2015 | 9,959,345 | 5/1/2018 |

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|---|---|---|---|---|---|---|---|---|
| GN131-AVA-US01 | Displaying An Actionable Element Over Playing Content | United States of America | 14/020,295 | 9/6/2013 | US-2015-0074703 | 3/12/2015 | 10,965,991 | 3/30/2021 |
| GN131-AVA-US02 | Displaying an Actionable Element Over Playing Content | United States of America | 16/124,928 | 9/7/2018 | US-2019-0007741 | 1/3/2019 | 10,979,771 | 4/13/2021 |
| GN131-AVA-US03 | Displaying an Actionable Element Over Playing Content | United States of America | 16/126,771 | 9/10/2018 | US-2019-0007742 | 1/3/2019 | N/A | N\A |
| GN131-AVA-US04 | Displaying an Actionable Element Over Playing Content | United States of America | 16/178,116 | 11/1/2018 | US-2019-0075362 | 3/7/2019 | 10,965,992 | 3/30/2021 |
| GN131-AVA-US05 | Displaying An Actionable Element Over Playing Content | United States of America | 17/190,859 | 3/3/2021 | N/A | N\A | N/A | N\A |
| GN131-AVA-US06 | Displaying An Actionable Element Over Playing Content | United States of America | 17/190,870 | 3/3/2021 | N/A | N\A | N/A | N\A |
| GN132-AVA-US01 | Identifying Video Content Via Color-Based Fingerprint Matching | United States of America | 14/061,043 | 10/23/2013 | US-2015-0110340 | 4/23/2015 | 9,465,995 | 10/11/2016 |
| GN132-AVA-US02 | Identifying Video Content Via Color-Based Fingerprint Matching | United States of America | 15/286,787 | 10/6/2016 | US-2017-0091524 | 3/30/2017 | 10,503,956 | 12/10/2019 |
| GN132-AVA-US03 | Identifying Video Content Via Color-Based Fingerprint Matching | United States of America | 16/692,124 | 11/22/2019 | US-2020-0089934 | 3/19/2020 | N/A | N\A |
| GN137-AVA-CN01 | Dynamic Video Overlays | China | 201680074415.0 | 12/16/2016 | CN108496368A | 9/4/2018 | 201680074415.0 | 11/24/2020 |
| GN137-AVA-CN02 | Dynamic Video Overlays | China | 202011252640.3 | 11/11/2020 | CN112423083A | 2/26/2021 | N/A | N\A |
| GN137-AVA-CN03 | Dynamic Video Overlays | China | 202011254676.5 | 11/11/2020 | CN112333523A | 2/5/2021 | N/A | N\A |
| GN137-AVA-CN04 | Dynamic Video Overlays | China | 202011252620.6 | 11/11/2020 | 112423082 | 2/26/2021 | N/A | N\A |
| GN137-AVA-CN05 | Dynamic Video Overlays | China | 202011257196.4 | 11/11/2020 | CN112333524A | 2/5/2021 | N/A | N\A |
| GN137-AVA-EP01 | Dynamic Video Overlays | European Patent | 16876800 | 12/16/2016 | 3391651 | 10/24/2018 | N/A | N\A |
| GN137-AVA-JP01 | Dynamic Video Overlays | Japan | 2018-531572 | 12/16/2016 | 2018-537925 | 12/20/2018 | N/A | N\A |
| GN137-AVA-KR01 | Dynamic Video Overlays | Korea, Republic of (KR) | 2018-7019944 | 12/16/2016 | N/A | N\A | 2147230 | 8/18/2020 |
| GN137-AVA-KR02 | Dynamic Video Overlays | Korea, Republic of (KR) | 2020-7023726 | 12/16/2016 | N/A | N\A | 2185022 | 11/25/2020 |
| GN137-AVA-KR03 | Dynamic Video Overlays | Korea, Republic of (KR) | 2020-7033924 | 11/25/2020 | N/A | N\A | 2227161 | 3/8/2021 |

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|---|---|---|---|---|---|---|---|---|
| GN137-AVA-KR04 | Dynamic Video Overlays | Korea, Republic of (KR) | 2021-7006944 | 3/8/2021 | N/A | N\A | N/A | N\A |
| GN137-AVA-US01 | Dynamic Video Overlays | United States of America | 62/268,410 | 12/16/2015 | N/A | N\A | N/A | N\A |
| GN137-AVA-US02 | Dynamic Video Overlays | United States of America | 15/381,496 | 12/16/2016 | US-2017-0150213 | 5/25/2017 | 10,142,680 | 11/27/2018 |
| GN137-AVA-US03 | Dynamic Video Overlays | United States of America | 15/381,497 | 12/16/2016 | US-2017-0180792 | 6/22/2017 | 10,785,530 | 9/22/2020 |
| GN137-AVA-US04 | Dynamic Video Overlays | United States of America | 15/381,513 | 12/16/2016 | US-2017-0180793 | 6/22/2017 | 10,412,447 | 9/10/2019 |
| GN137-AVA-US05 | Dynamic Video Overlays | United States of America | 15/381,556 | 12/16/2016 | US-2017-0180794 | 6/22/2017 | 10,136,183 | 11/20/2018 |
| GN137-AVA-US06 | Dynamic Video Overlays | United States of America | 15/381,572 | 12/16/2016 | US-2017-0180795 | 6/22/2017 | 10,123,073 | 11/6/2018 |
| GN137-AVA-US07 | Dynamic Video Overlays | United States of America | 16/140,539 | 9/25/2018 | US-2019-0132641 | 5/2/2019 | 10,893,320 | 1/12/2021 |
| GN137-AVA-US08 | Dynamic Video Overlays | United States of America | 16/520,294 | 7/23/2019 | US-2020-0053422 | 2/13/2020 | 10,869,086 | 12/15/2020 |
| GN137-AVA-US09 | Dynamic Video Overlays | United States of America | 16/928,683 | 7/14/2020 | US-2021-0037283 | 2/4/2021 | N/A | N\A |
| GN137-AVA-US10 | Dynamic Video Overlays | United States of America | 17/098,409 | 11/15/2020 | N/A | N\A | N/A | N\A |
| GN137-AVA-WO01 | Dynamic Video Overlays | Patent Cooperation Treaty | PCT/US2016/067250 | 12/16/2016 | WO2017/106695 | 6/22/2017 | N/A | N\A |
| GN141-AVA-US01 | Digital Video Content Fingerprinting Using Image Pixel Intensity and Color Information | United States of America | 61/266,668 | 12/4/2009 | N/A | N\A | N/A | N\A |
| GN141-AVA-US01 | Digital Video Content Fingerprinting Using Image Pixel Intensity and Color Information | United States of America | 61/266,668 | 12/4/2009 | N/A | N\A | N/A | N\A |
| GN141-AVA-US02 | Digital Video Content Fingerprinting Using Image Pixel Intensity and Color Information | United States of America | 12/955,416 | 11/29/2010 | N/A | N\A | 8,666,152 | 3/4/2014 |
| GN141-AVA-US02 | Digital Video Content Fingerprinting Using Image Pixel Intensity and Color Information | United States of America | 12/955,416 | 11/29/2010 | N/A | N\A | 8,666,152 | 3/4/2014 |
| GN142-AVA-US01 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | 61/331,965 | 5/6/2010 | N/A | N\A | N/A | N\A |
| GN142-AVA-US01 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | 61/331,965 | 5/6/2010 | N/A | N\A | N/A | N\A |

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|---|---|---|---|---|---|---|---|---|
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| GN142-AVA-US02 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | 13/102,479 | 5/6/2011 | N/A | N\A | 8,655,878 | 2/18/2014 |
| GN142-AVA-US03 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | 14/151,335 | 1/9/2014 | N/A | N\A | 9,058,355 | 6/16/2015 |
| GN142-AVA-US03 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | 14/151,335 | 1/9/2014 | N/A | N\A | 9,058,355 | 6/16/2015 |
| GN142-AVA-US04 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | 14/151,294 | 1/9/2014 | N/A | N\A | 8,965,863 | 2/24/2015 |
| GN142-AVA-US04 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | 14/151,294 | 1/9/2014 | N/A | N\A | 8,965,863 | 2/24/2015 |
| GN142-AVA-US05 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | 14/718,218 | 5/21/2015 | US-2015-0254344 | 9/10/2015 | 9,785,708 | 10/10/2017 |
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| GN145-AVA-US01 | Method And Apparatus For Multi-Dimensional Content Search And Video Identification | United States of America | 60/944,668 | 6/18/2007 | N/A | N\A | N/A | N\A |
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| GN151-AVA-US01 | TV Content Segmentation, Categorization and Identification and Time-Aligned Applications | United States of America | 61/423,205 | 12/15/2010 | N/A | N\A | N/A | N\A |
| GN151-AVA-US02 | TV Content Segmentation, Categorization and Identification and Time-Aligned Applications | United States of America | 13/327,359 | 12/15/2011 | N/A | N\A | 9,510,044 | 11/29/2016 |
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| GN151-AVA-US03 | TV Content Segmentation, Categorization and Identification and Time-Aligned Applications | United States of America | 15/297,658 | 10/19/2016 | US-2017-0201793 | 7/13/2017 | N/A | N\A |
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| GN152-AVA-US01 | Method and Apparatus for Synchronous Television/Media Content Identification on Mobile/Media Devices | United States of America | 61/601,234 | 2/21/2012 | N/A | N\A | N/A | N\A |
| GN152-AVA-US02 | Media Content Identification on Mobile Devices | United States of America | 13/590,701 | 8/21/2012 | N/A | N\A | 9,313,359 | 4/12/2016 |
| GN152-AVA-US02 | Media Content Identification on Mobile Devices | United States of America | 13/590,701 | 8/21/2012 | N/A | N\A | 9,313,359 | 4/12/2016 |
| GN152-AVA-US03 | Media Content Identification on Mobile Devices | United States of America | 15/053,064 | 2/25/2016 | US-2016-0249093 | 8/25/2016 | N/A | N\A |
| GN152-AVA-US03 | Media Content Identification on Mobile Devices | United States of America | 15/053,064 | 2/25/2016 | US-2016-0249093 | 8/25/2016 | N/A | N\A |
| GN152-AVA-US04 | Media Content Identification on Mobile Devices | United States of America | 16/441,924 | 6/14/2019 | US-2019-0373311 | 12/5/2019 | N/A | N\A |
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| GN152-AVA-US05 | Media Content Identification on Mobile Devices | United States of America | 16/441,936 | 6/14/2019 | US-2019-0373312 | 12/5/2019 | N/A | N\A |
| GN152-AVA-US06 | Media Content Identification on Mobile Devices | United States of America | 16/441,949 | 6/14/2019 | US-2019-0379927 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US06 | Media Content Identification on Mobile Devices | United States of America | 16/441,949 | 6/14/2019 | US-2019-0379927 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US07 | Media Content Identification on Mobile Devices | United States of America | 16/441,956 | 6/14/2019 | US-2019-0387273 | 12/19/2019 | 10,986,399 | 4/20/2021 |
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| GN152-AVA-US08 | Media Content Identification on Mobile Devices | United States of America | 16/441,967 | 6/14/2019 | US-2019-0379928 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US08 | Media Content Identification on Mobile Devices | United States of America | 16/441,967 | 6/14/2019 | US-2019-0379928 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US09 | Media Content Identification on Mobile Devices | United States of America | 16/441,987 | 6/14/2019 | US-2019-0379929 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US09 | Media Content Identification on Mobile Devices | United States of America | 16/441,987 | 6/14/2019 | US-2019-0379929 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US10 | Media Content Identification on Mobile Devices | United States of America | 16/441,996 | 6/14/2019 | US-2019-0379930 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US10 | Media Content Identification on Mobile Devices | United States of America | 16/441,996 | 6/14/2019 | US-2019-0379930 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US11 | Media Content Identification on Mobile Devices | United States of America | 16/442,392 | 6/14/2019 | US-2019-0379931 | 12/12/2019 | N/A | N\A |
| GN152-AVA-US11 | Media Content Identification on Mobile Devices | United States of America | 16/442,392 | 6/14/2019 | US-2019-0379931 | 12/12/2019 | N/A | N\A |
| GN153-AVA-US01 | ROBUST AUDIO IDENTIFICATION AND TIME-ALIGNED APPLICATIONS | United States of America | 61/543,943 | 10/6/2011 | N/A | N\A | N/A | N\A |
| GN153-AVA-US01 | ROBUST AUDIO IDENTIFICATION AND TIME-ALIGNED APPLICATIONS | United States of America | 61/543,943 | 10/6/2011 | N/A | N\A | N/A | N\A |
| GN153-AVA-US02 | ROBUST AUDIO IDENTIFICATION AND TIME-ALIGNED APPLICATIONS | United States of America | 61/544,035 | 10/6/2011 | N/A | N\A | N/A | N\A |
| GN153-AVA-US02 | ROBUST AUDIO IDENTIFICATION AND TIME-ALIGNED APPLICATIONS | United States of America | 61/544,035 | 10/6/2011 | N/A | N\A | N/A | N\A |

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|---|---|---|---|---|---|---|---|---|
| GN153-AVA-US03 | AUDIO CONTENT FINGERPRINTING BASED ON TWO-DIMENSIONAL CONSTANT 1-FACTOR TRANSFORM REPRESENTATION AND ROBUST AUDIO IDENTIFICATION FOR TIME-ALIGNED APPLICATIONS | United States of America | 13/647,996 | 10/9/2012 | N/A | N\A | 9,299,364 | 3/29/2016 |
| GN153-AVA-US03 | AUDIO CONTENT FINGERPRINTING BASED ON TWO-DIMENSIONAL CONSTANT 1-FACTOR TRANSFORM REPRESENTATION AND ROBUST AUDIO IDENTIFICATION FOR TIME-ALIGNED APPLICATIONS | United States of America | 13/647,996 | 10/9/2012 | N/A | N\A | 9,299,364 | 3/29/2016 |
| GN153-AVA-US04 | AUDIO CONTENT FINGERPRINTING BASED ON TWO-DIMENSIONAL CONSTANT 1-FACTOR TRANSFORM REPRESENTATION AND ROBUST AUDIO IDENTIFICATION FOR TIME-ALIGNED APPLICATIONS | United States of America | 15/050,123 | 2/22/2016 | N/A | N\A | 9,798,513 | 10/24/2017 |
| GN153-AVA-US04 | AUDIO CONTENT FINGERPRINTING BASED ON TWO-DIMENSIONAL CONSTANT 1-FACTOR TRANSFORM REPRESENTATION AND ROBUST AUDIO IDENTIFICATION FOR TIME-ALIGNED APPLICATIONS | United States of America | 15/050,123 | 2/22/2016 | N/A | N\A | 9,798,513 | 10/24/2017 |
| GN154-AVA-US01 | Method for Efficient Data Base Formation and Search on Portable Media Devices Acting Synchronously with Television Programming | United States of America | 61/610,672 | 3/14/2012 | N/A | N\A | N/A | N\A |
| GN154-AVA-US01 | Method for Efficient Data Base Formation and Search on Portable Media Devices Acting Synchronously with Television Programming | United States of America | 61/610,672 | 3/14/2012 | N/A | N\A | N/A | N\A |
| GN154-AVA-US02 | Method for Efficient Data Base Formation and Search on Portable Media Devices Acting Synchronously with Television Programming | United States of America | 13/826,502 | 3/14/2013 | US-2013-0246457 | 9/19/2013 | 9,367,544 | 6/14/2016 |
| GN154-AVA-US02 | Method for Efficient Data Base Formation and Search on Portable Media Devices Acting Synchronously with Television Programming | United States of America | 13/826,502 | 3/14/2013 | US-2013-0246457 | 9/19/2013 | 9,367,544 | 6/14/2016 |
| GN154-AVA-US03 | Method for Efficient Data Base Formation and Search on Portable Media Devices Acting Synchronously with Television Programming | United States of America | 15/155,428 | 5/16/2016 | US-2016-0364389 | 12/15/2016 | N/A | N\A |
| GN154-AVA-US03 | Method for Efficient Data Base Formation and Search on Portable Media Devices Acting Synchronously with Television Programming | United States of America | 15/155,428 | 5/16/2016 | US-2016-0364389 | 12/15/2016 | N/A | N\A |
| GN155-AVA-US01 | Method For Valuing And Targeting Advertising Using Media Content Recognition | United States of America | 61/940,921 | 2/18/2014 | N/A | N\A | N/A | N\A |
| GN155-AVA-US02 | Method for Valuing and Targeting Advertising Using Media Content Recognition | United States of America | 62/306,692 | 3/11/2016 | N/A | N\A | N/A | N\A |

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| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN156-AVA-US01 | Robust Audio Identification with Interference Cancellation | United States of America | 61/636,195 | 4/20/2012 | N/A | N\A | N/A | N\A |
| GN156-AVA-US02 | Robust Audio Identification with Interference Cancellation | United States of America | 15/456,859 | 3/13/2017 | N/A | N\A | 10,360,905 | 7/23/2019 |
| GN156-AVA-US03 | Robust Audio Identification with Interference Cancellation | United States of America | 16/140,538 | 9/25/2018 | N/A | N\A | N/A | N\A |
| GN157-AVA-US01 | Audio-Video Synchronization Based On Content Fingerprinting | United States of America | 61/322,514 | 4/9/2010 | N/A | N\A | N/A | N\A |
| GN157-AVA-US02 | Audio-Video Synchronization Based on Content Fingerprinting | United States of America | 62/306,733 | 3/11/2016 | N/A | N\A | N/A | N\A |
| GN158-AVA-US01 | Enabling Video/Audio-Content-Synchronous Applications On A Mobile Device | United States of America | 62/306,771 | 3/11/2016 | N/A | N\A | N/A | N\A |
| GN158-AVA-US02 | Enabling Video/Audio-Content-Synchronous Applications On A Mobile Device | United States of America | 61/377,350 | 8/26/2010 | N/A | N\A | N/A | N\A |
| GN159-AVA-US01 | Method To Differentiate And Classify Fingerprints Using Fingerprint Neighborhood Analysis | United States of America | 62/306,700 | 3/11/2016 | N/A | N\A | N/A | N\A |
| GN159-AVA-US02 | Method To Differentiate And Classify Fingerprints Using Fingerprint Neighborhood Analysis | United States of America | 15/456,861 | 3/13/2017 | N/A | N\A | 10,956,484 | 3/23/2021 |
| GN159-AVA-US03 | Method to Differentiate and Classify Fingerprints Using Fingerprint Neighborhood Analysis | United States of America | 16/140,531 | 9/24/2018 | N/A | N\A | 10,970,328 | 4/6/2021 |
| GN159-AVA-US04 | Method to Differentiate and Classify Fingerprints Using Fingerprint Neighborhood Analysis | United States of America | 16/929,858 | 7/15/2020 | N/A | N\A | N/A | N\A |
| GN160-AVA-US01 | Digital Video Fingerprinting Using Motion Segmentation | United States of America | 62/306,719 | 3/11/2016 | N/A | N\A | N/A | N\A |
| GN160-AVA-US02 | Digital Video Fingerprinting Using Motion Segmentation | United States of America | 15/456,856 | 3/13/2017 | N/A | N\A | 10,318,813 | 6/11/2019 |
| GN160-AVA-US03 | Digital Video Fingerprinting Using Motion Segmentation | United States of America | 16/140,534 | 9/25/2018 | US-2019-0138813 | 5/9/2019 | 10,733,985 | 8/4/2020 |
| GN160-AVA-US04 | Digital Video Fingerprinting Using Motion Segmentation | United States of America | 16/916,179 | 6/30/2020 | US-2021-0020171 | 1/21/2021 | N/A | N\A |
| GN161-AVA-US01 | Actional Event Detection For Enhance Television Delivery And Ad Monitoring Based On Video-Audio Content Fingerprinting | United States of America | 62/306,755 | 3/11/2016 | N/A | N\A | N/A | N\A |
| GN190-AVA-CN01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals that Modify Operation of the Playback Device | China | 201980047223.4 | 7/3/2019 | CN112470486A | 3/9/2021 | N/A | N\A |
| GN190-AVA-EP01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals that Modify Operation of the Playback Device | European Patent | 19838101.4 | 7/3/2019 | N/A | N\A | N/A | N\A |

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| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN190-AVA-JP01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Modify Operation of the Playback Device | Japan | 2021-502622 | 7/3/2019 | N/A | N\A | N/A | N\A |
| GN190-AVA-KR01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Modify Operation of the Playback Device | Korea, Republic of (KR) | 2021-7004194 | 7/3/2019 | N/A | N\A | N/A | N\A |
| GN190-AVA-TW01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Modify Operation of the Playback Device | Taiwan | 108122258 | 6/26/2019 | 202007174 | 2/1/2020 | N/A | N\A |
| GN190-AVA-US01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals that Modify Operation of the Playback Device | United States of America | 62/698,781 | 7/16/2018 | N/A | N\A | N/A | N\A |
| GN190-AVA-US02 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Modify Operation of the Playback Device | United States of America | 16/181,961 | 11/6/2018 | US-2020-0021789 | 1/16/2020 | 10,791,312 | 9/29/2020 |
| GN190-AVA-US03 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals that Modify Operation of the Playback Device | United States of America | 17/003,203 | 8/26/2020 | US-2020-0389637 | 12/10/2020 | N/A | N\A |
| GN190-AVA-WO01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Modify Operation of the Playback Device | Patent Cooperation Treaty | PCT/US2019/040546 | 7/3/2019 | WO2020/018287 | 1/23/2020 | N/A | N\A |
| GN191-AVA-CN01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | China | 201980047693.0 | 7/3/2019 | CN112425182A | 2/26/2021 | N/A | N\A |
| GN191-AVA-EP01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | European Patent | 19838103 | 7/3/2019 | N/A | N\A | N/A | N\A |
| GN191-AVA-JP01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | Japan | 2021-503047 | 7/3/2019 | N/A | N\A | N/A | N\A |
| GN191-AVA-KR01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | Korea, Republic of (KR) | 2021-7004196 | 7/3/2019 | N/A | N\A | N/A | N\A |
| GN191-AVA-TW01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | Taiwan | 108122259 | 6/26/2019 | 202008790 | 2/16/2020 | N/A | N\A |
| GN191-AVA-US01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | United States of America | 62/700,409 | 7/19/2018 | N/A | N\A | N/A | N\A |

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| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN191-AVA-US02 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | United States of America | 16/181,978 | 11/6/2018 | US-2020-0029129 | 1/23/2020 | 10,827,224 | 11/3/2020 |
| GN191-AVA-US03 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | United States of America | 17/003,211 | 8/26/2020 | US-2020-0396513 | 12/17/2020 | N/A | N\A |
| GN191-AVA-WO01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | Patent Cooperation Treaty | PCT/US2019/040550 | 7/3/2019 | WO2020/018288 | 1/23/2020 | N/A | N\A |
| GN192-AVA-CN01 | Modifying Playback of Replacement Content Based on Control Messages | China | 201980047554.8 | 7/3/2019 | CN112514409A | 3/16/2021 | N/A | N\A |
| GN192-AVA-EP01 | Modifying Playback of Replacement Content Based on Control Messages | European Patent | 19838621.1 | 7/3/2019 | N/A | N\A | N/A | N\A |
| GN192-AVA-JP01 | Modifying Playback of Replacement Content Based on Control Messages | Japan | 2021-503046 | 7/3/2019 | N/A | N\A | N/A | N\A |
| GN192-AVA-KR01 | Modifying Playback of Replacement Content Based on Control Messages | Korea, Republic of (KR) | 2021-7004197 | 7/3/2019 | N/A | N\A | N/A | N\A |
| GN192-AVA-TW01 | Modifying Playback of Replacement Content Based on Control Messages | Taiwan | 108122260 | 6/26/2019 | 202008795 | 2/16/2020 | N/A | N\A |
| GN192-AVA-US01 | Modifying Playback of Replacement Content Based on Control Messages | United States of America | 62/700,410 | 7/19/2018 | N/A | N\A | N/A | N\A |
| GN192-AVA-US02 | Modifying Playback of Replacement Content Based on Control Messages | United States of America | 16/182,201 | 11/6/2018 | US-2020-0029118 | 1/23/2020 | N/A | N\A |
| GN192-AVA-WO01 | Modifying Playback of Replacement Content Based on Control Messages | Patent Cooperation Treaty | PCT/US2019/040553 | 7/3/2019 | WO2020/018289 | 1/23/2020 | N/A | N\A |
| GN193-AVA-CN01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | China | 201980001136.5 | 6/7/2019 | CN110959293A | 4/3/2020 | N/A | N\A |
| GN193-AVA-CN03 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content (Client Side) | China | 201980001137.X | 6/7/2019 | 111183650 | 5/19/2020 | N/A | N\A |
| GN193-AVA-EP01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | European Patent | 19838757.3 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN193-AVA-EP02 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | European Patent | 19838759.9 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN193-AVA-JP01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Japan | 2021-502404 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN193-AVA-JP02 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | Japan | 2021-502405 | 6/7/2019 | N/A | N\A | N/A | N\A |

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| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN193-AVA-KR01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Korea, Republic of (KR) | 2021-7004195 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN193-AVA-KR02 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | Korea, Republic of (KR) | 2021-7004198 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN193-AVA-TW01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Taiwan | 108122190 | 6/25/2019 | 202007179 | 2/1/2020 | I701947 | 8/11/2020 |
| GN193-AVA-TW03 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content (Client Side) | Taiwan | 108122899 | 6/28/2019 | 202007180 | 2/1/2020 | I716022 | 1/11/2021 |
| GN193-AVA-TW04 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Taiwan | 109126783 | 8/7/2020 | 202044845 | 12/1/2020 | N/A | N\A |
| GN193-AVA-TW05 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | Taiwan | 109146501 | 12/28/2020 | N/A | N\A | N/A | N\A |
| GN193-AVA-US01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-accurate Revision of Playback Content | United States of America | 62/698,629 | 7/16/2018 | N/A | N\A | N/A | N\A |
| GN193-AVA-US02 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | 16/166,561 | 10/22/2018 | N/A | N\A | 10,506,275 | 12/10/2019 |
| GN193-AVA-US03 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | 16/166,948 | 10/22/2018 | US-2020-0021877 | 1/16/2020 | 10,623,800 | 4/14/2020 |
| GN193-AVA-US05 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | 16/674,652 | 11/5/2019 | US-2020-0068248 | 2/27/2020 | 10,979,758 | 4/13/2021 |
| GN193-AVA-US06 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | 16/790,335 | 2/13/2020 | US-2020-0186860 | 6/11/2020 | N/A | N\A |
| GN193-AVA-US07 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | 17/213,921 | 3/26/2021 | N/A | N\A | N/A | N\A |
| GN193-AVA-US08 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | 17/196,762 | 3/9/2021 | N/A | N\A | N/A | N\A |
| GN193-AVA-WO01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Patent Cooperation Treaty | PCT/US2019/035955 | 6/7/2019 | WO2020/018189 | 1/23/2020 | N/A | N\A |
| GN193-AVA-WO03 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | Patent Cooperation Treaty | PCT/US2019/035961 | 6/7/2019 | WO2020/018190 | 1/23/2020 | N/A | N\A |
| GN194-AVA-CN01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | China | 201980001148.8 | 6/7/2019 | CN111034204A | 4/17/2020 | N/A | N\A |
| GN194-AVA-EP01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | European Patent | 19838379.6 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN194-AVA-JP01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Japan | 2021-502952 | 6/7/2019 | N/A | N\A | N/A | N\A |

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| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN194-AVA-KR01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Korea, Republic of (KR) | 2021-7004200 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN194-AVA-TW01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Taiwan | 108122188 | 6/25/2019 | 202008793 | 2/16/2020 | I717769 | 2/1/2021 |
| GN194-AVA-TW02 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Taiwan | 110103493 | 1/29/2021 | N/A | N\A | N/A | N\A |
| GN194-AVA-US01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | United States of America | 62/700,647 | 7/19/2018 | N/A | N\A | N/A | N\A |
| GN194-AVA-US02 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | United States of America | 16/166,962 | 10/22/2018 | US-2020-0029107 | 1/23/2020 | 10,820,020 | 10/27/2020 |
| GN194-AVA-US03 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | United States of America | 16/924,806 | 7/9/2020 | US-2020-0344506 | 10/29/2020 | N/A | N\A |
| GN194-AVA-WO01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Patent Cooperation Treaty | PCT/US2019/035967 | 6/7/2019 | WO2020/018191 | 1/23/2020 | N/A | N\A |
| GN195-AVA-CN01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | China | 201980001147.3 | 6/7/2019 | 110999311 | 4/10/2020 | N/A | N\A |
| GN195-AVA-CN02 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision (Client Side) | China | 201980001138.4 | 6/7/2019 | 111213385 | 5/29/2020 | N/A | N\A |
| GN195-AVA-EP01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | European Patent | 19837119.7 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN195-AVA-EP02 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | European Patent | 19837362.3 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN195-AVA-JP01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Japan | 2021-502961 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN195-AVA-JP02 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Japan | 2021-503012 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN195-AVA-KR01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Korea, Republic of (KR) | 2021-7004201 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN195-AVA-KR02 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Korea, Republic of (KR) | 2021-7004199 | 6/7/2019 | N/A | N\A | N/A | N\A |

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|---|---|---|---|---|---|---|---|---|
| GN195-AVA-TW01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Taiwan | 108122189 | 6/25/2019 | 202008794 | 2/16/2020 | N/A | N\A |
| GN195-AVA-TW02 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision (Client Side) | Taiwan | 108122901 | 6/28/2019 | 202008796 | 2/16/2020 | N/A | N\A |
| GN195-AVA-US01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | United States of America | 62/700,660 | 7/19/2018 | N/A | N\A | N/A | N\A |
| GN195-AVA-US02 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | United States of America | 16/166,971 | 10/22/2018 | US-2020-0029108 | 1/23/2020 | 10,904,587 | 1/26/2021 |
| GN195-AVA-US03 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | United States of America | 16/166,981 | 10/22/2018 | US-2020-0029115 | 1/23/2020 | 10,715,840 | 7/14/2020 |
| GN195-AVA-US04 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | United States of America | 16/890,592 | 6/2/2020 | US-2020-0296436 | 9/17/2020 | N/A | N\A |
| GN195-AVA-US05 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | United States of America | 17/247,517 | 12/15/2020 | N/A | N\A | N/A | N\A |
| GN195-AVA-WO01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Patent Cooperation Treaty | PCT/US2019/035973 | 6/7/2019 | WO2020/018192 | 1/23/2020 | N/A | N\A |
| GN195-AVA-WO02 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Patent Cooperation Treaty | PCT/US2019/035974 | 6/7/2019 | WO2020/018193 | 1/23/2020 | N/A | N\A |
| GN204-AVA-CN01 | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | China | 201980001149.2 | 6/7/2019 | 111418215 | 7/14/2020 | N/A | N\A |
| GN204-AVA-EP01 | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | European Patent | 19849629.1 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN204-AVA-JP01 | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | Japan | N/A | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN204-AVA-KR01 | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | Korea, Republic of (KR) | 2021-7006327 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN204-AVA-TW01 | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | Taiwan | 108122594 | 6/27/2019 | 202010313 | 3/1/2020 | I716017 | 1/11/2021 |
| GN204-AVA-TW02 | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | Taiwan | 109145505 | 12/22/2020 | N/A | N\A | N/A | N\A |

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| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN204-AVA-US01 | Dynamic Playout of Transition Frames while Transitioning between Playout of Media Streams | United States of America | 62/765,161 | 8/17/2018 | N/A | N\A | N/A | N\A |
| GN204-AVA-US02 | Dynamic Playout of Transition Frames While Transitioning Between Playout of Media Streams | United States of America | 16/183,185 | 11/7/2018 | US-2020-0059691 | 2/20/2020 | N/A | N\A |
| GN204-AVA-WO01 | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | Patent Cooperation Treaty | PCT/US2019/035996 | 6/7/2019 | WO2020/036667 | 2/20/2020 | N/A | N\A |
| GN205-AVA-CN01 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | China | 201980001150.5 | 6/7/2019 | CN111316659A | 6/19/2020 | N/A | N\A |
| GN205-AVA-EP01 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | European Patent | N/A | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN205-AVA-JP01 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | Japan | N/A | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN205-AVA-KR01 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | Korea, Republic of (KR) | 2021-7006324 | 6/7/2019 | N/A | N\A | N/A | N\A |
| GN205-AVA-TW01 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | Taiwan | 108122595 | 6/27/2019 | 202010314 | 3/1/2020 | I716018 | 1/11/2021 |
| GN205-AVA-TW02 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | Taiwan | 109145507 | 12/22/2020 | N/A | N\A | N/A | N\A |
| GN205-AVA-US01 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | United States of America | 62/765,276 | 8/17/2018 | N/A | N\A | N/A | N\A |
| GN205-AVA-US02 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content With End of Replaced Content | United States of America | 16/183,266 | 11/7/2018 | US-2020-0059692 | 2/20/2020 | N/A | N\A |
| GN205-AVA-WO01 | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | Patent Cooperation Treaty | PCT/US2019/036001 | 6/7/2019 | WO2020/036668 | 2/20/2020 | N/A | N\A |
| GN213-AVA-US01 | Scale/Affine Invariant Interest Region Detection with an Array of Anisotropic Filters for Video Fingerprinting | United States of America | 61/331,879 | 5/6/2010 | N/A | N\A | N/A | N\A |
| GN213-AVA-US02 | Scale/Affine Invariant Interest Region Detection with an Array of Anisotropic Filters for Video Fingerprinting | United States of America | 13/076,628 | 3/31/2011 | N/A | N\A | N/A | N\A |

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| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN216-AVA-TW01 | Detection of Mute and Compensation Therefor During Media Replacement Event | Taiwan | 108141307 | 11/14/2019 | 202021371 | 6/1/2020 | I718756 | 2/11/2021 |
| GN216-AVA-TW02 | Detection of Mute and Compensation Therefor During Media Replacement Event | Taiwan | 110100332 | 1/6/2021 | N/A | N\A | N/A | N\A |
| GN216-AVA-US01 | Detection of Mute and Compensation Therefor During Media Replacement Event | United States of America | 62/768,587 | 11/16/2018 | N/A | N\A | N/A | N\A |
| GN216-AVA-US02 | Detection of Mute and Compensation Therefor During Media Replacement Event | United States of America | 16/433,530 | 6/6/2019 | US-2020-0162788 | 5/21/2020 | N/A | N\A |
| GN216-AVA-US03 | Detection of Mute and Compensation Therefor During Media Replacement Event | United States of America | 16/847,532 | 4/13/2020 | US-2020-0245024 | 7/30/2020 | N/A | N\A |
| GN216-AVA-WO01 | Detection of Mute and Compensation Therefor During Media Replacement Event | Patent Cooperation Treaty | PCT/US2019/054798 | 10/4/2019 | WO2020/101819 | 5/22/2020 | N/A | N\A |
| GN217-AVA-TW01 | Volume Edge Case for DAI – Detect Volume Adjustments Using Loudness Level Profile | Taiwan | 108141663 | 11/15/2019 | 202034705 | 9/16/2020 | N/A | N\A |
| GN217-AVA-TW02 | Detection of Media Playback Audio Volume Level and Corresponding Adjustment to Audio During Media Replacement Event | Taiwan | 108141593 | 11/15/2019 | 202027513 | 7/16/2020 | N/A | N\A |
| GN217-AVA-TW03 | DETECTION OF MEDIA PLAYBACK LOUDNESS LEVEL AND CORRESPONDING ADJUSTMENT TO AUDIO DURING MEDIA REPLACEMENT EVENT | Taiwan | 110107028 | 2/26/2021 | N/A | N\A | N/A | N\A |
| GN217-AVA-US01 | Detection of Media Playback Loudness Level and Corresponding Adjustment to Audio During Media Replacement Event | United States of America | 62/768,596 | 11/16/2018 | N/A | N\A | N/A | N\A |
| GN217-AVA-US02 | Detection of Media Playback Loudness Level and Corresponding Adjustment to Audio During Media Replacement Event | United States of America | 16/673,859 | 11/4/2019 | US-2020-0159489 | 5/21/2020 | N/A | N\A |
| GN217-AVA-US03 | Detection of Media Playback Loudness Level and Corresponding Adjustment to Audio During Media Replacement Event | United States of America | 62/861,474 | 6/14/2019 | N/A | N\A | N/A | N\A |
| GN217-AVA-US04 | Monitoring Loudness Level During Media Replacement Event Using Shorter Time Constant | United States of America | 16/684,514 | 11/14/2019 | US-2020-0162048 | 5/21/2020 | N/A | N\A |
| GN217-AVA-US05 | Detection of Volume Adjustments During Media Replacement Events Using Loudness Level Profiles | United States of America | 16/684,510 | 11/14/2019 | US-2020-0162049 | 5/21/2020 | N/A | N\A |
| GN217-AVA-US06 | Detection of Media Playback Loudness Level and Corresponding Adjustment to Audio During Media Replacement Event | United States of America | 62/909,676 | 10/2/2019 | N/A | N\A | N/A | N\A |

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| Patent Reference | Application Title | Country | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date |
|---|---|---|---|---|---|---|---|---|
| GN217-AVA-WO01 | Volume Edge Case For Dai – Monitor Loudness Level During Media Content Replacement Event Using Shorter Time Co | Patent Cooperation Treaty | PCT/US2019/061632 | 11/15/2019 | WO2020/102632 | 5/22/2020 | N/A | N\A |
| GN217-AVA-WO02 | Volume Edge Case for DAI – Detect Volume Adjustments Using Loudness Level Profile | Patent Cooperation Treaty | PCT/US2019/061633 | 11/15/2019 | WO2020/102633 | 5/22/2020 | N/A | N\A |
| GN217-AVA-WO03 | Detection of Media Playback Audio Volume Level and Corresponding Adjustment to Audio During Media Replacement Event | Patent Cooperation Treaty | PCT/US2019/059882 | 11/5/2019 | WO2020/101951 | 5/22/2020 | N/A | N\A |
| GN221-AVA-TW01 | Method and System for Use of Automatic Content Recognition to Trigger Dynamic Ad Insertion in Response to Repeat Playout of Ad | Taiwan | 109132960 | 9/23/2020 | N/A | N\A | N/A | N\A |
| GN221-AVA-US01 | Method and System for Use of Automatic Content Recognition to Trigger Dynamic Ad Insertion in Response to Repeat Playout of Ad | United States of America | 16/668,833 | 10/30/2019 | N/A | N\A | N/A | N\A |
| GN221-AVA-WO01 | Method and System for Use of Automatic Content Recognition to Trigger Dynamic Ad Insertion in Response to Repeat Playout of Ad | Patent Cooperation Treaty | PCT/US2020/049356 | 9/4/2020 | N/A | N\A | N/A | N\A |
| GN228-AVA-US01 | Method and System for Use of Earlier and/or Later Single-Match as Basis to Disambiguate Channel Multi-Match with Non-Matching Programs | United States of America | 62/876,363 | 7/19/2019 | N/A | N\A | N/A | N\A |
| GN228-AVA-US02 | Method and System for Use of Earlier and/or Later Single-Match as Basis to Disambiguate Channel Multi-Match with Non-Matching Programs | United States of America | 16/586,552 | 9/27/2019 | US-2021-0021893 | 1/21/2021 | N/A | N\A |
| GN228-AVA-WO01 | Method and System for Use of Earlier and/or Later Single-Match as Basis to Disambiguate Channel Multi-Match with Non-Matching Programs | Patent Cooperation Treaty | PCT/US2020/042743 | 7/20/2020 | WO2021/016169 | 1/28/2021 | N/A | N\A |
| GN229-AVA-US01 | Method and System for Use of Network Affiliation as Basis to Determine Channel Rendered by Content Presentation Device | United States of America | 62/876,359 | 7/19/2019 | N/A | N\A | N/A | N\A |
| GN229-AVA-US02 | Method and System for Use of Network Affiliation as Basis to Determine Channel Rendered by Content Presentation Device | United States of America | 16/586,542 | 9/27/2019 | US02021-0021884 | 1/21/2021 | N/A | N\A |
| GN229-AVA-WO01 | Method and System for Use of Network Affiliation as Basis to Determine Channel Rendered by Content Presentation Device | Patent Cooperation Treaty | PCT/US2020/042742 | 7/20/2020 | WO2021/016168 | 1/28/2021 | N/A | N\A |

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