

TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM788696

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|---|--|-------------------------|-----------------------|
| SUBMISSION TYPE: | NEW ASSIGNMENT | | |
| NATURE OF CONVEYANCE: | TERMINATION AND RELEASE OF INTELLECTUAL PROPERTY SECURITY AGREEMENT (REEL/FRAME 7184/0863) | | |
| CONVEYING PARTY DATA | | | |
| Name | Formerly | Execution Date | Entity Type |
| MORGAN STANLEY SENIOR FUNDING, INC. | | 02/21/2023 | Corporation: DELAWARE |
| RECEIVING PARTY DATA | | | |
| Name: | QUIBI HOLDINGS, LLC | | |
| Street Address: | 1155 Coleman Avenue | | |
| City: | San Jose | | |
| State/Country: | CALIFORNIA | | |
| Postal Code: | 95510 | | |
| Entity Type: | Limited Liability Company: DELAWARE | | |
| PROPERTY NUMBERS Total: 6 | | | |
| Property Type | Number | Word Mark | |
| Registration Number: | 6075674 | QUIBI | |
| Registration Number: | 6081050 | Q QUIBI | |
| Registration Number: | 6081051 | Q | |
| Registration Number: | 6126414 | Q | |
| Serial Number: | 88771522 | QUICK BITES | |
| Serial Number: | 88771507 | QUICK BITES BIG STORIES | |
| CORRESPONDENCE DATA | | | |
| Fax Number: | | | |
| <i>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.</i> | | | |
| Phone: | 8004945225 | | |
| Email: | ipteam@cogencyglobal.com | | |
| Correspondent Name: | Stewart Walsh | | |
| Address Line 1: | 1025 Connecticut Ave NW, Suite 712 | | |
| Address Line 2: | COGENCY GLOBAL Inc. | | |
| Address Line 4: | Washington, D.C. 20036 | | |
| ATTORNEY DOCKET NUMBER: | 1914510 TM C | | |
| NAME OF SUBMITTER: | Jenny Lim | | |

OP \$165.00 6075674

**TERMINATION AND RELEASE OF
INTELLECTUAL PROPERTY SECURITY AGREEMENT**

This **TERMINATION AND RELEASE OF INTELLECTUAL PROPERTY SECURITY AGREEMENT** (this “*Termination and Release*”) is dated as of February 21, 2023, by **MORGAN STANLEY SENIOR FUNDING, INC.** (“*Bank*”), in favor of **ROKU, INC.**, a Delaware corporation, **TOH INTERMEDIATE HOLDINGS, LLC**, a Delaware limited liability company, **THIS OLD HOUSE VENTURES, LLC**, a Delaware limited liability company, **THIS OLD HOUSE PRODUCTIONS, LLC**, a Delaware limited liability company, **ROKU DX HOLDINGS, INC.**, a Delaware corporation, **PURPLE TAG ENTERPRISES, LLC**, a Delaware limited liability company and **QUIBI HOLDINGS, LLC**, a Delaware limited liability company (each a “*Grantor*”).

WHEREAS, pursuant to a Guaranty and Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof, the “*Guaranty and Security Agreement*”) dated as of February 19, 2019, by and between Grantor and Bank, Grantor executed and delivered (a) a Copyright Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of February 19, 2019, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor’s right, title and interest in, to certain intellectual property, which was recorded with the United States Copyright Office (“*USCO*”) at Volume 9972 Doc No. 611; (b) a Patent Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of February 19, 2019, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor’s right, title and interest in, to certain intellectual property, which was recorded with the Patent division of the United States Patent and Trademark Office (“*USPTO*”) at Reel 048385, Frame 0375; and (c) a Trademark Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of February 19, 2019, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor’s right, title and interest in, to certain intellectual property, which was recorded with the Trademark division of the USPTO at Reel 6575, Frame 0087;

WHEREAS, pursuant to the Guaranty and Security Agreement, certain Grantors executed and delivered (a) a Patent Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of December 13, 2019, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor’s right, title and interest in, to certain intellectual property, which was recorded with the Patent division of the USPTO at Reel 051300, Frame 0931, and (b) a Trademark Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of December 13, 2019, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor’s right, title and interest in, to certain intellectual property, which was recorded with the Trademark division of the USPTO at Reel 6816, Frame 0570;

WHEREAS, pursuant to the Guaranty and Security Agreement, certain Grantors executed and delivered a Trademark Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of February 5, 2021, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor’s right, title and interest in,

to certain intellectual property, which was recorded with the Trademark division of the USPTO at Reel 7184, Frame 0863;

WHEREAS, pursuant to the Guaranty and Security Agreement, certain Grantors executed and delivered (a) a Copyright Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of April 16, 2021, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor's right, title and interest in, to certain intellectual property, which was recorded with the USCO at Volume 15001, Doc No. 789, and (b) a Trademark Security Agreement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of April 16, 2021, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor's right, title and interest in, to certain intellectual property, which was recorded with the Trademark division of the USPTO at Reel 7260, Frame 0641;

WHEREAS, pursuant to the Guaranty and Security Agreement, certain Grantors executed and delivered (a) a Patent Security Agreement Supplement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of June 22, 2021, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor's right, title and interest in, to certain intellectual property, which was recorded with the Patent division of the USPTO at Reel 056982, Frame 0194, and (b) a Trademark Security Agreement Supplement (as amended, restated, supplemented or otherwise modified prior to the date hereof) dated as of June 22, 2021, granting, assigning and pledging to the Bank a continuing security interest in all of Grantor's right, title and interest in, to certain intellectual property, which was recorded with the Trademark division of the USPTO at Reel 7338, Frame 0626;

WHEREAS, Grantor has requested that Bank hereby terminate the Intellectual Property Security Agreement as herein provided; and

WHEREAS, Grantor has requested that the Bank provide a document suitable for recording with the USPTO and USCO to evidence the termination of the Intellectual Property Security Agreement as herein provided.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Bank hereby:

1. terminates the Intellectual Property Security Agreement and releases, terminates and discharges the liens on and security interests in Grantor's right, title and interest in, to and under the intellectual property as granted in the Intellectual Property Security Agreement, including those copyrights and copyright applications, patents and patent applications, and trademarks and trademark applications identified in Schedule I hereto; and
2. authorizes and requests that this Termination and Release be recorded with the USPTO and USCO.


THIS TERMINATION AND RELEASE SHALL BE GOVERNED BY, AND CONSTRUED AND INTERPRETED IN ACCORDANCE WITH, THE LAW OF THE STATE OF NEW YORK (INCLUDING, WITHOUT LIMITATION, SECTION 5-1401

OF THE GENERAL OBLIGATIONS LAW) WITHOUT REGARD TO CONFLICTS
OF LAW PRINCIPLES.

[Signature page follows]

IN WITNESS WHEREOF, the undersigned has executed this Termination and Release by its duly authorized officer as of the date first above written.

MORGAN STANLEY SENIOR FUNDING, INC.,
as Bank

By: 
Name: Lisa Hanson
Title: Vice President

SCHEDULE I TO
TERMINATION AND RELEASE OF INTELLECTUAL PROPERTY SECURITY
AGREEMENT

COPYRIGHTS

VOLUME/DOC No.: 9972/611

COPYRIGHT REGISTRATIONS

| Grantor | Country | Copyright | Registration No. | Registration Date |
|----------------|----------------|------------------|-------------------------|--------------------------|
| Roku, Inc. | United States | ROKU XD. | VA0001793137 | November 7, 2011 |
| Roku, Inc. | United States | ROKU XDS. | VA0001793140 | November 7, 2011 |

COPYRIGHT LICENSES

None.

VOLUME/DOC No.: 15001/789

Registrations:

| Owner | Title | Registration Number |
|-------------------------------|--|----------------------------|
| This Old House Ventures, LLC | This old house source book / the editors of This Old House magazine. | TX0004628461 |
| This Old House Ventures, LLC | This old house '97 | PA0000971538 |
| This Old House Ventures, LLC | Essential power tools : 19 tools to renovate and repair your home. | TX0005093700 |
| This Old House Ventures, LLC | Essential hand tools : 26 tools to renovate and repair your home. | TX0005093699 |
| This Old House Ventures, LLC | Essential home repair : a seasonal guide to maintaining your home. | TX0005093701 |
| This Old House Ventures, LLC | Essential paint techniques : improving your home with paint. | TX0005093698 |
| This Old House Ventures, Inc. | THIS OLD HOUSE | TX0008498150 |
| This Old House Ventures, Inc. | THIS OLD HOUSE | TX0008506774 |
| This Old House Ventures, Inc. | THIS OLD HOUSE | TX0008273571 |
| This Old House Ventures, Inc. | THIS OLD HOUSE | TX0008273556 |
| This Old House Ventures, Inc. | THIS OLD HOUSE | TX0008284069 |
| This Old House Ventures, LLC | This old house: creating a new kitchen: plumbing and electricity & 355 other titles. | V3480D294 |

| Owner | Title | Registration Number |
|------------------------------|---|---------------------|
| This Old House Ventures, LLC | This Old House. | CSN0145407 |
| This Old House Ventures, LLC | Kitchen & bath : trends, products & plans. | CSN0146460 |
| This Old House Ventures, LLC | This Old House. | CSN0145407 |
| This Old House Ventures, LLC | This Old House. | CSN0145407 |
| This Old House Ventures, LLC | Kitchen & bath : trends, products & plans. | CSN0146460 |
| This Old House Ventures, LLC | This Old House. | CSN0145407 |
| This Old House Ventures, LLC | This Old House. | CSN0145407 |
| This Old House Ventures, LLC | This Old House. | CSN0145407 |
| This Old House Ventures, LLC | This Old House. | CSN0145407 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2011-08-26 to 2011-09-30. Issues: vol. 16, no. 8, September 2011 to vol. 16, no. 9, October 2011] | TX0007509596 |
| This Old House Ventures, LLC | This Old House. | CSN0145407 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2012-05-11 to 2012-07-20. Issues: vol. 17, no. 5, June 2012 to vol. 17, no. 7, August 2012] | TX0007604784 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2012-11-02 to 2012-12-14. Issues: vol. 17, no. 10, November/December 2012 to vol. 18, no. 1, January/February 2013] | TX0007682589 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2012-02-03 to 2012-04-13. Issues: vol. 17, no. 2, March 2012 to vol. 17, no. 4, May 2012] | TX0007566930 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2013-02-01 to 2013-04-12. Issues: vol. 18, no. 2, March 2013 to vol. 18, no. 4, May 2013] | TX0007738086 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2013-08-23 to 2013-10-04. Issues: vol. 18, no. 8, September 2013 to vol. 18, no. 9, October 2013] | TX0007844572 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2013-11-08 to 2013-12-13. Issues: vol. 18, no. 10, Nov/Dec 2013 to vol. 19, no. 1, Jan/Feb 2014] | TX0007855240 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2014-01-31 to 2014-03-07. Issues: vol. 19, no. 2, March 2014 to vol. 19, no. 3, | TX0007934974 |

| Owner | Title | Registration Number |
|------------------------------|---|---------------------|
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2014-11-07 to 2014-12-12. Issues: vol. 19, no. 10, November/December 2014 to vol. 20, no. 1, January/February 2015] | TX0007994127 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2014-07-18 to 2014- 10-03. Issues: vol. 19, no. 7, August 2014 to vol. 19, no. 9, October 2014] | TX0007994075 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2015-01-30 to 2015- 04-10. Issues: vol. 20, no. 2, March 2015 to vol. 20, no. 4, | TX0008105072 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2015-05-15 to 2015-07-24. Issues: vol. 20, no. 5, June 2015 to vol. 20, no. 7, August 2015] | TX0008125172 |
| This Old House Ventures, LLC | THIS OLD HOUSE. [Published: 2014-04-11 to 2014-06-13. Issues: vol. 19, no. 4, May 2014 to vol. 19, no. 6, July 2014] | TX0007948257 |
| This Old House Ventures, LLC | This old house--Creating a new kitchen: plumbing and electricity | PA 714-148 |
| This Old House Ventures, LLC | This old house--Creating a new kitchen II: cabinets, appliances, countertops and flooring | PA 714-163 |
| This Old House Ventures, LLC | All new this old house; 100 series, 26 episodes | PA 392-551 |
| This Old House Ventures, LLC | This old house / Episode 101. | PA 804-124 |
| This Old House Ventures, LLC | This old house / Episode 102. | PA 804-129 |
| This Old House Ventures, LLC | This old house / Episode 103. | PA 804-151 |
| This Old House Ventures, LLC | This old house / Episode 104. | PA 304-127 |
| This Old House Ventures, LLC | This old house / Episode 105. | PA 804-128 |
| This Old House Ventures, LLC | This old house / Episode 106. | PA 804-252 |
| This Old House Ventures, LLC | This old house / Episode 107. | PA 804-257 |
| This Old House Ventures, LLC | This old house / Episode 108. | PA 804-126 |
| This Old House Ventures, LLC | This old house / Episode 109. | PA 804-125 |
| This Old House Ventures, LLC | This old house / Episode 110. | PA 807-906 |
| This Old House Ventures, LLC | This old house / Episode 111. | PA 804-118 |
| This Old House Ventures, LLC | This old house / Episode 112. | PA 804-148 |
| This Old House Ventures, LLC | This old house / Episode 113. | PA 804-137 |

| Owner | Title | Registration Number |
|------------------------------|-------------------------------|----------------------------|
| This Old House Ventures, LLC | This old house / Episode 114. | PA 804-119 |
| This Old House Ventures, LLC | This old house / Episode 115. | PA 803-996 |
| This Old House Ventures, LLC | This old house / Episode 116. | PA 804-135 |
| This Old House Ventures, LLC | This old house / Episode 117. | PA 804-136 |
| This Old House Ventures, LLC | This old house / Episode 118. | PA 804-139 |
| This Old House Ventures, LLC | This old house / Episode 119. | PA 804-132 |
| This Old House Ventures, LLC | This old house / Episode 120. | PA 803-995 |
| This Old House Ventures, LLC | This old house / Episode 121. | PA 804-122 |
| This Old House Ventures, LLC | This old house / Episode 122. | PA 804-134 |
| This Old House Ventures, LLC | This old house / Episode 123. | PA 804-161 |
| This Old House Ventures, LLC | This old house / Episode 124. | PA 803-955 |
| This Old House Ventures, LLC | This old house / Episode 125. | PA 807-896 |
| This Old House Ventures, LLC | This old house / Episode 126. | PA 804-163 |
| This Old House Ventures, LLC | This old house / Episode 127. | PA 804-162 |
| This Old House Ventures, LLC | This old house / Episode 128. | PA 803-953 |
| This Old House Ventures, LLC | This old house / Episode 129. | PA 803-956 |
| This Old House Ventures, LLC | This old house / Episode 130. | PA 803-954 |
| This Old House Ventures, LLC | This old house / Episode 131. | PA 803-957 |
| This Old House Ventures, LLC | This old house / Episode 132. | PA 803-952 |
| This Old House Ventures, LLC | This old house / Episode 133. | PA 804-164 |
| This Old House Ventures, LLC | This old house / Episode 134. | PA 803-993 |
| This Old House Ventures, LLC | This old house / Episode 135. | PA 804-123 |
| This Old House Ventures, LLC | This old house / Episode 136. | PA 803-994 |
| This Old House Ventures, LLC | This old house / Episode 137. | PA 804-147 |
| This Old House Ventures, LLC | This old house / Episode 138. | PA 804-155 |

| Owner | Title | Registration Number |
|------------------------------|-------------------------------|---------------------|
| LLC | | |
| This Old House Ventures, LLC | This old house / Episode 139. | PA 804-140 |
| This Old House Ventures, LLC | This old house / Episode 140. | PA 804-138 |
| This Old House Ventures, LLC | This old house / Episode 201. | PA 807-895 |
| This Old House Ventures, LLC | This old house / Episode 202. | PA 804-041 |
| This Old House Ventures, LLC | This old house / Episode 203. | PA 807-905 |
| This Old House Ventures, LLC | This old house / Episode 204. | PA 804-040 |
| This Old House Ventures, LLC | This old house / Episode 205. | PA 804-043 |
| This Old House Ventures, LLC | This old house / Episode 206. | PA 804-044 |
| This Old House Ventures, LLC | This old house / Episode 207. | PA 804-042 |
| This Old House Ventures, LLC | This old house / Episode 208. | PA 804-045 |
| This Old House Ventures, LLC | This old house / Episode 209. | PA 804-046 |
| This Old House Ventures, LLC | This old house / Episode 210. | PA 804-047 |
| This Old House Ventures, LLC | This old house / Episode 211. | PA 804-048 |
| This Old House Ventures, LLC | This old house / Episode 212. | PA 804-038 |
| This Old House Ventures, LLC | This old house / Episode 213. | PA 804-039 |
| This Old House Ventures, LLC | This old house / Episode 301. | PA 804-355 |
| This Old House Ventures, LLC | This old house / Episode 302. | PA 804-359 |
| This Old House Ventures, LLC | This old house / Episode 303. | PA 804-360 |
| This Old House Ventures, LLC | This old house / Episode 304. | PA 804-388 |
| This Old House Ventures, LLC | This old house / Episode 305. | PA 804-325 |
| This Old House Ventures, LLC | This old house / Episode 306. | PA 827-327 |
| This Old House Ventures, LLC | This old house / Episode 307. | PA 804-361 |
| This Old House Ventures, LLC | This old house / Episode 308. | PA 804-356 |
| This Old House Ventures, LLC | This old house / Episode 309. | PA 804-362 |

| Owner | Title | Registration Number |
|------------------------------|--|----------------------------|
| This Old House Ventures, LLC | This old house / Episode 310. | PA 804-494 |
| This Old House Ventures, LLC | This old house / Episode 311. | PA 804-481 |
| This Old House Ventures, LLC | This old house / Episode 312. | PA 804-357 |
| This Old House Ventures, LLC | This old house / Episode 313. | PA 804-354 |
| This Old House Ventures, LLC | This old house / Episode 314. | PA 804-358 |
| This Old House Ventures, LLC | This old house / Episode 315. | PA 827-324 |
| This Old House Ventures, LLC | This old house / Episode 316. | PA 804-154 |
| This Old House Ventures, LLC | This old house / Episode 317. | PA 804-146 |
| This Old House Ventures, LLC | This old house / Episode 318. | PA 749-253 |
| This Old House Ventures, LLC | This old house / Episode 319. | PA 804-133 |
| This Old House Ventures, LLC | This old house / Episode 320. | PA 804-145 |
| This Old House Ventures, LLC | This old house / Episode 321. | PA 804-144 |
| This Old House Ventures, LLC | This old house / Episode 322. | PA 804-121 |
| This Old House Ventures, LLC | This old house / Episode 323. | PA 804-120 |
| This Old House Ventures, LLC | This old house / Episode 324. | PA 749-252 |
| This Old House Ventures, LLC | This old house / Episode 325. | PA 804-152 |
| This Old House Ventures, LLC | This old house / Episode 326. | PA 804-149 |
| This Old House Ventures, LLC | This old house; 400 series, 26 episodes | PA 896-451 |
| This Old House Ventures, LLC | This old house; 500 series, 26 episodes | PA 896-300 |
| This Old House Ventures, LLC | This old house; 600 series, 26 episodes | PA 10-810-251 |
| This Old House Ventures, LLC | This old house; 700 series, 26 episodes | PA 400-879 |
| This Old House Ventures, LLC | This old house; 800 series, 26 episodes | PA 454-902 |
| This Old House Ventures, LLC | This old house; 900 series, 26 episodes | PA 480-787 |
| This Old House Ventures, LLC | This old house; 1000 series, 26 episodes | PA 514-501 |
| This Old House Ventures, LLC | This old house / Episode 1101. | PA 625-549 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|---------------------|
| LLC | | |
| This Old House Ventures, LLC | This old house / Episode 1102. | PA 629-522 |
| This Old House Ventures, LLC | This old house / Episode 1103. | PA 629-521 |
| This Old House Ventures, LLC | This old house / Episode 1104. | PA 629-525 |
| This Old House Ventures, LLC | This old house / Episode 1105. | PA 629-550 |
| This Old House Ventures, LLC | This old house / Episode 1106. | PA 629-548 |
| This Old House Ventures, LLC | This old house / Episode 1107. | PA 629-545 |
| This Old House Ventures, LLC | This old house / Episode 1108. | PA 629-523 |
| This Old House Ventures, LLC | This old house / Episode 1109. | PA 629-528 |
| This Old House Ventures, LLC | This old house / Episode 1110. | PA 629-527 |
| This Old House Ventures, LLC | This old house / Episode 1111. | PA 629-552 |
| This Old House Ventures, LLC | This old house / Episode 1112. | PA 629-551 |
| This Old House Ventures, LLC | This old house / Episode 1113. | PA 629-555 |
| This Old House Ventures, LLC | This old house / Episode 1114. | PA 629-547 |
| This Old House Ventures, LLC | This old house / Episode 1115. | PA 629-557 |
| This Old House Ventures, LLC | This old house / Episode 1116. | PA 629-556 |
| This Old House Ventures, LLC | This old house / Episode 1117. | PA 629-542 |
| This Old House Ventures, LLC | This old house / Episode 1118. | PA 692-541 |
| This Old House Ventures, LLC | This old house / Episode 1119. | PA 729-388 |
| This Old House Ventures, LLC | This old house / Episode 1120. | PA 729-415 |
| This Old House Ventures, LLC | This old house / Episode 1121. | PA 629-554 |
| This Old House Ventures, LLC | This old house / Episode 1122. | PA 629-553 |
| This Old House Ventures, LLC | This old house / Episode 1123. | PA 629-546 |
| This Old House Ventures, LLC | This old house / Episode 1124. | PA 629-544 |
| This Old House Ventures, LLC | This old house / Episode 1125. | PA 629-543 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|----------------------------|
| This Old House Ventures, LLC | This old house / Episode 1126. | PA 729-390 |
| This Old House Ventures, LLC | This old house / Episode 1201. | PA 802-726 |
| This Old House Ventures, LLC | This old house / Episode 1202. | PA 802-725 |
| This Old House Ventures, LLC | This old house / Episode 1203. | PA 802-724 |
| This Old House Ventures, LLC | This old house / Episode 1204. | PA 802-723 |
| This Old House Ventures, LLC | This old house / Episode 1205. | PA 802-722 |
| This Old House Ventures, LLC | This old house / Episode 1206. | PA 802-720 |
| This Old House Ventures, LLC | This old house / Episode 1207. | PA 802-721 |
| This Old House Ventures, LLC | This old house / Episode 1208. | PA 802-719 |
| This Old House Ventures, LLC | This old house / Episode 1209. | PA 802-718 |
| This Old House Ventures, LLC | This old house / Episode 1210. | PA 802-716 |
| This Old House Ventures, LLC | This old house / Episode 1211. | PA 802-715 |
| This Old House Ventures, LLC | This old house / Episode 1212. | PA 802-683 |
| This Old House Ventures, LLC | This old house / Episode 1213. | PA 802-682 |
| This Old House Ventures, LLC | This old house / Episode 1214. | PA 802-684 |
| This Old House Ventures, LLC | This old house / Episode 1215. | PA 802-685 |
| This Old House Ventures, LLC | This old house / Episode 1216. | PA 802-686 |
| This Old House Ventures, LLC | This old house / Episode 1217. | PA 802-687 |
| This Old House Ventures, LLC | This old house / Episode 1218. | PA 802-688 |
| This Old House Ventures, LLC | This old house / Episode 1219. | PA 802-689 |
| This Old House Ventures, LLC | This old house / Episode 1220. | PA 802-690 |
| This Old House Ventures, LLC | This old house / Episode 1221. | PA 802-691 |
| This Old House Ventures, LLC | This old house / Episode 1222. | PA 802-692 |
| This Old House Ventures, LLC | This old house / Episode 1223. | PA 802-493 |
| This Old House Ventures, LLC | This old house / Episode 1224. | PA 802-492 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|---------------------|
| LLC | | |
| This Old House Ventures, LLC | This old house / Episode 1225. | PA 802-491 |
| This Old House Ventures, LLC | This old house / Episode 1226. | PA 802-495 |
| This Old House Ventures, LLC | This old house / Episode 1301. | PA 802-494 |
| This Old House Ventures, LLC | This old house / Episode 1302. | PA 802-490 |
| This Old House Ventures, LLC | This old house / Episode 1303. | PA 802-487 |
| This Old House Ventures, LLC | This old house / Episode 1304. | PA 802-486 |
| This Old House Ventures, LLC | This old house / Episode 1305. | PA 802-489 |
| This Old House Ventures, LLC | This old house / Episode 1306. | PA 802-488 |
| This Old House Ventures, LLC | This old house / Episode 1307. | PA 802-484 |
| This Old House Ventures, LLC | This old house / Episode 1308. | PA 802-485 |
| This Old House Ventures, LLC | This old house / Episode 1309. | PA 798-787 |
| This Old House Ventures, LLC | This old house / Episode 1310. | PA 798-785 |
| This Old House Ventures, LLC | This old house / Episode 1311. | PA 798-788 |
| This Old House Ventures, LLC | This old house / Episode 1312. | PA 798-780 |
| This Old House Ventures, LLC | This old house / Episode 1313. | PA 798-778 |
| This Old House Ventures, LLC | This old house / Episode 1314. | PA 798-779 |
| This Old House Ventures, LLC | This old house / Episode 1315. | PA 798-783 |
| This Old House Ventures, LLC | This old house / Episode 1316. | PA 798-781 |
| This Old House Ventures, LLC | This old house / Episode 1317. | PA 798-784 |
| This Old House Ventures, LLC | This old house / Episode 1318. | PA 798-786 |
| This Old House Ventures, LLC | This old house / Episode 1319. | PA 798-745 |
| This Old House Ventures, LLC | This old house / Episode 1320. | PA 798-744 |
| This Old House Ventures, LLC | This old house / Episode 1321. | PA 798-743 |
| This Old House Ventures, LLC | This old house / Episode 1322. | PA 798-742 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|----------------------------|
| This Old House Ventures, LLC | This old house / Episode 1323. | PA 798-741 |
| This Old House Ventures, LLC | This old house / Episode 1324. | PA 798-740 |
| This Old House Ventures, LLC | This old house / Episode 1325. | PA 798-736 |
| This Old House Ventures, LLC | This old house / Episode 1326. | PA 798-739 |
| This Old House Ventures, LLC | This old house / Episode 1401. | PA 798-735 |
| This Old House Ventures, LLC | This old house / Episode 1402. | PA 798-737 |
| This Old House Ventures, LLC | This old house / Episode 1403. | PA 798-738 |
| This Old House Ventures, LLC | This old house / Episode 1404. | PA 798-775 |
| This Old House Ventures, LLC | This old house / Episode 1405. | PA 798-776 |
| This Old House Ventures, LLC | This old house / Episode 1406. | PA 797-653 |
| This Old House Ventures, LLC | This old house / Episode 1407. | PA 797-651 |
| This Old House Ventures, LLC | This old house / Episode 1408. | PA 797-650 |
| This Old House Ventures, LLC | This old house / Episode 1409. | PA 797-649 |
| This Old House Ventures, LLC | This old house / Episode 1410. | PA 797-648 |
| This Old House Ventures, LLC | This old house / Episode 1411. | PA 797-646 |
| This Old House Ventures, LLC | This old house / Episode 1412. | PA 797-645 |
| This Old House Ventures, LLC | This old house / Episode 1413. | PA 797-647 |
| This Old House Ventures, LLC | This old house / Episode 1414. | PA 797-655 |
| This Old House Ventures, LLC | This old house / Episode 1415. | PA 797-652 |
| This Old House Ventures, LLC | This old house / Episode 1416. | PA 797-769 |
| This Old House Ventures, LLC | This old house / Episode 1417. | PA 797-661 |
| This Old House Ventures, LLC | This old house / Episode 1418. | PA 797-659 |
| This Old House Ventures, LLC | This old house / Episode 1419. | PA 797-658 |
| This Old House Ventures, LLC | This old house / Episode 1420. | PA 797-664 |
| This Old House Ventures, LLC | This old house / Episode 1421. | PA 797-662 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|---------------------|
| LLC | | |
| This Old House Ventures, LLC | This old house / Episode 1422. | PA 797-665 |
| This Old House Ventures, LLC | This old house / Episode 1423. | PA 797-663 |
| This Old House Ventures, LLC | This old house / Episode 1424. | PA 797-666 |
| This Old House Ventures, LLC | This old house / Episode 1425. | PA 797-667 |
| This Old House Ventures, LLC | This old house / Episode 1426. | PA 797-657 |
| This Old House Ventures, LLC | This old house / Episode 1501. | PA 797-668 |
| This Old House Ventures, LLC | This old house / Episode 1502. | PA 797-660 |
| This Old House Ventures, LLC | This old house / Episode 1503. | PA 798-782 |
| This Old House Ventures, LLC | This old house / Episode 1504. | PA 862-556 |
| This Old House Ventures, LLC | This old house / Episode 1505. | PA 798-762 |
| This Old House Ventures, LLC | This old house / Episode 1506. | PA 798-763 |
| This Old House Ventures, LLC | This old house / Episode 1507. | PA 798-761 |
| This Old House Ventures, LLC | This old house / Episode 1508. | PA 798-780 |
| This Old House Ventures, LLC | This old house / Episode 1509. | PA 798-759 |
| This Old House Ventures, LLC | This old house / Episode 1510. | PA 798-757 |
| This Old House Ventures, LLC | This old house / Episode 1511. | PA 798-755 |
| This Old House Ventures, LLC | This old house / Episode 1512. | PA 798-756 |
| This Old House Ventures, LLC | This old house / Episode 1513. | PA 798-758 |
| This Old House Ventures, LLC | This old house / Episode 1514. | PA 793-754 |
| This Old House Ventures, LLC | This old house / Episode 1515. | PA 797-766 |
| This Old House Ventures, LLC | This old house / Episode 1516. | PA 797-762 |
| This Old House Ventures, LLC | This old house / Episode 1517. | PA 797-763 |
| This Old House Ventures, LLC | This old house / Episode 1518. | PA 797-765 |
| This Old House Ventures, LLC | This old house / Episode 1519. | PA 797-764 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|----------------------------|
| This Old House Ventures, LLC | This old house / Episode 1520. | PA 797-767 |
| This Old House Ventures, LLC | This old house / Episode 1521. | PA 797-785 |
| This Old House Ventures, LLC | This old house / Episode 1522. | PA 797-768 |
| This Old House Ventures, LLC | This old house / Episode 1523. | PA 802-755 |
| This Old House Ventures, LLC | This old house / Episode 1524. | PA 797-783 |
| This Old House Ventures, LLC | This old house / Episode 1525. | PA 797-784 |
| This Old House Ventures, LLC | This old house / Episode 1526. | PA 797-761 |
| This Old House Ventures, LLC | This old house / Episode 1601. | PA 845-225 |
| This Old House Ventures, LLC | This old house / Episode 1425. | PA 797-667 |
| This Old House Ventures, LLC | This old house / Episode 1426. | PA 797-657 |
| This Old House Ventures, LLC | This old house / Episode 1501. | PA 797-668 |
| This Old House Ventures, LLC | This old house / Episode 1502. | PA 797-660 |
| This Old House Ventures, LLC | This old house / Episode 1503. | PA 798-782 |
| This Old House Ventures, LLC | This old house / Episode 1504. | PA 862-556 |
| This Old House Ventures, LLC | This old house / Episode 1505. | PA 798-762 |
| This Old House Ventures, LLC | This old house / Episode 1506. | PA 798-763 |
| This Old House Ventures, LLC | This old house / Episode 1507. | PA 798-761 |
| This Old House Ventures, LLC | This old house / Episode 1508. | PA 798-780 |
| This Old House Ventures, LLC | This old house / Episode 1509. | PA 798-759 |
| This Old House Ventures, LLC | This old house / Episode 1510. | PA 798-757 |
| This Old House Ventures, LLC | This old house / Episode 1511. | PA 798-755 |
| This Old House Ventures, LLC | This old house / Episode 1512. | PA 798-756 |
| This Old House Ventures, LLC | This old house / Episode 1513. | PA 798-758 |
| This Old House Ventures, LLC | This old house / Episode 1514. | PA 793-754 |
| This Old House Ventures, LLC | This old house / Episode 1515. | PA 797-766 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|---------------------|
| LLC | | |
| This Old House Ventures, LLC | This old house / Episode 1516. | PA 797-762 |
| This Old House Ventures, LLC | This old house / Episode 1517. | PA 797-763 |
| This Old House Ventures, LLC | This old house / Episode 1518. | PA 797-765 |
| This Old House Ventures, LLC | This old house / Episode 1519. | PA 797-764 |
| This Old House Ventures, LLC | This old house / Episode 1520. | PA 797-767 |
| This Old House Ventures, LLC | This old house / Episode 1521. | PA 797-785 |
| This Old House Ventures, LLC | This old house / Episode 1522. | PA 797-768 |
| This Old House Ventures, LLC | This old house / Episode 1523. | PA 802-755 |
| This Old House Ventures, LLC | This old house / Episode 1524. | PA 797-783 |
| This Old House Ventures, LLC | This old house / Episode 1525. | PA 797-784 |
| This Old House Ventures, LLC | This old house / Episode 1526. | PA 797-761 |
| This Old House Ventures, LLC | This old house / Episode 1601. | PA 845-225 |
| This Old House Ventures, LLC | This old house / Episode 1602. | PA 845-223 |
| This Old House Ventures, LLC | This old house / Episode 1603. | PA 845-227 |
| This Old House Ventures, LLC | This old house / Episode 1604. | PA 845-224 |
| This Old House Ventures, LLC | This old house / Episode 1605. | PA 845-221 |
| This Old House Ventures, LLC | This old house / Episode 1606. | PA 845-222 |
| This Old House Ventures, LLC | This old house / Episode 1607. | PA 845-219 |
| This Old House Ventures, LLC | This old house / Episode 1608. | PA 845-218 |
| This Old House Ventures, LLC | This old house / Episode 1609. | PA 845-220 |
| This Old House Ventures, LLC | This old house / Episode 1610. | PA 845-217 |
| This Old House Ventures, LLC | This old house / Episode 1611. | PA 845-216 |
| This Old House Ventures, LLC | This old house / Episode 1612. | PA 857-464 |
| This Old House Ventures, LLC | This old house / Episode 1613. | PA 845-287 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|----------------------------|
| This Old House Ventures, LLC | This old house / Episode 1614. | PA 845-288 |
| This Old House Ventures, LLC | This old house / Episode 1615. | PA 845-284 |
| This Old House Ventures, LLC | This old house / Episode 1616. | PA 845-286 |
| This Old House Ventures, LLC | This old house / Episode 1617. | PA 845-285 |
| This Old House Ventures, LLC | This old house / Episode 1618. | PA 845-282 |
| This Old House Ventures, LLC | This old house / Episode 1619. | PA 845-283 |
| This Old House Ventures, LLC | This old house / Episode 1620. | PA 845-281 |
| This Old House Ventures, LLC | This old house / Episode 1621. | PA 845-280 |
| This Old House Ventures, LLC | This old house / Episode 1622. | PA 845-279 |
| This Old House Ventures, LLC | This old house / Episode 1623. | PA 845-278 |
| This Old House Ventures, LLC | This old house / Episode 1624. | PA 850-975 |
| This Old House Ventures, LLC | This old house / Episode 1625. | PA 850-978 |
| This Old House Ventures, LLC | This old house / Episode 1626. | PA 850-980 |
| This Old House Ventures, LLC | This old house / Episode 1701. | PA 920-828 |
| This Old House Ventures, LLC | This old house / Episode 1702. | PA 920-831 |
| This Old House Ventures, LLC | This old house / Episode 1703. | PA 920-838 |
| This Old House Ventures, LLC | This old house / Episode 1704. | PA 920-832 |
| This Old House Ventures, LLC | This old house / Episode 1602. | PA 845-223 |
| This Old House Ventures, LLC | This old house / Episode 1603. | PA 845-227 |
| This Old House Ventures, LLC | This old house / Episode 1604. | PA 845-224 |
| This Old House Ventures, LLC | This old house / Episode 1605. | PA 845-221 |
| This Old House Ventures, LLC | This old house / Episode 1606. | PA 845-222 |
| This Old House Ventures, LLC | This old house / Episode 1607. | PA 845-219 |
| This Old House Ventures, LLC | This old house / Episode 1608. | PA 845-218 |
| This Old House Ventures, LLC | This old house / Episode 1609. | PA 845-220 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|---------------------|
| LLC | | |
| This Old House Ventures, LLC | This old house / Episode 1610. | PA 845-217 |
| This Old House Ventures, LLC | This old house / Episode 1611. | PA 845-216 |
| This Old House Ventures, LLC | This old house / Episode 1612. | PA 857-464 |
| This Old House Ventures, LLC | This old house / Episode 1613. | PA 845-287 |
| This Old House Ventures, LLC | This old house / Episode 1614. | PA 845-288 |
| This Old House Ventures, LLC | This old house / Episode 1615. | PA 845-284 |
| This Old House Ventures, LLC | This old house / Episode 1616. | PA 845-286 |
| This Old House Ventures, LLC | This old house / Episode 1617. | PA 845-285 |
| This Old House Ventures, LLC | This old house / Episode 1618. | PA 845-282 |
| This Old House Ventures, LLC | This old house / Episode 1619. | PA 845-283 |
| This Old House Ventures, LLC | This old house / Episode 1620. | PA 845-281 |
| This Old House Ventures, LLC | This old house / Episode 1621. | PA 845-280 |
| This Old House Ventures, LLC | This old house / Episode 1622. | PA 845-279 |
| This Old House Ventures, LLC | This old house / Episode 1623. | PA 845-278 |
| This Old House Ventures, LLC | This old house / Episode 1624. | PA 850-975 |
| This Old House Ventures, LLC | This old house / Episode 1625. | PA 850-978 |
| This Old House Ventures, LLC | This old house / Episode 1626. | PA 850-980 |
| This Old House Ventures, LLC | This old house / Episode 1701. | PA 920-828 |
| This Old House Ventures, LLC | This old house / Episode 1702. | PA 920-831 |
| This Old House Ventures, LLC | This old house / Episode 1703. | PA 920-838 |
| This Old House Ventures, LLC | This old house / Episode 1704. | PA 920-832 |
| This Old House Ventures, LLC | This old house / Episode 1705. | PA 920-833 |
| This Old House Ventures, LLC | This old house / Episode 1706. | PA 920-837 |
| This Old House Ventures, LLC | This old house / Episode 1707. | PA 920-834 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|----------------------------|
| This Old House Ventures, LLC | This old house / Episode 1708. | PA 920-829 |
| This Old House Ventures, LLC | This old house / Episode 1709. | PA 920-830 |
| This Old House Ventures, LLC | This old house / Episode 1710. | PA 920-836 |
| This Old House Ventures, LLC | This old house / Episode 1711. | PA 920-835 |
| This Old House Ventures, LLC | This old house / Episode 1712. | PA 920-842 |
| This Old House Ventures, LLC | This old house / Episode 1713. | PA 920-843 |
| This Old House Ventures, LLC | This old house / Episode 1714. | PA 920-845 |
| This Old House Ventures, LLC | This old house / Episode 1715. | PA 920-844 |
| This Old House Ventures, LLC | This old house / Episode 1716. | PA 920-847 |
| This Old House Ventures, LLC | This old house / Episode 1717. | PA 920-846 |
| This Old House Ventures, LLC | This old house / Episode 1718. | PA 920-848 |
| This Old House Ventures, LLC | This old house / Episode 1719. | PA 920-849 |
| This Old House Ventures, LLC | This old house / Episode 1720. | PA 920-840 |
| This Old House Ventures, LLC | This old house / Episode 1721. | PA 920-841 |
| This Old House Ventures, LLC | This old house / Episode 1722. | PA 920-839 |
| This Old House Ventures, LLC | This old house / Episode 1723. | PA 911-950 |
| This Old House Ventures, LLC | This old house / Episode 1724. | PA 911-951 |
| This Old House Ventures, LLC | This old house / Episode 1725. | PA 911-952 |
| This Old House Ventures, LLC | This old house / Episode 1726. | PA 911-954 |
| This Old House Ventures, LLC | This old house / Episode 1801. | PA 957-819 |
| This Old House Ventures, LLC | This old house / Episode 1802. | PA 957-820 |
| This Old House Ventures, LLC | This old house / Episode 1803. | PA 957-821 |
| This Old House Ventures, LLC | This old house / Episode 1804. | PA 957-822 |
| This Old House Ventures, LLC | This old house / Episode 1805. | PA 957-823 |
| This Old House Ventures, LLC | This old house / Episode 1806. | PA 957-824 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|---------------------|
| LLC | | |
| This Old House Ventures, LLC | This old house / Episode 1807. | PA 957-825 |
| This Old House Ventures, LLC | This old house / Episode 1808. | PA 957-826 |
| This Old House Ventures, LLC | This old house / Episode 1809. | PA 957-827 |
| This Old House Ventures, LLC | This old house / Episode 1810. | PA 957-828 |
| This Old House Ventures, LLC | This old house / Episode 1811. | PA 957-829 |
| This Old House Ventures, LLC | This old house / Episode 1812. | PA 957-830 |
| This Old House Ventures, LLC | This old house / Episode 1813. | PA 957-831 |
| This Old House Ventures, LLC | This old house / Episode 1814. | PA 957-832 |
| This Old House Ventures, LLC | This old house / Episode 1815. | PA 957-833 |
| This Old House Ventures, LLC | This old house / Episode 1816. | PA 957-834 |
| This Old House Ventures, LLC | This old house / Episode 1817. | PA 957-835 |
| This Old House Ventures, LLC | This old house / Episode 1818. | PA 957-836 |
| This Old House Ventures, LLC | This old house / Episode 1819. | PA 957-837 |
| This Old House Ventures, LLC | This old house / Episode 1820. | PA 957-838 |
| This Old House Ventures, LLC | This old house / Episode 1821. | PA 957-839 |
| This Old House Ventures, LLC | This old house / Episode 1822. | PA 957-840 |
| This Old House Ventures, LLC | This old house / Episode 1823. | PA 957-841 |
| This Old House Ventures, LLC | This old house / Episode 1824. | PA 957-842 |
| This Old House Ventures, LLC | This old house / Episode 1825. | PA 957-843 |
| This Old House Ventures, LLC | This old house / Episode 1826. | PA 957-844 |
| This Old House Ventures, LLC | This old house / Episode 1901. | PA 999-640 |
| This Old House Ventures, LLC | This old house / Episode 1902. | PA 999-641 |
| This Old House Ventures, LLC | This old house / Episode 1903. | PA 999-642 |
| This Old House Ventures, LLC | This old house / Episode 1904. | PA 999-643 |

| Owner | Title | Registration Number |
|------------------------------|--------------------------------|----------------------------|
| This Old House Ventures, LLC | This old house / Episode 1905. | PA 999-644 |
| This Old House Ventures, LLC | This old house / Episode 1906. | PA 999-645 |
| This Old House Ventures, LLC | This old house / Episode 1907. | PA 999-646 |
| This Old House Ventures, LLC | This old house / Episode 1908. | PA 999-647 |
| This Old House Ventures, LLC | This old house / Episode 1909. | PA 999-648 |
| This Old House Ventures, LLC | This old house / Episode 1910. | PA 999-649 |
| This Old House Ventures, LLC | This old house / Episode 1911. | PA 999-650 |
| This Old House Ventures, LLC | This old house / Episode 1912. | PA 999-651 |
| This Old House Ventures, LLC | This old house / Episode 1913. | PA 999-652 |
| This Old House Ventures, LLC | This old house / Episode 1914. | PA 999-653 |
| This Old House Ventures, LLC | This old house / Episode 1915. | PA 999-654 |
| This Old House Ventures, LLC | This old house / Episode 1916. | PA 999-655 |
| This Old House Ventures, LLC | This old house / Episode 1917. | PA 999-656 |
| This Old House Ventures, LLC | This old house / Episode 1918. | PA 999-657 |
| This Old House Ventures, LLC | This old house / Episode 1919. | PA 999-658 |
| This Old House Ventures, LLC | This old house / Episode 1920. | PA 999-659 |
| This Old House Ventures, LLC | This old house / Episode 1921. | PA 999-660 |
| This Old House Ventures, LLC | This old house / Episode 1922. | PA 999-661 |
| This Old House Ventures, LLC | This old house / Episode 1923. | PA 999-662 |
| This Old House Ventures, LLC | This old house / Episode 1924. | PA 999-663 |
| This Old House Ventures, LLC | This old house / Episode 1925. | PA 999-664 |
| This Old House Ventures, LLC | This old house / Episode 1926. | PA 999-665 |
| This Old House Ventures, LLC | This old house / Episode 2001. | PA 1-047-749 |
| This Old House Ventures, LLC | This old house / Episode 2002. | PA 1-047-750 |
| This Old House Ventures, LLC | This old house / Episode 2003. | PA 1-047-751 |

| Owner | Title | Registration Number |
|------------------------------|--|----------------------------|
| LLC | | |
| This Old House Ventures, LLC | This old house / Episode 2004. | PA 1-047-752 |
| This Old House Ventures, LLC | This old house / Episode 2005. | PA 1-047-753 |
| This Old House Ventures, LLC | This old house / Episode 2006. | PA 1-047-754 |
| This Old House Ventures, LLC | This old house / Episode 2007. | PA 1-047-755 |
| This Old House Ventures, LLC | This old house / Episode 2008. | PA 1-047-756 |
| This Old House Ventures, LLC | This old house / Episode 2009. | PA 1-047-757 |
| This Old House Ventures, LLC | This old house / Episode 2010. | PA 1-047-758 |
| This Old House Ventures, LLC | This old house / Episode 2011. | PA 1-047-759 |
| This Old House Ventures, LLC | This old house / Episode 2012. | PA 1-047-914 |
| This Old House Ventures, LLC | This old house / Episode 2013. | PA 1-047-915 |
| This Old House Ventures, LLC | This old house / Episode 2014. | PA 1-047-916 |
| This Old House Ventures, LLC | This old house / Episode 2015. | PA 1-066-304 |
| This Old House Ventures, LLC | This old house / Episode 2016. | PA 1-047-918 |
| This Old House Ventures, LLC | This old house / Episode 2017. | PA 1-047-919 |
| This Old House Ventures, LLC | This old house / Episode 2018. | PA 1-047-920 |
| This Old House Ventures, LLC | This old house / Episode 2019. | PA 1-047-921 |
| This Old House Ventures, LLC | This old house / Episode 2020. | PA 1-047-922 |
| This Old House Ventures, LLC | This old house / Episode 2021. | PA 1-047-923 |
| This Old House Ventures, LLC | This old house / Episode 2022. | PA 1-047-924 |
| This Old House Ventures, LLC | This old house / Episode 2023. | PA 1-047-925 |
| This Old House Ventures, LLC | This old house / Episode 2024. | PA 1-047-926 |
| This Old House Ventures, LLC | This old house / Episode 2025. | PA 1-047-760 |
| This Old House Ventures, LLC | This old house / Episode 2026. | PA 1-047-761 |
| This Old House Ventures, LLC | This old house--Restoring, rehabilitating, and renovating an older house | TX 607-806 |

| Owner | Title | Registration Number |
|------------------------------|---|----------------------------|
| This Old House Ventures, LLC | Bob Vila's This old house | TX 700-621 |
| This Old House Ventures, LLC | This old house kitchens: a guide to design and renovation | TX 322-785 |
| This Old House Ventures, LLC | This old house bathrooms; a guide to design and renovation | TX 3481-210 |
| This Old House Ventures, LLC | This old house heating, ventilation, and air conditioning: a guide to the invisible comforts of your home | TX 3-722-858 |
| This Old House Ventures, LLC | This old house; a guide to American homes. | V3480D294 |
| This Old House Ventures, LLC | This old house kitchens; CD-ROM. | V3480D294 |
| This Old House Ventures, LLC | This Old House Easy Upgrades: Kitchens | TX0007470700 |
| This Old House Ventures, LLC | This Old House Salvage-Style Projects | TX0007470696 |
| This Old House Ventures, LLC | This Old House Easy Upgrades: Bathrooms | TX0007311411 |
| This Old House Ventures, LLC | This Old House Fun Family Projects | TX0007286748 |
| This Old House Ventures, LLC | This Old House Easy Upgrades: Built-Ins, Shelves & Storage | TX0007628861 |

Applications:

None

SCHEDULE I TO
TERMINATION AND RELEASE OF INTELLECTUAL PROPERTY SECURITY AGREEMENT
PATENTS

REEL/FRAME: 048385/0375

UNITED STATES PATENTS:

| Patent No. | Issue Date | Application No. | Filing Date | Name | Owner |
|------------|------------|-----------------|-------------|--|------------|
| 9,807,462 | 10/31/2017 | 13/082,256 | 04/07/2011 | APPARATUS AND METHOD FOR AGGREGATING MEDIA CONTENT | Roku, Inc. |
| 9,875,002 | 01/23/2018 | 13/778,105 | 02/26/2013 | METHOD AND APPARATUS FOR CONTENT BROWSING AND SELECTION | Roku, Inc. |
| D546,337 | 07/10/2007 | 29/213,529 | 09/17/2004 | GRAPHICAL USER INTERFACE COMPUTER ICON FOR A MONITOR DISPLAY | Roku, LLC |
| D558,781 | 01/01/2008 | 29/220,974 | 01/07/2005 | UNIVERSAL MUSIC PLAYER | Roku, LLC |
| 9,473,940 | 10/18/2016 | 14/668,528 | 03/25/2015 | AUTHENTICATION OF A BROWSER-LESS DATA STREAMING DEVICE TO A NETWORK WITH AN EXTERNAL BROWSER | Roku, Inc. |
| 9,667,630 | 05/30/2017 | 15/280,091 | 09/29/2016 | AUTHENTICATION OF A BROWSER-LESS DATA STREAMING DEVICE TO A NETWORK WITH AN EXTERNAL BROWSER | Roku, Inc. |
| 9,131,260 | 09/08/2015 | 13/340,507 | 12/29/2011 | STREAMING MEDIA SYSTEM | Roku, Inc. |
| 9,286,854 | 03/15/2016 | 13/347,619 | 01/10/2012 | INTERNET ACCESS CARD | Roku, Inc. |

| Patent No. | Issue Date | Application No. | Filing Date | Name | Owner |
|------------|------------|-----------------|-------------|---|------------|
| | | | | FOR DEPLOYMENT WITHIN A TELEVISION | |
| 9,544,654 | 1/10/2017 | 14/839,379 | 8/28/2015 | STREAMING MEDIA SYSTEM | Roku, Inc. |
| 9,848,231 | 12/19/2017 | 15/043,115 | 02/12/2016 | MULTI-INTERFACE STREAMING MEDIA SYSTEM | Roku, Inc. |
| 8,938,755 | 01/20/2015 | 13/431,886 | 03/27/2012 | METHOD AND APPARATUS FOR RECURRING CONTENT SEARCHES AND VIEWING WINDOW NOTIFICATION | Roku, Inc. |
| 8,977,721 | 03/10/2015 | 13/431,910 | 03/27/2012 | METHOD AND APPARATUS FOR DYNAMIC PRIORITIZATION OF CONTENT THROUGH INTERACTIVE BROWSING | Roku, Inc. |
| 9,137,578 | 09/15/2015 | 13/778,068 | 02/26/2013 | METHOD AND APPARATUS FOR SHARING CONTENT | Roku, Inc. |
| 9,519,645 | 12/13/2016 | 14/536,339 | 11/07/2014 | SYSTEM AND METHOD FOR SEARCHING MULTIMEDIA | Roku, Inc. |
| 8,627,388 | 01/07/2014 | 13/431,937 | 03/27/2012 | METHOD AND APPARATUS FOR CHANNEL PRIORITIZATION | Roku, Inc. |
| 9,288,547 | 03/15/2016 | 14/148,564 | 01/06/2014 | METHOD AND APPARATUS FOR CHANNEL PRIORITIZATION | Roku, Inc. |
| D676,005 | 02/12/2013 | 29/425,373 | 06/21/2012 | SET TOP BOX | Roku, Inc. |
| 8,788,578 | 07/22/2014 | 13/180,375 | 07/11/2011 | METHOD AND APPARATUS FOR CUSTOMIZED PROVISIONING OF ON-LINE APPLICATION CHANNELS | Roku, Inc. |
| 9,705,947 | 07/11/2017 | 14/336,480 | 07/21/2014 | METHOD AND APPARATUS FOR CUSTOMIZED PROVISIONING OF ON-LINE APPLICATION CHANNELS | Roku, Inc. |

| Patent No. | Issue Date | Application No. | Filing Date | Name | Owner |
|------------|------------|-----------------|-------------|--|------------|
| D679,680 | 04/09/2013 | 29/397,869 | 07/21/2011 | REMOTE CONTROL | Roku, Inc. |
| 8,539,286 | 09/17/2013 | 13/778,088 | 02/26/2013 | METHOD AND APPARATUS OF ERROR REPORTING | Roku, Inc. |
| 8,839,050 | 09/16/2014 | 14/028,428 | 09/16/2013 | METHOD AND APPARATUS OF ERROR REPORTING | Roku, Inc. |
| 9,363,575 | 06/07/2016 | 13/778,094 | 02/26/2013 | METHOD AND APPARATUS FOR VIEWING INSTANT REPLAY | Roku, Inc. |
| 8,959,562 | 02/17/2015 | 13/778,100 | 02/26/2013 | METHOD AND APPARATUS FOR AUTOMATIC Input and Output Devices ENGAGEMENT | Roku, Inc. |
| 9,185,446 | 11/10/2015 | 14/582,113 | 12/23/2014 | METHOD AND APPARATUS FOR AUTOMATIC Input and Output Devices ENGAGEMENT | Roku, Inc. |
| 9,479,813 | 10/25/2016 | 14/923,061 | 10/26/2015 | METHOD AND APPARATUS FOR AUTOMATIC Input and Output Devices ENGAGEMENT | Roku, Inc. |
| D748,649 | 02/02/2016 | 29/447,539 | 03/04/2013 | DISPLAY SCREEN WITH AN ANIMATED ELECTRONIC PROGRAM GUIDE | Roku, Inc. |
| D750,120 | 2/23/2016 | 29/534,717 | 07/30/2015 | DISPLAY SCREEN WITH AN ANIMATED ELECTRONIC PROGRAM GUIDE | Roku, Inc. |
| D748,131 | 1/26/2016 | 29/534,716 | 07/30/2015 | DISPLAY SCREEN WITH AN ANIMATED ELECTRONIC PROGRAM GUIDE | Roku, Inc. |
| 9,805,033 | 10/31/2017 | 14/216,867 | 03/17/2014 | METHOD AND APPARATUS FOR POPULATION OF CUSTOMIZED CHANNELS | Roku, Inc. |
| 9,420,338 | 08/16/2016 | 14/582,117 | 12/23/2014 | APPARATUS AND METHOD FOR PROVIDING POWER ON AND POWER OFF FOR A DISPLAY DEVICE | Roku, Inc. |

| Patent No. | Issue Date | Application No. | Filing Date | Name | Owner |
|---------------|------------|-----------------|-------------|---|------------|
| 9,693,003 | 06/27/2017 | 14/582,120 | 12/23/2014 | APPARATUS AND METHOD FOR TIMER-BASED CONTROL OF AUDIOVISUAL OUTPUT DEVICES | Roku, Inc. |
| 9,613,586 | 4/4/2017 | 14/755,753 | 06/30/2015 | APPARATUS AND METHOD FOR NAMING A DEVICE CONNECTED TO A TELEVISION | Roku, Inc. |
| 9,865,225 | 1/9/2018 | 15/436,041 | 2/17/2017 | PROVIDING A REPRESENTATION FOR A DEVICE CONNECTED TO A DISPLAY DEVICE | Roku, Inc. |
| 9,794,883 | 10/17/2017 | 14/582,132 | 12/23/2014 | WIRELESS STREAMING SYSTEM WITH LOW POWER MODE AND ASSOCIATED REMOTE CONTROL | Roku, Inc. |
| 10,114,661 | 10/30/2018 | 14/536,481 | 11/07/2014 | SYSTEM AND METHOD FOR FAST STARTING AN APPLICATION | Roku, Inc. |
| 10,122,781 | 11/06/2018 | 15/010,788 | 01/29/2016 | SELECTION OF VIDEO SEGMENTS FOR ADAPTIVE STREAMING | Roku, Inc. |
| 9,894,400 | 2/13/2018 | 14/710,226 | 5/12/2015 | PROFILE DRIVEN COMMUNICATION POLLING FOR REMOTE CONTROL | Roku, Inc. |
| 9,601,006 | 3/21/2017 | 14/814,217 | 7/30/2015 | A UNIVERSAL REMOTE CONTROL WITH AUTOMATIC STATE SYNCHRONIZATION | Roku, Inc. |
| 10,091,581 | 10/2/2018 | 14/813,628 | 7/30/2015 | AUDIO PREFERENCES FOR MEDIA CONTENT PLAYERS | Roku, Inc. |
| 10,048,936 B2 | 8/14/2018 | 14/857,876 | 9/18/2015 | AUDIO COMMAND INTERFACE FOR A | Roku, Inc. |

| Patent No. | Issue Date | Application No. | Filing Date | Name | Owner |
|------------|------------|-----------------|-------------|---|------------|
| 9,681,198 | 06/13/2017 | 14/840,962 | 8/31/2015 | MULTIMEDIA DEVICE DYNAMIC GENERATION OF TRICK MODE DATA | Roku, Inc. |
| 9,967,634 | 05/08/2018 | 15/588,314 | 5/5/2017 | CROWD SOURCED DYNAMIC GENERATION OF TRICK MODE DATA | Roku, Inc. |
| 9,270,563 | 02/23/2016 | 14/552,202 | 11/24/2014 | APPARATUS AND METHOD FOR CONTENT PLAYBACK UTILIZING CROWD SOURCED STATISTICS | Roku, Inc. |
| 9,794,150 | 10/17/2017 | 15/049,348 | 02/22/2016 | APPARATUS AND METHOD FOR CONTENT PLAYBACK UTILIZING CROWD SOURCED STATISTICS | Roku, Inc. |
| 9,621,989 | 4/11/2017 | 14/926,713 | 10/29/2015 | AUDIO DEVICE WITH AUTOMATIC FAN CONTROL BASED ON A VOLUME LEVEL OF AUDIO CONTENT | Roku, Inc. |
| 9,788,111 | 10/10/2017 | 15/455,520 | 3/10/2017 | AUDIO DEVICE WITH AUTOMATIC FAN CONTROL BASED ON A VOLUME LEVEL OF AUDIO CONTENT | Roku, Inc. |
| D783,552 | 4/11/2017 | 29/548,956 | 12/17/2015 | ELECTRONIC DEVICE DISPLAY SCREEN OR PORTION THEREOF WITH GRAPHICAL USER INTERFACE | Roku, Inc. |
| D797,121 | 9/12/2017 | 29/556,309 | 2/29/2016 | DISPLAY SCREEN OR PORTION THEREOF WITH GRAPHICAL USER INTERFACE | Roku, Inc. |
| D795,271 | 8/22/2017 | 29/556,311 | 2/29/2016 | DISPLAY SCREEN OR PORTION THEREOF WITH GRAPHICAL USER INTERFACE | Roku, Inc. |
| 10,127,371 | 11/13/2018 | 14/966,576 | 12/11/2015 | USER IDENTIFICATION BASED ON THE MOTION OF | Roku, Inc. |

| Patent No. | Issue Date | Application No. | Filing Date | Name | Owner |
|------------|------------|-----------------|-------------|---|------------|
| | | | | A DEVICE | |
| 9,723,258 | 8/1/2017 | 14/984,526 | 12/30/2015 | ORIENTATION ADJUSTMENT FOR CASTING VIDEOS | Roku, Inc. |
| 10,021,341 | 7/10/2018 | 15/633,954 | 6/27/2017 | ORIENTATION ADJUSTMENT FOR CASTING VIDEOS | Roku, Inc. |
| 9,936,263 | 4/3/2018 | 15/283,932 | 10/3/2016 | CONTROLLING DISPLAY OF MEDIA CONTENT | Roku, Inc. |
| D781,911 | 3/21/2017 | 29/556,313 | 2/29/2016 | DISPLAY SCREEN OR PORTION THEREOF WITH ANIMATED GRAPHICAL USER INTERFACE | Roku, Inc. |
| 9,996,311 | 6/12/2018 | 15/070,800 | 3/15/2016 | EFFICIENT COMMUNICATION INTERFACE FOR CASTING INTERACTIVELY CONTROLLED VISUAL CONTENT | Roku, Inc. |
| 10,057,654 | 8/21/2018 | 15/010,857 | 1/29/2016 | SELECTION AND ALIGNMENT OF VIDEO SEGMENTS FOR ADAPTIVE STREAMING | Roku, Inc. |
| 9,866,904 | 1/9/2018 | 15/348,592 | 11/10/2016 | INTERACTION RECOGNITION OF A TELEVISION CONTENT INTERACTION DEVICE | Roku, Inc. |
| 10,110,943 | 10/23/2018 | 15/225,338 | 8/1/2016 | FLEXIBLE OUTPUT OF STREAMING MEDIA | Roku, Inc. |
| 9,749,700 | 8/29/2017 | 15/357,319 | 11/21/2016 | AUTOMATIC DISPLAY OF CLOSED CAPTIONING INFORMATION | Roku, Inc. |
| 10,003,834 | 6/19/2018 | 15/363,263 | 11/29/2016 | ENHANCED TRICK MODE TO ENABLE PRESENTATION OF INFORMATION RELATED TO | Roku, Inc. |

| Patent No. | Issue Date | Application No. | Filing Date | Name | Owner |
|------------|------------|-----------------|-------------|---|------------|
| | | | | CONTENT BEING STREAMED | |
| 10,110,887 | 10/23/2018 | 15/465,147 | 3/21/2017 | DISPLAY DIAGNOSTICS FOR ENHANCING PERFORMANCE OF DISPLAY DEVICES | Roku, Inc. |
| 10,158,960 | 12/18/2018 | 15/915,740 | 3/8/2018 | DYNAMIC MULTI-SPEAKER OPTIMIZATION | Roku, Inc. |
| | | | | ADVERTISING METHODS FOR ADVERTISING TIME SLOTS AND EMBEDDED OBJECTS | |
| 7,979,877 | 7/12/2011 | 10/745,899 | 12/23/2003 | ADVERTISING METHODS FOR ADVERTISING TIME SLOTS AND EMBEDDED OBJECTS | Roku, Inc. |
| 8,522,273 | 8/27/2013 | 13/175,663 | 7/12/2011 | SYSTEM AND METHOD FOR PROVIDING INTERACTIVE ADVERTISEMENT | Roku, Inc. |
| 9,865,017 | 1/9/2018 | 13/621,733 | 9/17/2012 | AUTOMATIC LOCALIZATION OF ADVERTISEMENTS | Roku, Inc. |
| 10,032,192 | 7/24/2018 | 13/621,794 | 9/17/2012 | ADVERTISING METHODS FOR ADVERTISING TIME SLOTS AND EMBEDDED OBJECTS | Roku, Inc. |
| 9,154,852 | 10/6/2015 | 13/950,234 | 7/24/2013 | ADVERTISING METHODS FOR ADVERTISING TIME SLOTS AND EMBEDDED OBJECTS | Roku, Inc. |

Pending Applications:

| Application No. | Filing Date | Name | Owner |
|-----------------|-------------|--|------------|
| 15/784,900 | 10/16/2017 | AGGREGATING MEDIA CONTENT IN NON-TEMPORAL FORMAT | Roku, Inc. |
| 15/812,698 | 11/14/2017 | MULTI-INTERFACE STREAMING MEDIA SYSTEM | Roku, Inc. |
| 14/558,648 | 12/02/2014 | SYSTEM AND METHOD FOR SEARCHING MULTIMEDIA | Roku, Inc. |

| Application No. | Filing Date | Name | Owner |
|-----------------|-------------|---|------------|
| 15/343,426 | 11/04/2016 | SEARCHING MULTIMEDIA BASED ON TRIGGER EVENTS | Roku, Inc. |
| 15/332,743 | 10/24/2016 | METHOD AND APPARATUS FOR AUTOMATIC Input and Output Devices ENGAGEMENT | Roku, Inc. |
| 15/631,508 | 06/23/2017 | APPARATUS AND METHOD FOR TIMER-BASED CONTROL OF AUDIOVISUAL OUTPUT DEVICES | Roku, Inc. |
| 15/829,256 | 12/1/2017 | PROVIDING A REPRESENTATION FOR A DEVICE CONNECTED TO A DISPLAY DEVICE | Roku, Inc. |
| 14/755,833 | 06/30/2015 | APPARATUS AND METHOD FOR RESTORING A DISABLED TELEVISION SPEAKER | Roku, Inc. |
| 15/728,875 | 10/10/2017 | WIRELESS STREAMING SYSTEM WITH LOW POWER MODE AND ASSOCIATED REMOTE CONTROL | Roku, Inc. |
| 14/536,463 | 11/07/2014 | SYSTEM AND METHOD FOR COLLECTING DATA | Roku, Inc. |
| 16/155,617 | 10/09/2018 | SELECTION OF VIDEO SEGMENTS FOR ADAPTIVE STREAMING | Roku, Inc. |
| 15/868,622 | 1/11/2018 | PROFILE DRIVEN COMMUNICATION POLLING FOR REMOTE CONTROL | Roku, Inc. |
| 16/148,366 | 10/1/2018 | AUDIO PREFERENCES FOR MEDIA CONTENT PLAYERS | Roku, Inc. |
| 14/813,584 | 7/30/2015 | SOLID-STATE CAPTURE OF BROADCAST MEDIA | Roku, Inc. |
| 14/813,766 | 7/30/2015 | MOBILE DEVICE BASED CONTROL DEVICE LOCATOR | Roku, Inc. |
| 15/249,985 | 8/29/2016 | CROWD SOURCED INDEXING AND/OR SEARCHING OF CONTENT | Roku, Inc. |
| 14/813,703 | 7/30/2015 | DETECTION OF SMARTPHONE TO ENABLE CONTENT | Roku, Inc. |
| 14/958,283 | 12/3/2015 | DETECTION OF A MOBILE DEVICE TO | Roku, Inc. |

| Application No. | Filing Date | Name | Owner |
|-------------------|-------------|---|------------|
| | | IDENTIFY USER PREFERENCES AND PROVIDE CUSTOMIZED FUNCTIONALITY OR CONTENT | |
| 16/103,487 | 8/14/2018 | AUDIO COMMAND INTERFACE FOR A MULTIMEDIA DEVICE | Roku, Inc. |
| 16842748.2 | 3/13/2018 | DYNAMIC GENERATION OF TRICK MODE DATA | Roku, Inc. |
| 15/966,346 | 4/30/2018 | CROWD SOURCED DYNAMIC GENERATION OF TRICK MODE DATA | Roku, Inc. |
| 15/690,112 | 08/29/2017 | GENERATING PLAYBACK CONFIGURATIONS BASED ON AGGREGATED CROWD-SOURCED STATISTICS | Roku, Inc. |
| 29/556,306 | 2/29/2016 | DISPLAY SCREEN OR PORTION THEREOF WITH ANIMATED GRAPHICAL USER INTERFACE | Roku, Inc. |
| 15/076,162 | 3/21/2016 | CONTROLLING TELEVISION SETTINGS FROM A MOBILE DEVICE | Roku, Inc. |
| 16/131,378 | 9/14/2018 | USER IDENTIFICATION BASED ON THE MOTION OF A DEVICE | Roku, Inc. |
| 14/984,292 | 12/30/2015 | PROVIDING ROLLING UPDATES OF DISTRIBUTED SYSTEMS WITH A SHARED CACHE | Roku, Inc. |
| 15/986,206 | 5/22/2018 | ORIENTATION ADJUSTMENT FOR CASTING VIDEOS | Roku, Inc. |
| 15/220,696 | 7/27/2016 | STREAMING SYNCHRONIZED MEDIA CONTENT TO SEPARATE DEVICES | Roku, Inc. |
| PCT/US2017/025910 | 4/4/2017 | STREAMING SYNCHRONIZED MEDIA CONTENT TO SEPARATE DEVICES | Roku, Inc. |
| 16/036,043 | 7/16/2018 | SELECTION AND ALIGNMENT OF VIDEO SEGMENTS FOR ADAPTIVE STREAMING | Roku, Inc. |
| 15/010,916 | 1/29/2016 | EXTENDED SELECTION AND ALIGNMENT OF VIDEO SEGMENTS | Roku, Inc. |

| Application No. | Filing Date | Name | Owner |
|-----------------|-------------|--|------------|
| | | FOR ADAPTIVE STREAMING | |
| 15/070,491 | 3/15/2016 | BROWN OUT DETECTION | Roku, Inc. |
| 15/830,689 | 12/4/2017 | INTERACTION RECOGNITION OF A TELEVISION CONTENT INTERACTION DEVICE | Roku, Inc. |
| 15/233,207 | 8/10/2016 | DISTRIBUTED NETWORK VOICE PROCESSING SYSTEM | Roku, Inc. |
| 15/689,271 | 8/29/2017 | AUTOMATIC DISPLAY OF CLOSED CAPTIONING INFORMATION | Roku, Inc. |
| 15/359,747 | 11/23/2016 | PREDICTIVE APPLICATION CACHING | Roku, Inc. |
| 15/357,595 | 11/21/2016 | STREAMING CONTENT BASED ON SKIP HISTORIES | Roku, Inc. |
| 15/357,289 | 11/21/2016 | RECOMMENDING CONTENT BASED ON USER BEHAVIOR TRACKING AND ANALYSIS | Roku, Inc. |
| 15/341,552 | 11/2/2016 | IMPROVED RECEPTION OF AUDIO COMMANDS | Roku, Inc. |
| 15/363,236 | 11/29/2016 | SKIPPING CONTENT OF LESSER INTEREST WHEN STREAMING MEDIA | Roku, Inc. |
| 15/478,413 | 4/4/2017 | TIME AND CONTENT RESTRICTIONS BASED ON USER-IDENTIFICATION | Roku, Inc. |
| PCT/US18/26032 | 4/4/2018 | TIME AND CONTENT RESTRICTIONS BASED ON USER-IDENTIFICATION | Roku, Inc. |
| 16/047,804 | 7/27/2018 | INTERACTIVE CONTENT WHEN THE SECONDARY CONTENT IS SERVER STITCHED | Roku, Inc. |
| 16/047,822 | 7/27/2018 | CLIENT SIDE STITCHING OF SECONDARY CONTENT | Roku, Inc. |
| 16/047,832 | 7/27/2018 | WEAVE STREAMING CONTENT INTO A LINEAR VIEWING EXPERIENCE | Roku, Inc. |
| 15/478,444 | 4/4/2017 | NETWORK-BASED USER IDENTIFICATION | Roku, Inc. |
| PCT/US18/26033 | 4/4/2018 | NETWORK-BASED USER IDENTIFICATION | Roku, Inc. |

| Application No. | Filing Date | Name | Owner |
|-----------------|-------------|---|------------|
| | | IDENTIFICATION | |
| 15/477,275 | 4/3/2017 | REMOTE CONTROL WITH CONFIGURABLE BUTTONS | Roku, Inc. |
| PCT/US18/24507 | 3/27/2018 | REMOTE CONTROL WITH CONFIGURABLE BUTTONS | Roku, Inc. |
| 15/455,561 | 3/10/2017 | CONNECTOR DEVICE WITH ANTENNA CONNECTION | Roku, Inc. |
| PCT/US18/21705 | 3/9/2018 | CONNECTOR DEVICE WITH ANTENNA CONNECTION | Roku, Inc. |
| PCT/US18/23101 | 3/19/2018 | DISPLAY DIAGNOSTICS FOR ENHANCING PERFORMANCE OF DISPLAY DEVICES | Roku, Inc. |
| 15/478,448 | 4/4/2017 | INTERACTION-BASED USER IDENTIFICATION | Roku, Inc. |
| PCT/US18/26034 | 4/4/2018 | INTERACTION-BASED USER IDENTIFICATION | Roku, Inc. |
| 16/102,957 | 8/14/2018 | MESSAGE PROCESSING USING A CLIENT-SIDE CONTROL GROUP | Roku, Inc. |
| 15/962,478 | 4/25/2018 | REMOTE CONTROL WITH PRESENCE SENSOR | Roku, Inc. |
| 15/646,275 | 7/11/2017 | AUTOMATIC DETERMINATION OF DISPLAY DEVICE FUNCTIONALITY CONTROLLING VISUAL INDICATORS IN AN AUDIO RESPONSIVE ELECTRONIC DEVICE, AND CAPTURING AND PROVIDING AUDIO USING AN API, BY NATIVE AND NON-NATIVE COMPUTING DEVICES AND SERVICES | Roku, Inc. |
| 15/646,379 | 7/11/2017 | AUDIO RESPONSIVE DEVICE WITH PLAY/STOP AND TELL ME SOMETHING BUTTONS | Roku, Inc. |
| 16/032,730 | 7/11/2018 | INTELLIGENT DOWNLOAD OF CONTENT | Roku, Inc. |
| 16/044,748 | 7/25/2018 | | Roku, Inc. |

| Application No. | Filing Date | Name | Owner |
|-----------------|-------------|--|------------|
| 29/612,494 | 8/1/2017 | DISPLAY SCREEN OR PORTION THEREOF WITH ANIMATED GRAPHICAL USER INTERFACE | Roku, Inc. |
| 29/612,495 | 8/1/2017 | DISPLAY SCREEN OR PORTION THEREOF WITH ANIMATED GRAPHICAL USER INTERFACE | Roku, Inc. |
| 15/806,379 | 11/8/2017 | ENHANCED PLAYBACK BAR | Roku, Inc. |
| 15/806,384 | 11/8/2017 | AUTOMATICALLY AND PROGRAMMATICALLY GENERATING SCENE CHANGE MARKERS | Roku, Inc. |
| 15/940,386 | 3/29/2018 | CROWDSOURCED MOVIE AND TV TRAILERS | Roku, Inc. |
| 16/032,868 | 7/11/2018 | LOCAL AND CLOUD SPEECH RECOGNITION | Roku, Inc. |
| 16/032,724 | 7/11/2018 | MEDIA SYSTEM WITH MULTIPLE DIGITAL ASSISTANTS | Roku, Inc. |
| 15/802,719 | 11/3/2017 | TRACKING PROXIMITIES OF DEVICES AND/OR OBJECTS | Roku, Inc. |
| PCT/US18/58649 | 11/1/2018 | TRACKING PROXIMITIES OF DEVICES AND/OR OBJECTS | Roku, Inc. |
| 15/849,103 | 12/20/2017 | MASS INSERTION INTO SINGLE-THREADED DATABASES | Roku, Inc. |
| 15/896,369 | 2/14/2018 | PRODUCTION CONSOLE AUTHORIZATION PERMISSIONS | Roku, Inc. |
| 15/994,362 | 5/31/2018 | REAL-TIME ASSESSMENT OF MULTIMEDIA SERVICE IN A PARTICULAR ENVIRONMENT | Roku, Inc. |
| 15/994,382 | 5/31/2018 | SYSTEM AND METHOD FOR CONFIGURING AN EXTENDER DEVICE | Roku, Inc. |
| 15/960,638 | 4/24/2018 | CUSTOMIZING A GUI BASED ON USER BIOMETRICS | Roku, Inc. |
| 15/895,047 | 2/13/2018 | TRIGGER WORD DETECTION WITH MULTIPLE DIGITAL ASSISTANTS | Roku, Inc. |

| Application No. | Filing Date | Name | Owner |
|-----------------|-------------|---|------------|
| 15/961,054 | 4/24/2018 | CROWDSOURCED PREDICTION OF CDN PERFORMANCE FOR ZERO BUFFER DELIVERY OF CONTENT | Roku, Inc. |
| 15/962,030 | 4/25/2018 | CLIENT SIDE STITCHING OF CONTENT INTO A MULTIMEDIA STREAM | Roku, Inc. |
| 16/184,400 | 11/8/2018 | DYNAMIC MULTI-SPEAKER OPTIMIZATION | Roku, Inc. |
| 16/133,811 | 9/18/2018 | AUDIO SYNCHRONIZATION OF A DUMB SPEAKER AND A SMART SPEAKER USING A SPREAD CODE | Roku, Inc. |
| 13/621,782 | 9/17/2012 | SYSTEM AND METHOD FOR OFFERING AND BILLING ADVERTISEMENT OPPORTUNITIES | Roku, Inc. |
| 15/845,595 | 12/18/2017 | SYSTEM AND METHOD FOR PROVIDING INTERACTIVE ADVERTISEMENT | Roku, Inc. |
| 62/646,994 | 3/23/2018 | MEDIA DEVICE UPGRADING SYSTEM | Roku, Inc. |
| 16/133,797 | 9/18/2018 | AUDIO CANCELLATION AND CONTENT RECOGNITION OF AUDIO RECEIVED OVER HDMI/ARC | Roku, Inc. |
| 16/133,802 | 9/18/2018 | DYNAMICALLY SWITCHING TO/FROM A FIRST NETWORK DURING AUDIO PLAYBACK OVER HDMI/ARC | Roku, Inc. |
| 16/133,813 | 9/18/2018 | WIRELESS AUDIO SYNCHRONIZATION USING A SPREAD CODE | Roku, Inc. |
| 16/133,817 | 9/18/2018 | IDENTIFYING AUDIO CHARACTERISTICS OF A ROOM USING A SPREAD CODE | Roku, Inc. |
| 62/741,060 | 10/4/2018 | REMOTE CONTROL FOR WIRELESS SPEAKERS | Roku, Inc. |
| 16/049,976 | 7/31/2018 | MORE SECURE DEVICE PAIRING | Roku, Inc. |
| 16/025,376 | 7/2/2018 | INTELLIGENT POWER REDUCTION IN | Roku, Inc. |

| Application No. | Filing Date | Name | Owner |
|-----------------|-------------|---|------------|
| | | AUDIO AMPLIFIERS | |
| 15/547,111 | 1/27/2016 | AUDIO TIME SYNCHRONIZATION USING PRIORITIZED SCHEDULE | Roku, Inc. |
| 15/547,093 | 1/27/2016 | SELF-ORGANIZING AUDIO SYNCHRONIZATION | Roku, Inc. |
| 15/547,106 | 1/27/2016 | SYNCHRONIZATION IN AUDIO PLAYBACK NETWORK INDEPENDENT OF SYSTEM CLOCK | Roku, Inc. |
| 16/319,991 | 1/23/2019 | SYNCHRONIZATION WITH SYNTHESIZED AUDIO CLOCK | Roku, Inc. |
| 16/128,565 | 9/12/2018 | ADAPTIVE SWITCHING IN A WHILE HOME ENTERTAINMENT SYSTEM | Roku, Inc. |
| 16/157,676 | 10/11/2018 | POST-PRODUCTION DE-MURA OF A TELEVISION USING A MOBILE DEVICE | Roku, Inc. |
| 16/128,624 | 9/12/2018 | DYNAMICALLY ADJUSTING VIDEO TO IMPROVE SYNCHRONIZATION WITH AUDIO | Roku, Inc. |
| 15/999,022 | 8/20/2018 | TUNABLE NARROW-BAND INFRARED RECEIVER | Roku, Inc. |
| 16/194,893 | 11/19/2018 | NON-TELEVISION EXPERIENCE TRIGGERS | Roku, Inc. |
| 62/769,981 | 11/20/2018 | AD-HOC LIGHTWEIGHT mPOS REMOTE CONTROL | Roku, Inc. |
| 62/775,453 | 12/5/2018 | PROVIDING OVER-THE-AIR CONTENT TO ANY DEVICE | Roku, Inc. |
| 62/775,450 | 12/5/2018 | LOW LATENCY DISTRIBUTION OF AUDIO USING A SINGLE RADIO | Roku, Inc. |
| 62/779,698 | 12/14/2018 | AUDIO SEARCH RESULTS IN A MULTI-CONTENT SOURCE ENVIRONMENT | Roku, Inc. |
| 62/775,452 | 12/5/2018 | DOWNLOADABLE AVOD CONTENT | Roku, Inc. |
| 16/220,080 | 12/14/2018 | ADVANCED LAYOUT EDITOR | Roku, Inc. |

Patent Licenses

None.

REEL/FRAME: 051300/0931

Patents

| Grantor | Patent | Application/ Patent No. | Filing Date |
|------------|---|-------------------------|-------------|
| Roku, Inc. | DISPLAY SCREEN OR PORTION THEREOF WITH ANIMATED GRAPHICAL USER INTERFACE | D849,759 | 8/1/2017 |
| Roku, Inc. | DISPLAY SCREEN OR PORTION THEREOF WITH ANIMATED GRAPHICAL USER INTERFACE | D849,760 | 8/1/2017 |
| Roku, Inc. | AUTOMATIC DISPLAY OF CLOSED CAPTIONING INFORMATION | 10,194,209 | 8/29/2017 |
| Roku, Inc. | RECEPTION OF AUDIO COMMANDS | 10,210,863 | 11/2/2016 |
| Roku, Inc. | REMOTE CONTROL WITH CONFIGURABLE BUTTONS | 10,217,577 | 4/3/2017 |
| Roku, Inc. | EXTENDED SELECTION AND ALIGNMENT OF VIDEO SEGMENTS FOR ADAPTIVE STREAMING | 10,218,755 | 1/29/2016 |
| Roku, Inc. | MULTI-INTERFACE STREAMING MEDIA SYSTEM | 10,219,030 | 11/14/2017 |

| Grantor | Patent | Application/ Patent No. | Filing Date |
|------------|--|-------------------------|-------------|
| Roku, Inc. | PROVIDING ROLLING UPDATES OF DISTRIBUTED SYSTEMS WITH A SHARED CACHE | 10,229,058 | 12/30/2015 |
| Roku, Inc. | TRACKING PROXIMITIES OF DEVICES AND/OR OBJECTS | 10,237,686 | 11/3/2017 |
| Roku, Inc. | SEARCHING MULTIMEDIA BASED ON TRIGGER EVENTS | 10,261,999 | 11/4/2016 |
| Roku, Inc. | ENHANCED PLAYBACK BAR | 10,334,326 | 11/8/2017 |
| Roku, Inc. | TIMER-BASED CONTROL OF AUDIOVISUAL OUTPUT DEVICES | 10,349,131 | 6/23/2017 |
| Roku, Inc. | TUNABLE NARROWBAND INFRARED RECEIVER | 10,361,788 | 8/20/2018 |
| Roku, Inc. | SYSTEM AND METHOD FOR COLLECTING DATA | 10,368,121 | 11/7/2014 |
| Roku, Inc. | SYSTEM AND METHOD FOR OFFERING AND BILLING ADVERTISEMENT OPPORTUNITIES | 10,387,920 | 9/17/2012 |
| Roku, Inc. | SYSTEM AND METHOD FOR PROVIDING INTERACTIVE ADVERTISEMENT | 10,387,949 | 12/18/2017 |
| Roku, Inc. | DISTRIBUTED VOICE PROCESSING SYSTEM | 10,388,273 | 8/10/2016 |
| Roku, Inc. | RECOMMENDING CONTENT BASED ON USER BEHAVIOR TRACKING AND ANALYSIS | 10,390,062 | 11/21/2016 |
| Roku, Inc. | PROFILE DRIVEN COMMUNICATION POLLING FOR REMOTE CONTROL | 10,390,073 | 1/11/2018 |
| Roku, Inc. | INTERACTION RECOGNITION | 10,390,086 | 12/4/2017 |

| Grantor | Patent | Application/ Patent No. | Filing Date |
|------------|--|-------------------------|-------------|
| | OF A TELEVISION CONTENT INTERACTION DEVICE | | |
| Roku, Inc. | AUTOMATICALLY AND PROGRAMMATICALLY GENERATING CROWDSOURCED TRAILERS | 10,390,110 | 3/29/2018 |
| Roku, Inc. | MOBILE DEVICE BASED CONTROL DEVICE LOCATOR | 10,401,473 | 7/30/2015 |
| Roku, Inc. | WIRELESS STREAMING SYSTEM WITH LOW POWER MODE AND ASSOCIATED REMOTE CONTROL | 10,412,676 | 10/10/2017 |
| Roku, Inc. | NETWORK-BASED USER IDENTIFICATION | 10,425,981 | 4/4/2017 |
| Roku, Inc. | BROWN OUT CONDITION DETECTION AND DEVICE CALIBRATION | 10,437,304 | 3/15/2016 |
| Roku, Inc. | AUTOMATIC DETERMINATION OF DISPLAY DEVICE FUNCTIONALITY | 10,447,537 | 7/11/2017 |
| Roku, Inc. | INTERACTION-BASED USER IDENTIFICATION | 10,452,350 | 4/4/2017 |
| Roku, Inc. | REMOTE CONTROL WITH PRESENCE SENSOR | 10,455,322 | 4/25/2018 |
| Roku, Inc. | CONGESTION CONTROL METHOD FOR DYNAMICALLY MAXIMIZING COMMUNICATION LINK THROUGHPUT | 9,306,860 | 10/14/2013 |
| Roku, Inc. | METHOD OF STABILIZED ADAPTIVE VIDEO | 10,021,159 | 5/16/2017 |

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| | STREAMING FOR HIGH DYNAMIC RANGE (HDR) | | |
| Roku DX Holdings, Inc. | DECISION DASHBOARD BALANCING COMPETING OBJECTIVES | 9,482,442 | 4/24/2015 |
| Roku, Inc. | EXTENDED SELECTION AND ALIGNMENT OF VIDEO SEGMENTS FOR ADAPTIVE STREAMING | 16/266,402 | 2/4/2019 |
| Roku, Inc. | MULTI-INTERFACE STREAMING MEDIA SYSTEM | 16/272,164 | 2/11/2019 |
| Roku, Inc. | PROVIDING ROLLING UPDATES OF DISTRIBUTED SYSTEMS WITH A SHARED CACHE | 16/281,885 | 2/21/2019 |
| Roku, Inc. | TRACKING PROXIMITIES OF DEVICES AND/OR OBJECTS | 16/281,901 | 2/21/2019 |
| Roku, Inc. | MEDIA DEVICE UPGRADING SYSTEM | 16/357,740 | 3/19/2019 |
| Roku, Inc. | PROVIDING OVER-THE-AIR CONTENT TO ANY DEVICE | 16/430,982 | 6/4/2019 |
| Roku, Inc. | DOWNLOADABLE AVOD CONTENT | 16/430,990 | 6/4/2019 |
| Roku, Inc. | BROWN OUT CONDITION DETECTION AND DEVICE CALIBRATION | 16/448,203 | 6/21/2019 |

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| Roku, Inc. | RECOMMENDING CONTENT BASED ON USER BEHAVIOR TRACKING AND ANALYSIS | 16/459,722 | 7/2/2019 |
| Roku, Inc. | NETWORK-BASED USER IDENTIFICATION | 16/459,728 | 7/2/2019 |
| Roku, Inc. | AUTOMATICALLY AND PROGRAMMATICALLY GENERATING CROWDSOURCED TRAILERS | 16/459,730 | 7/2/2019 |
| Roku, Inc. | SYSTEM AND METHOD FOR COLLECTING DATA | 16/524,969 | 7/29/2019 |
| Roku, Inc. | MULTI-AGENT RING BUFFER | 16/542,915 | 8/16/2019 |
| Roku, Inc. | MOBILE DEVICE BASED CONTROL DEVICE LOCATOR | 16/545,426 | 8/20/2019 |
| Roku, Inc. | USING NON-AUDIO DATA EMBEDDED IN AN AUDIO SIGNAL | 16/553,579 | 8/28/2019 |
| Roku, Inc. | WIRELESS STREAMING SYSTEM WITH LOW POWER MODE AND ASSOCIATED REMOTE CONTROL | 16/556,513 | 8/30/2019 |
| Roku, Inc. | SMART REMOTE CONTROL FOR AUDIO RESPONSIVE MEDIA DEVICE | 16/566,513 | 9/10/2019 |

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| Roku, Inc. | AUTOMATIC DETERMINATION OF DISPLAY DEVICE FUNCTIONALITY | 16/653,118 | 07/11/2017 |
| Roku, Inc. | MEASURING AND EVALUATING A TEST SIGNAL GENERATED BY A DEVICE UNDER TEST(DUT) | 16/662,785 | 10/24/2019 |
| Roku, Inc. | AD-HOC LIGHTWEIGHT MPOS REMOTE CONTROL | 16/669,664 | 10/31/2019 |
| Roku, Inc. | AUDIO SEARCH RESULTS IN A MULTI-CONTENT SOURCE ENVIRONMENT | 16/686,966 | 11/18/2019 |
| Roku, Inc. | DO NOT DISTURB FUNCTIONALITY FOR VOICE RESPONSIVE DEVICES | 62/862,735 | 6/18/2019 |
| Roku, Inc. | USB-BASED MEDIA DEVICE UPGRADING SYSTEM | 62/900,913 | 9/16/2019 |
| Roku, Inc. | NETWORK-BASED MEDIA DEVICE UPGRADING SYSTEM | 62/900,919 | 9/16/2019 |
| Roku, Inc. | ENHANCED TRICK MODE TO ENABLE PRESENTATION OF INFORMATION RELATED TO CONTENT BEING STREAMED | PCT/US2017/060339 | 11/7/2017 |
| Roku, Inc. | AUTOMATIC DISPLAY OF CLOSED CAPTIONING INFORMATION | PCT/US2017/060344 | 11/7/2017 |

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| Roku, Inc. | PREDICTIVE APPLICATION CACHING | PCT/US2017/060547 | 11/8/2017 |
| Roku, Inc. | SKIPPING CONTENT OF LESSER INTEREST WHEN STREAMING MEDIA | PCT/US2017/060549 | 11/8/2017 |
| Roku, Inc. | RECOMMENDING CONTENT BASED ON USER BEHAVIOR TRACKING AND ANALYSIS | PCT/US2017/060575 | 11/8/2017 |
| Roku, Inc. | STREAMING CONTENT BASED ON SKIP HISTORIES | PCT/US2017/061536 | 11/21/2016 |
| Roku, Inc. | MESSAGE PROCESSING USING A CLIENT-SIDE CONTROL GROUP | PCT/US2018/000255 | 8/17/2018 |
| Roku, Inc. | REMOTE CONTROL WITH PRESENCE SENSOR | PCT/US2018/000260 | 8/17/2018 |
| Roku, Inc. | INTELLIGENT DOWNLOAD OF CONTENT | PCT/US2018/000262 | 8/17/2018 |
| Roku, Inc. | CONNECTOR DEVICE WITH ANTENNA CONNECTION | PCT/US2018/021705 | 3/9/2018 |
| Roku, Inc. | DISPLAY DIAGNOSTICS FOR ENHANCING PERFORMANCE OF DISPLAY DEVICES | PCT/US2018/023101 | 3/19/2018 |
| Roku, Inc. | REMOTE CONTROL WITH CONFIGURABLE BUTTONS | PCT/US2018/024507 | 3/27/2018 |

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| Roku, Inc. | TIME AND CONTENT RESTRICTIONS BASED ON USER-IDENTIFICATION | PCT/US2018/026032 | 4/4/2018 |
| Roku, Inc. | NETWORK-BASED USER IDENTIFICATION | PCT/US2018/026033 | 4/4/2018 |
| Roku, Inc. | INTERACTION-BASED USER IDENTIFICATION | PCT/US2018/026034 | 4/4/2018 |
| Roku, Inc. | AUTOMATIC DETERMINATION OF DISPLAY DEVICE FUNCTIONALITY | PCT/US2018/041401 | 7/10/2018 |
| Roku, Inc. | CONTROLLING VISUAL INDICATORS IN AN AUDIO RESPONSIVE ELECTRONIC DEVICE, AND CAPTURING AND PROVIDING AUDIO USING AN API | PCT/US2018/041402 | 7/10/2018 |
| Roku, Inc. | LOCAL AND CLOUD SPEECH RECOGNITION | PCT/US2018/048101 | 8/27/2018 |
| Roku, Inc. | AUDIO RESPONSIVE DEVICE WITH PLAY/STOP AND TELL ME SOMETHING BUTTONS | PCT/US2018/048104 | 8/27/2018 |
| Roku, Inc. | MEDIA SYSTEM WITH MULTIPLE DIGITAL ASSISTANTS | PCT/US2018/048106 | 8/27/2018 |
| Roku, Inc. | CLIENT SIDE STITCHING OF SECONDARY CONTENT | PCT/US2018/048754 | 8/30/2018 |

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| Roku, Inc. | INTERACTIVE CONTENT WHEN THE SECONDARY CONTENT IS SERVER STITCHED | PCT/US2018/048757 | 8/30/2018 |
| Roku, Inc. | WEAVE STREAMING CONTENT INTO A LINEAR VIEWING EXPERIENCE | PCT/US2018/048760 | 8/30/2018 |
| Roku, Inc. | TRACKING PROXIMITIES OF DEVICES AND/OR OBJECTS | PCT/US2018/058649 | 11/1/2018 |
| Roku, Inc. | AUTOMATICALLY AND PROGRAMMATICALLY GENERATING SCENE CHANGE MARKERS | PCT/US2018/059519 | 11/7/2018 |
| Roku, Inc. | ENHANCED PLAYBACK BAR | PCT/US2018/059521 | 11/7/2018 |
| Roku, Inc. | MASS INSERTION INTO SINGLE-THREADED DATABASES | PCT/US2018/062562 | 11/27/2018 |
| Roku, Inc. | PRODUCTION CONSOLE AUTHORIZATION PERMISSIONS | PCT/US2019/017428 | 2/11/2019 |
| Roku, Inc. | TRIGGER WORD DETECTION WITH MULTIPLE DIGITAL ASSISTANTS | PCT/US2019/017429 | 2/11/2019 |
| Roku, Inc. | DYNAMIC MULTI-SPEAKER OPTIMIZATION | PCT/US2019/021262 | 3/8/2019 |

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| Roku, Inc. | MEDIA DEVICE UPGRADING SYSTEM | PCT/US2019/023102 | 3/20/2019 |
| Roku, Inc. | CROWDSOURCED PREDICTION OF CDN PERFORMANCE FOR ZERO BUFFER DELIVERY OF CONTENT | PCT/US2019/028892 | 4/24/2019 |
| Roku, Inc. | CLIENT SIDE STITCHING OF CONTENT INTO A MULTIMEDIA STREAM | PCT/US2019/028893 | 4/24/2019 |
| Roku, Inc. | REAL-TIME ASSESSMENT OF MULTIMEDIA SERVICE IN A PARTICULAR ENVIRONMENT | PCT/US2019/034873 | 5/31/2019 |
| Roku, Inc. | SYSTEM AND METHOD FOR CONFIGURING AN EXTENDER DEVICE | PCT/US2019/034876 | 5/31/2019 |
| Roku, Inc. | INTELLIGENT POWER REDUCTION IN AUDIO AMPLIFIERS | PCT/US2019/040287 | 7/2/2019 |
| Roku, Inc. | MORE SECURE DEVICE PAIRING | PCT/US2019/041956 | 7/16/2019 |
| Roku, Inc. | TUNABLE NARROWBAND INFRARED RECEIVER | PCT/US2019/047139 | 8/20/2019 |
| Roku, Inc. | ADAPTIVE SWITCHING IN A WHOLE HOME ENTERTAINMENT SYSTEM | PCT/US2019/050316 | 9/10/2019 |

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| Roku, Inc. | DYNAMICALLY ADJUSTING VIDEO TO IMPROVE SYNCHRONIZATION WITH AUDIO | PCT/US2019/050317 | 9/10/2019 |
| Roku, Inc. | AUDIO SYNCHRONIZATION OF A DUMB SPEAKER AND A SMART SPEAKER USING A SPREAD CODE | PCT/US2019/051249 | 9/16/2019 |
| Roku, Inc. | AUDIO CANCELLATION AND CONTENT RECOGNITION OF AUDIO RECEIVED OVER HDMI/ARC | PCT/US2019/051250 | 9/16/2019 |
| Roku, Inc. | DYNAMICALLY SWITCHING TO/FROM A FIRST NETWORK DURING AUDIO PLAYBACK OVER HDMI/ARC | PCT/US2019/051252 | 9/16/2019 |
| Roku, Inc. | WIRELESS AUDIO SYNCHRONIZATION USING A SPREAD CODE | PCT/US2019/051397 | 9/17/2019 |
| Roku, Inc. | IDENTIFYING AUDIO CHARACTERISTICS OF A ROOM USING A SPREAD CODE | PCT/US2019/051398 | 9/17/2019 |
| Roku, Inc. | SMART REMOTE CONTROL FOR AUDIO RESPONSIVE MEDIA DEVICE | PCT/US2019/053992 | 10/1/2019 |

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| Roku, Inc. | POST-PRODUCTION DEMURA OF A TELEVISION USING A MOBILE DEVICE | PCT/US2019/055367 | 10/9/2019 |
| Roku, Inc. | NON-TELEVISION EXPERIENCE TRIGGERS | PCT/US2019/062131 | 11/19/2019 |
| Roku DX Holdings, Inc. | USING COMPETITIVE ALGORITHMS FOR THE PREDICTION AND PRICING OF ONLINE ADVERTISEMENT OPPORTUNITIES | 12/856,554 | 8/13/2010 |
| Roku DX Holdings, Inc. | PREDICTIVE PLATFORM FOR DETERMINING INCREMENTAL LIFT | 62/882,382 | 8/2/2019 |
| Roku DX Holdings, Inc. | METHODS AND SYSTEMS FOR USING CONSUMER ALIASES AND IDENTIFIERS | 14/057,188 | 10/18/2013 |
| Roku DX Holdings, Inc. | CREATION AND USAGE OF SYNTHETIC USER IDENTIFIERS WITHIN AN ADVERTISEMENT PLACEMENT FACILITY | 13/537,991 | 6/29/2012 |
| Roku DX Holdings, Inc. | DYNAMIC TARGETING ALGORITHMS FOR REAL-TIME VALUATION OF ADVERTISING PLACEMENTS | 12/856,547 | 8/13/2010 |

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| Roku DX Holdings, Inc. | MACHINE LEARNING FOR COMPUTING AND TARGETING BIDS FOR THE PLACEMENT OF ADVERTISEMENTS | 12/856,552 | 8/13/2010 |
| Roku DX Holdings, Inc. | LEARNING SYSTEM FOR ADVERTISING BIDDING AND VALUATION OF THIRD PARTY DATA | 12/856,560 | 8/13/2010 |
| Roku DX Holdings, Inc. | LEARNING SYSTEM FOR THE USE OF COMPETING VALUATION MODELS FOR REAL-TIME ADVERTISEMENT BIDDING | 12/856,565 | 8/13/2010 |

REEL/FRAME: 056982/0194

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| Roku, Inc. | GN102-AVA-CN01 | Computing System with Channel-Change-Based Trigger Feature | China | Published | 201780008900. | 1/5/2017 | 108604252 | 9/28/2018 | N/A | N/A | Gracenote |
| Roku, Inc. | GN102-AVA-CN02 | Computing System with Content-Characteristic-Based Trigger Feature | China | Published | 201780009065. | 1/5/2017 | 108605150 | 9/28/2018 | N/A | N/A | Gracenote |
| Roku, Inc. | GN102-AVA-EP01 | Computing System with Channel-Change-Based Trigger Feature | European Patent | Published | 17736335.5 | 1/5/2017 | 3400545 | 11/14/2018 | N/A | N/A | Gracenote |
| Roku, Inc. | GN102-AVA-EP02 | Computing System with Content-Characteristic-Based Trigger Feature | European Patent | Published | 17736337.1 | 1/5/2017 | 3400709 | 11/14/2018 | N/A | N/A | Gracenote |

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| Roku, Inc. | GN102-AVA-HK01 | Computing System with Channel-Change-Based Trigger Feature | Hong Kong | Published | 19122959.0 | 1/5/2017 | N/A | 1/24/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN102-AVA-HK02 | Computing System with Channel-Change-Based Trigger Feature | Hong Kong | Published | 19122961.6 | 1/5/2017 | N/A | 1/24/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN102-AVA-JP01 | Computing System with Channel-Change-Based Trigger Feature | Japan | Granted | 2018-535099 | 1/5/2017 | 2019-503139 | 1/31/2019 | 6707138 | 5/21/2020 | Gracenote |
| Roku, Inc. | GN102-AVA-JP02 | Computing System with Content-Characteristic-Based Trigger Feature | Japan | Granted | 2018-535104 | 1/5/2017 | 2019-507526 | 3/14/2019 | 6707139 | 5/21/2020 | Gracenote |
| Roku, Inc. | GN102-AVA-JP03 | Computing System with Content-Characteristic-Based Trigger Feature | Japan | Published | 2020-087364 | 5/19/2020 | 2020-14121 | 9/3/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN102-AVA-JP04 | Computing System with Channel-Change-Based Trigger Feature | Japan | Published | 2020-087363 | 5/19/2020 | 2020-141420 | 9/3/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN102-AVA-KR01 | Computing System with Channel-Change-Based Trigger Feature | Korea, Republic of (KR) | Granted | 10-2018-7021995 | 1/5/2017 | N/A | N/A | 2107499 | 4/28/2020 | Gracenote |
| Roku, Inc. | GN102-AVA-KR02 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | Granted | 10-2018-7021994 | 1/5/2017 | N/A | N/A | 2084510 | 2/27/2020 | Gracenote |

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| Roku, Inc. | GN102-AVA-KR03 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | Granted | 2020-7005587 | 1/5/2017 | N/A | N/A | 2165080 | 10/6/2020 | Gracenote |
| Roku, Inc. | GN102-AVA-KR04 | Computing System with Channel-Change-Based Trigger Feature | Korea, Republic of (KR) | Granted | 2020-7012347 | 1/5/2017 | N/A | N/A | 2169466 | 10/19/2020 | Gracenote |
| Roku, Inc. | GN102-AVA-KR05 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | Granted | 2020-7028625 | 10/6/2020 | N/A | N/A | 10-2203496 | 1/11/2021 | Gracenote |
| Roku, Inc. | GN102-AVA-KR06 | Computing System with Channel-Change-Based Trigger Feature | Korea, Republic of (KR) | Application | 2020-7029929 | 10/19/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN102-AVA-US02 | Computing System with Channel-Change-Based Trigger Feature | United States of America | Granted | 15/399,404 | 1/5/2017 | US-2017-0195714 | 7/6/2017 | 10,939,185 | 3/2/2021 | Gracenote |
| Roku, Inc. | GN102-AVA-US03 | Computing System with Content-Characteristic-Based Trigger Feature | United States of America | Granted | 15/399,415 | 1/5/2017 | US-2017-0195752 | 7/6/2017 | 10,484,758 | 11/19/2019 | Gracenote |
| Roku, Inc. | GN102-AVA-US05 | Computing System with Content-Characteristic-Based Trigger Feature | United States of America | Granted | 16/597,597 | 10/9/2019 | US-2020-0045380 | 2/6/2020 | 10,841,665 | 11/17/2020 | Gracenote |
| Roku, Inc. | GN102-AVA-US06 | Computing System with Content-Characteristic-Based Trigger Feature | United States of America | Application | 17/066,028 | 10/8/2020 | N/A | N/A | N/A | N/A | Gracenote |

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| Roku, Inc. | GN117-AVA-CN01 | Detecting and Responding to Rendering of Interactive Video Content | China | Published | 201880038769. | 5/11/2018 | 110731085 | 1/24/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-EP01 | Detecting and Responding to Rendering of Interactive Video Content | European Patent | Published | 18816920.5 | 5/11/2018 | 3639522 | 4/22/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-HK01 | Detecting and Responding to Rendering of Interactive Video Content | Hong Kong | Published | 62020006472.8 | 4/24/2020 | 40017015A | 9/18/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-JP01 | Detecting and Responding to Rendering of Interactive Video Content | Japan | Published | 2019-568685 | 5/11/2018 | 2020-523871 | 8/6/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-KR01 | Detecting and Responding to Rendering of Interactive Video Content | Korea, Republic of (KR) | Application | 2019-7036619 | 5/11/2018 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-US01 | Detecting and Responding to Rendering of Interactive Video Content | United States of America | Granted | 15/620.440 | 6/12/2017 | US-2018-0359040 | 12/13/2018 | 10,972,203 | 4/6/2021 | Gracenote |
| Roku, Inc. | GN117-AVA-US02 | Detecting and Responding to Rendering of Interactive Video Content | United States of America | Granted | 16/015.771 | 6/22/2018 | US-2018-0359041 | 12/13/2018 | 10,972,204 | 4/6/2021 | Gracenote |
| Roku, Inc. | GN117-AVA-CN02 | Media Channel Identification and Disambiguation Based on Location | China | Granted | 201780013808. | 2/28/2017 | 108702524 | 10/23/2018 | 108702524 | 6/11/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-CN03 | Media Channel Identification and Disambiguation Based on Single-Match | China | Granted | 201780013813. | 2/28/2017 | 108702525 | 10/23/2018 | 108702525 | 9/27/2019 | Gracenote |

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| Roku, Inc. | GN117-AVA-CN04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | China | Granted | 201780014047.5 | 2/28/2017 | 108702543 | 10/23/2018 | ZL201780014047.5 | 8/30/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-CN05 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | China | Granted | 201780013811.7 | 2/28/2017 | CN108713321A | 10/26/2018 | ZL201780013811.7 | 6/11/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-CN06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | China | Granted | 201780013817.4 | 2/28/2017 | 108702531 | 10/23/2018 | ZL201780013817.4 | 7/14/2020 | Gracenote |
| Roku, Inc. | GN117-AVA-CN07 | Method and System for Detecting and Responding to Changing of Media Channel | China | Granted | 201780014054.5 | 2/28/2017 | 108702545 | 10/23/2018 | ZL201780014054.5 | 12/25/2020 | Gracenote |
| Roku, Inc. | GN117-AVA-CN08 | Media Channel Identification and Action with Multi-Match Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | China | Granted | 201780014008.5 | 2/28/2017 | 108885629 | 11/23/2018 | 108885629 | 11/11/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-CN09 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | China | Published | 201910491796.8 | 2/28/2017 | 110149162 | 8/20/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-CN10 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | China | Published | 201910492421.3 | 2/28/2017 | 110266418 | 9/20/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-CN11 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | China | Published | 201910743945.5 | 2/28/2017 | CN110516111A | 11/29/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-CN12 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | China | Published | 201910849752.8 | 9/9/2019 | 110650356 | 1/3/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-CN13 | Media Channel Identification and Action with Multi-Match Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | China | Published | 201911035354.9 | 10/29/2019 | CN110891186A | 3/17/2020 | N/A | N/A | Gracenote |

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| Roku, Inc. | GN117-AVA-CN14 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | China | Published | 202010710569.2 | 7/22/2020 | CN111954026A | 11/17/2020 | N/A | N/A | Gracenote |
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| Roku, Inc. | GN17-AVA-CN15 | Method and System for Detecting and Responding to Changing of Media Channel | China | Application | 202011606627.3 | 12/30/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN17-AVA-DE01 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Germany (Federal Republic of) | Granted | 17760624.1 | 2/28/2017 | 3424221 | 1/9/2019 | 3424221 | 9/23/2020 | Gracenote |
| Roku, Inc. | GN17-AVA-DE02 | Method and System for Detecting and Responding to Changing of Media Channel | Germany (Federal Republic of) | Granted | 17760641.5 | 2/28/2017 | N/A | N/A | 3424226 | 12/23/2020 | Gracenote |
| Roku, Inc. | GN17-AVA-EP02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | European Patent | Published | 17760596.1 | 2/28/2017 | 3424218 | 1/9/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN17-AVA-EP03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | European Patent | Granted | 17760606.8 | 2/28/2017 | 3424219 | 1/9/2019 | 3424219 | 1/20/2021 | Gracenote |
| Roku, Inc. | GN17-AVA-EP04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | European Patent | Published | 17760594.6 | 2/28/2017 | 3424224 | 1/9/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN17-AVA-EP05 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | European Patent | Published | 17760609.2 | 2/28/2017 | 3424220 | 1/9/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN17-AVA-EP08 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | European Patent | Application | 20197250.2 | 2/28/2017 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN17-AVA-FR01 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | France | Granted | 17760624.1 | 2/28/2017 | 3424221 | 1/9/2019 | 3424221 | 9/23/2020 | Gracenote |
| Roku, Inc. | GN17-AVA-FR02 | Method and System for Detecting and Responding to Changing of Media Channel | France | Granted | 17760641.5 | 2/28/2017 | N/A | N/A | 3424226 | 12/23/2020 | Gracenote |
| Roku, Inc. | GN17-AVA-GB01 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United Kingdom | Granted | 17760624.1 | 2/28/2017 | 3424221 | 1/9/2019 | 3424221 | 9/23/2020 | Gracenote |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|----------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN117-AVA-GB02 | Method and System for Detecting and Responding to Changing of Media Channel | United Kingdom | Granted | 1776064.5 | 2/28/2017 | N/A | N/A | 3424226 | 12/23/2020 | Gracenote |
| Roku, Inc. | | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK01 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Hong Kong | Granted | 18116199.5 | 2/28/2017 | 1257063 | 10/11/2019 | HK1257063 | 8/14/2020 | Gracenote |
| Roku, Inc. | | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Location | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Hong Kong | Granted | 18115982.8 | 12/12/2018 | 1256881 | 10/4/2019 | 1256881 | 7/3/2020 | Gracenote |
| Roku, Inc. | | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Hong Kong | Granted | 18116198.6 | 2/28/2017 | 1257062 | 10/11/2019 | HK1257062 | 6/5/2020 | Gracenote |
| Roku, Inc. | | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK04 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Hong Kong | Granted | 18115983.7 | 12/12/2018 | 1256882 | 7/3/2020 | 1256882 | 7/3/2020 | Gracenote |
| Roku, Inc. | | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK05 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Hong Kong | Granted | 18116196.8 | 2/28/2017 | 1257060 | 6/5/2020 | 1257060 | 6/5/2020 | Gracenote |
| Roku, Inc. | | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK06 | Method and System for Detecting and Responding to Changing of Media Channel | Hong Kong | Published | 18116030.8 | 12/13/2018 | 1256916 | 10/4/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK07 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Hong Kong | Published | 18116197.7 | 2/28/2017 | 1257061 | 10/11/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK08 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Hong Kong | Published | 19129352.1 | 2/28/2017 | 40005878 | 5/15/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | | | | | | | | | |
| Roku, Inc. | GN117-AVA-HK09 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Hong Kong | Published | 19131577.9 | 10/28/2019 | 40007997 | 6/5/2020 | N/A | N/A | Gracenote |

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| Roku, Inc. | GN117-AVA-HK10 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Hong Kong | Published | 42019000110.7 | 12/9/2019 | 40010385 | 7/3/2020 | N/A | N/A | Gracenote |
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TRADEMARK
REEL: 007980 FRAME: 0064

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|-----------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN117-AVA-HK11 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Hong Kong | Published | 42020003832.1 | 3/6/2020 | 40013816 | 8/14/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-HK12 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | Hong Kong | Published | 42020006281.8 | 4/22/2020 | 40016289 | 9/11/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-HK13 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Hong Kong | Application | 42020022125.7 | 12/15/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-JP02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Japan | Granted | 2018-532652 | 2/28/2017 | 2019/511138 | 4/18/2019 | 6556366 | 7/19/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-JP03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Japan | Granted | 2018-532558 | 2/28/2017 | 2019-508923 | 3/28/2019 | 6556364 | 7/19/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-JP04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Japan | Granted | 2018-532651 | 2/28/2017 | 2019-507515 | 3/14/2019 | 6556365 | 7/19/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-JP05 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Japan | Granted | 2018-532646 | 2/28/2017 | N/A | N/A | 6490874 | 3/8/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-JP06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Japan | Granted | 2018-532653 | 2/28/2017 | 2019-507516 | 3/14/2019 | 6707137 | 5/21/2020 | Gracenote |
| Roku, Inc. | GN117-AVA-JP07 | Method and System for Detecting and Responding to Changing of Media Channel | Japan | Granted | 2018-532647 | 2/28/2017 | N/A | N/A | 6490875 | 3/8/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-JP08 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | Japan | Published | 2019-033878 | 6/21/2016 | 2019-146168 | 8/29/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-JP09 | Method and System for Detecting and Responding to Changing of Media Channel | Japan | Published | 2019-033879 | 6/21/2018 | 2019-146169 | 8/29/2019 | N/A | N/A | Gracenote |

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| Roku, Inc. | GN117-AVA- JP10 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Japan | Published | 2019-127486 | 7/9/2019 | 2019-216425 | 12/19/2019 | N/A | N/A | Gracenote |
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TRADEMARK
REEL: 007980 FRAME: 0066

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|--------------------|---|-------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN117-AVA- JP11 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Japan | Published | 2019-127487 | 2/28/2017 | 2019-201415 | 11/21/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA- JP12 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Japan | Published | 2019-127485 | 7/9/2019 | 2019-220958 | 12/26/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA- JP13 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | Japan | Published | 2020-087362 | 5/19/2020 | 2020-145722 | 9/10/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA- JP14 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Japan | Application | 2020-216275 | 12/25/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA- KR02 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Korea, Republic of (KR) | Granted | 10-2018-7026917 | 2/28/2017 | 10-2018-0105748 | 9/28/2018 | 10-1994204 | 6/24/2019 | Gracenote |
| Roku, Inc. | GN117-AVA- KR03 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Korea, Republic of (KR) | Granted | 10-2018-7026919 | 2/28/2017 | 10-2018-0105749 | 9/28/2018 | 10-1992705 | 6/19/2019 | Gracenote |
| Roku, Inc. | GN117-AVA- KR04 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Korea, Republic of (KR) | Granted | 10-2018-7026928 | 2/28/2017 | N/A | N/A | 10-2024105 | 9/17/2019 | Gracenote |
| Roku, Inc. | GN117-AVA- KR05 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Korea, Republic of (KR) | Granted | 10-2018-7026922 | 2/28/2017 | N/A | N/A | 1985826 | 5/29/2019 | Gracenote |
| Roku, Inc. | GN117-AVA- KR06 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Korea, Republic of (KR) | Granted | 2018-7026930 | 2/28/2017 | N/A | N/A | 10-2127851 | 6/23/2020 | Gracenote |
| Roku, Inc. | GN117-AVA- KR07 | Method and System for Detecting and Responding to Changing of Media Channel | Korea, Republic of (KR) | Granted | 10-2018-7026927 | 2/28/2017 | N/A | N/A | 1922997 | 11/22/2018 | Gracenote |

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| Roku, Inc. | GN117-AVA-KR08 | Method And System For Detecting And Responding To Changing Of Media Channel | Korea, Republic of (KR) | Granted | 2018-7033849 | 2/28/2017 | 20180128085 | 11/30/2018 | 1969812 | 4/11/2019 | Gracenote |
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TRADEMARK
REEL: 007980 FRAME: 0068

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|-------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN117-AVA-KR09 | Method and System for Detecting and Responding to Changing of Media Channel | Korea, Republic of (KR) | Granted | 2019-7010400 | 2/28/2017 | N/A | N/A | 2000130 | 7/9/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-KR10 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Korea, Republic of (KR) | Granted | 2019-7015434 | 5/29/2019 | N/A | N/A | 2073679 | 1/30/2020 | Gracenote |
| Roku, Inc. | GN117-AVA-KR11 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Korea, Republic of (KR) | Granted | 2019-7018143 | 6/24/2019 | N/A | N/A | 2075447 | 2/4/2020 | Gracenote |
| Roku, Inc. | GN117-AVA-KR12 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Korea, Republic of (KR) | Granted | 2019-7017586 | 6/19/2019 | N/A | N/A | 2131125 | 7/1/2020 | Gracenote |
| Roku, Inc. | GN117-AVA-KR13 | Method and System for Detecting and Responding to Changing of Media Channel | Korea, Republic of (KR) | Granted | 2019-7019883 | 2/28/2017 | N/A | N/A | 2034031 | 10/14/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-KR14 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | Korea, Republic of (KR) | Application | 2019-7027093 | 2/28/2017 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-KR15 | Method and System for Detecting and Responding to Changing of Media Channel | Korea, Republic of (KR) | Application | 2019-7030056 | 7/9/2019 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-KR16 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Time of Broadcast | Korea, Republic of (KR) | Application | 2020-7002893 | 1/30/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-KR17 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | Korea, Republic of (KR) | Granted | 2020-7003274 | 2/4/2020 | N/A | N/A | 2108895 | 5/4/2020 | Gracenote |
| Roku, Inc. | 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) | Application | 2020-7012779 | 5/4/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN117-AVA-KR19 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | Korea, Republic of (KR) | Application | 2020-7018119 | 6/23/2020 | N/A | N/A | N/A | N/A | Gracenote |

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| Roku, Inc. | GN117-AVA-KR20 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Korea, Republic of (KR) | Application | 2020-7019002 | 7/1/2020 | N/A | N/A | N/A | N/A | Gracenote |
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REEL: 007980 FRAME: 0070

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | 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 | Granted | 15/442,114 | 2/24/2017 | US-2017-0251250 | 8/31/2017 | 9,992,533 | 6/5/2018 | Gracenote |
| Roku, Inc. | GN117-AVA-US05 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | Granted | 15/179,143 | 6/10/2016 | US-2017-0251280 | 8/31/2017 | 9,924,222 | 3/20/2018 | Gracenote |
| Roku, Inc. | GN117-AVA-US06 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United States of America | Granted | 15/222,405 | 7/28/2016 | US-2017-0251248 | 8/31/2017 | 10,063,918 | 8/28/2018 | Gracenote |
| Roku, Inc. | GN117-AVA-US07 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | United States of America | Granted | 15/253,354 | 8/31/2016 | US-2017-0251249 | 8/31/2017 | 9,930,406 | 3/27/2018 | Gracenote |
| Roku, Inc. | GN117-AVA-US08 | Media Channel Identification and Multi-Match Detection on Time of Broadcast | United States of America | Granted | 15/343,895 | 11/4/2016 | US-2017-0251281 | 8/31/2017 | 10,045,073 | 8/7/2018 | Gracenote |
| Roku, Inc. | GN117-AVA-US09 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | Granted | 15/443,580 | 2/27/2017 | US-2017-0251251 | 8/31/2017 | 10,104,426 | 10/16/2018 | Gracenote |
| Roku, Inc. | GN117-AVA-US10 | Method and System for Detecting and Responding to Changing of Media Channel | United States of America | Granted | 15/443,615 | 2/27/2017 | US-2017-0251247 | 8/31/2017 | 10,045,074 | 8/7/2018 | Gracenote |

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REEL: 007980 FRAME: 0071

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN117-AVA-US11 | Media Channel Identification with Video Multi-Match Detection and Audio Disambiguation Based on Audio Fingerprint | United States of America | Granted | 15/842,189 | 12/14/2017 | US-2018-0109841 | 4/19/2018 | 10,149,007 | 12/4/2018 | Gracenote |
| Roku, Inc. | GN117-AVA-US12 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | Granted | 15/842,206 | 12/14/2017 | US-2018-0109839 | 4/19/2018 | 10,057,638 | 8/21/2018 | Gracenote |
| Roku, Inc. | GN117-AVA-US13 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United States of America | Granted | 16/015,783 | 6/22/2018 | US-2018-0316967 | 11/1/2018 | 10,567,835 | 2/18/2020 | Gracenote |
| Roku, Inc. | 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 | Granted | 15/982,437 | 5/17/2018 | US-2018-0270529 | 9/20/2018 | 10,523,999 | 12/31/2019 | Gracenote |
| Roku, Inc. | 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 | Granted | 16/017,190 | 6/25/2018 | US-2018-0310053 | 10/25/2018 | 10,524,000 | 12/31/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-US16 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Audio Fingerprint | United States of America | Granted | 16/017,203 | 6/25/2018 | US-2018-0310057 | 10/25/2018 | 10,440,430 | 10/8/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-US17 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | Granted | 16/017,218 | 6/25/2018 | US-2018-0310054 | 10/25/2018 | 10,412,448 | 9/10/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-US18 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | United States of America | Granted | 16/015,800 | 6/22/2018 | US-2018-0302668 | 10/18/2018 | 10,419,814 | 9/17/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-US19 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | Granted | 16/015,811 | 6/22/2018 | US-2018-0302669 | 10/18/2018 | 10,225,605 | 3/5/2019 | Gracenote |
| Roku, Inc. | GN117-AVA-US20 | Method and System for Detecting and Responding to Changing Of Media Channel | United States of America | Granted | 16/015,827 | 6/22/2018 | US-2018-0302670 | 10/18/2018 | 10,531,150 | 1/7/2020 | Gracenote |
| Roku, Inc. | GN117-AVA-US21 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | Granted | 16/246,746 | 1/14/2019 | US-2019-0149877 | 5/16/2019 | 10,575,052 | 2/25/2020 | Gracenote |

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| Roku, Inc. | GN117-AVA-US22 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | United States of America | Granted | 16/276,050 | 2/14/2019 | US-2019-0182540 | 6/13/2019 | 10,848,820 | 11/24/2020 | Gracenote |
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TRADEMARK
REEL: 007980 FRAME: 0073

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN17-AVA-US23 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | Granted | 16/274,975 | 2/13/2019 | US-2019-0182539 | 6/13/2019 | 10,536,746 | 1/14/2020 | Gracenote |
| Roku, Inc. | GN17-AVA-US24 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | United States of America | Granted | 16/274,966 | 2/13/2019 | US-2019-0182541 | 6/13/2019 | 10,631,049 | 4/21/2020 | Gracenote |
| Roku, Inc. | GN17-AVA-US25 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United States of America | Granted | 16/276,061 | 2/14/2019 | US-2019-0182542 | 6/13/2019 | 10,567,836 | 2/18/2020 | Gracenote |
| Roku, Inc. | GN17-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 | Granted | 15/929,180 | 12/5/2019 | US-2020-0154164 | 5/14/2020 | 10,972,786 | 4/6/2021 | Gracenote |
| Roku, Inc. | GN17-AVA-US27 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | Granted | 15/929,167 | 11/19/2019 | 15/929167 | 3/19/2020 | 11,012,738 | 5/18/2021 | Gracenote |
| Roku, Inc. | GN17-AVA-US28 | Method and System for Detecting and Responding to Changing of Media Channel | United States of America | Granted | 15/929,179 | 12/5/2019 | US-2020-0149290 | 5/14/2020 | 10,805,673 | 10/13/2020 | Gracenote |
| Roku, Inc. | GN17-AVA-US29 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | Granted | 15/929,193 | 12/19/2019 | US-2020-0128295 | 4/23/2020 | 10,939,162 | 3/2/2021 | Gracenote |
| Roku, Inc. | GN17-AVA-US30 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United States of America | Granted | 15/929,203 | 1/10/2020 | US-2020-0267444 | 8/20/2020 | 11,012,743 | 5/18/2021 | Gracenote |
| Roku, Inc. | GN17-AVA-US31 | Media Channel Identification with Video Multi-Match Detection and Disambiguation Based on Audio Fingerprint | United States of America | Published | 16/819,657 | 3/16/2020 | US-2020-0221173 | 7/9/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN17-AVA-US32 | Method and System for Detecting and Responding to Changing of Media Channel | United States of America | Published | 16/946,888 | 7/10/2020 | US-2020-0344521 | 10/29/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN17-AVA-US33 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | United States of America | Application | 16/949,183 | 10/19/2020 | N/A | N/A | N/A | N/A | Gracenote |

TRADEMARK

REEL: 007980 FRAME: 0074

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN19-AVA-US01 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 10/564,297 | 1/10/2006 | US-2006-0190776 | 8/24/2006 | 8,020,000 | 9/13/2011 | Gracenote |
| Roku, Inc. | GN19-AVA-US02 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 13/220,267 | 8/29/2011 | US-2012-0016876 | 1/19/2012 | 8,660,267 | 2/25/2014 | Gracenote |
| Roku, Inc. | GN19-AVA-US03 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 14/151,879 | 1/10/2014 | US-2014-0130077 | 5/8/2014 | 9,066,114 | 6/23/2015 | Gracenote |

TRADEMARK

REEL: 007980 FRAME: 0075

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN19-AVA-US04 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 14/659,044 | 3/16/2015 | US-2015-0189380 | 7/2/2015 | 9,407,962 | 8/2/2016 | Gracenote |
| Roku, Inc. | GN19-AVA-US05 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 15/164,605 | 5/25/2016 | US-2016-0269780 | 9/15/2016 | 9,479,831 | 10/25/2016 | Gracenote |
| Roku, Inc. | GN19-AVA-US06 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 15/273,185 | 9/22/2016 | US-2017-0013291 | 1/12/2017 | 9,712,853 | 7/18/2017 | Gracenote |
| Roku, Inc. | GN19-AVA-US07 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 15/622,024 | 6/13/2017 | US-2017-0289590 | 10/5/2017 | 10,045,054 | 8/7/2018 | Gracenote |
| Roku, Inc. | GN19-AVA-US08 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 16/018,022 | 6/25/2018 | US-2019-0045240 | 2/7/2019 | 10,250,916 | 4/2/2019 | Gracenote |
| Roku, Inc. | GN19-AVA-US09 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Granted | 16/264,134 | 1/31/2019 | US-2019-0327502 | 10/24/2019 | 10,595,053 | 3/17/2020 | Gracenote |
| Roku, Inc. | GN19-AVA-US10 | Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal | United States of America | Published | 16/815,720 | 3/11/2020 | US-2020-0322653 | 10/8/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN123-AVA-US03 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 12/760,004 | 4/14/2010 | US-2010-0269128 | 10/21/2010 | 9,015,741 | 4/21/2015 | Bulldog |
| Roku, Inc. | GN123-AVA-US04 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 14/659,971 | 3/17/2015 | US-2015-0195597 | 7/9/2015 | 9,992,518 | 6/5/2018 | Bulldog |
| Roku, Inc. | GN123-AVA-US05 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 15/287,116 | 10/6/2016 | US-2017-0026697 | 1/26/2017 | 9,998,767 | 6/12/2018 | Bulldog |

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REEL: 007980 FRAME: 0076

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN123-AVA-US06 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 15/292,705 | 10/13/2016 | US-2017-0034549 | 2/2/2017 | 9,706,233 | 7/11/2017 | Bulldog |
| Roku, Inc. | GN123-AVA-US07 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 15/614,566 | 6/5/2017 | US-2017-0280176 | 9/28/2017 | 10,250,919 | 4/2/2019 | Bulldog |
| Roku, Inc. | GN123-AVA-US08 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 16/018,050 | 6/26/2018 | US-2019-0007712 | 1/3/2019 | 10,341,697 | 7/2/2019 | Bulldog |
| Roku, Inc. | GN123-AVA-US09 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 16/390,595 | 4/22/2019 | US-2019-0306546 | 10/3/2019 | 10,979,742 | 4/13/2021 | Bulldog |
| Roku, Inc. | GN123-AVA-US10 | Method and System for Remotely Controlling Consumer Electronic Device | United States of America | Granted | 16/390,627 | 4/22/2019 | US-2019-0261034 | 8/22/2019 | 10,972,763 | 4/6/2021 | Bulldog |
| Roku, Inc. | GN123-AVA-US11 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 16/390,631 | 4/22/2019 | US-2019-0261035 | 8/22/2019 | 10,972,764 | 4/6/2021 | Bulldog |
| Roku, Inc. | GN123-AVA-US12 | Method and System for Remotely Controlling Consumer Electronic Device | United States of America | Granted | 16/390,644 | 4/22/2019 | US-2019-0261036 | 8/22/2019 | 10,701,410 | 6/30/2020 | Bulldog |
| Roku, Inc. | GN123-AVA-US13 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Application | 16/403,075 | 5/3/2019 | N/A | N/A | N/A | N/A | Bulldog |
| Roku, Inc. | GN123-AVA-US14 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/403,084 | 5/3/2019 | US-2019-0268636 | 8/29/2019 | N/A | N/A | Bulldog |
| Roku, Inc. | GN123-AVA-US15 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 16/403,089 | 5/3/2019 | US-2019-0268637 | 8/29/2019 | 10,735,782 | 8/4/2020 | Bulldog |
| Roku, Inc. | GN123-AVA-US16 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/403,096 | 5/3/2019 | US-2019-0306547 | 10/3/2019 | N/A | N/A | Bulldog |
| Roku, Inc. | GN123-AVA-US17 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/403,105 | 5/3/2019 | US-2019-0268638 | 8/29/2019 | N/A | N/A | Bulldog |

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| Roku, Inc. | GN123-AVA-US18 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/403,111 | 5/3/2019 | US-2019-0268639 | 8/29/2019 | N/A | N/A | Bulldog |
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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN123-AVA-US19 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 16/568,407 | 9/12/2019 | US-2020-0007908 | 1/2/2020 | 10,701,411 | 6/30/2020 | Bulldog |
| Roku, Inc. | GN123-AVA-US20 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 16/568,414 | 9/12/2019 | US-2020-0007909 | 1/2/2020 | 10,715,841 | 7/14/2020 | Bulldog |
| Roku, Inc. | GN123-AVA-US21 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 16/568,438 | 9/12/2019 | US-2020-0007910 | 1/2/2020 | 10,701,412 | 6/30/2020 | Bulldog |
| Roku, Inc. | GN123-AVA-US22 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Granted | 16/568,445 | 9/12/2019 | US-2020-0007911 | 1/2/2020 | 10,904,589 | 1/26/2021 | Bulldog |
| Roku, Inc. | GN123-AVA-US23 | Method and System for Remotely Controlling Consumer Electronic Device | United States of America | Granted | 16/775,126 | 1/28/2020 | US-2020-0177933 | 6/4/2020 | 10,972,766 | 4/6/2021 | Bulldog |
| Roku, Inc. | GN123-AVA-US25 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/828,522 | 3/24/2020 | US-2020-0236409 | 7/23/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN123-AVA-US26 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/845,392 | 4/10/2020 | US-2020-0252665 | 8/6/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN123-AVA-US27 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/836,280 | 3/31/2020 | US-2020-0245007 | 7/30/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN123-AVA-US28 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/836,417 | 3/31/2020 | US-2020-0245008 | 7/30/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN123-AVA-US29 | Method and System for Remotely Controlling Consumer Electronic Devices | United States of America | Published | 16/881,397 | 5/22/2020 | US-2020-0344503 | 10/29/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA-US02 | Method and System for Presenting Additional Content at a Media System | United States of America | Granted | 13/286,138 | 10/31/2011 | US-2012-017584 | 5/10/2012 | 8,863,165 | 10/14/2014 | Bulldog |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN124-AVA-US04 | Method and System for Presenting Additional Content at a Media System | United States of America | Granted | 15/375,698 | 12/12/2016 | US-2017-0094351 | 3/30/2017 | 10,506,291 | 12/10/2019 | Bulldog |
| Roku, Inc. | GN124-AVA-US05 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/017,900 | 6/25/2018 | US-2018-0310058 | 10/25/2018 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA-US06 | Method and System for Presenting Additional Content at a Media System | United States of America | Granted | 16/017,910 | 6/25/2018 | US-2018-0302672 | 10/18/2018 | 10,341,734 | 7/2/2019 | Bulldog |
| Roku, Inc. | GN124-AVA-US07 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/017,926 | 6/25/2018 | US-2018-0302673 | 10/18/2018 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA-US08 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/670,954 | 10/31/2019 | US-2020-0068256 | 2/27/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA-US09 | Method and System for Presenting Additional Content at a Media System | United States of America | Granted | 16/670,956 | 10/31/2019 | US-2020-0068257 | 2/27/2020 | 10,904,629 | 1/26/2021 | Bulldog |
| Roku, Inc. | GN124-AVA-US10 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/670,961 | 10/31/2019 | US-2020-0068258 | 2/27/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA-US11 | Method and System for Presenting Additional Content at a Media System | United States of America | Granted | 16/670,965 | 10/31/2019 | US-2020-0068259 | 2/27/2020 | 10,979,772 | 4/13/2021 | Bulldog |
| Roku, Inc. | GN124-AVA-US12 | Method and System for Presenting Additional Content at a Media System | United States of America | Granted | 16/670,983 | 10/31/2019 | US-2020-0068260 | 2/27/2020 | 10,889,095 | 12/15/2020 | Bulldog |
| Roku, Inc. | GN124-AVA-US13 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/835,201 | 3/30/2020 | US-2020-0228870 | 7/16/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA-US14 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/835,203 | 3/30/2020 | US-2020-0228871 | 7/16/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA-US15 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/835,204 | 3/30/2020 | US-2020-0236435 | 7/23/2020 | N/A | N/A | Bulldog |

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| Roku, Inc. | GN124-AVA- US16 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/835,206 | 3/30/2020 | US-2020-0228872 | 7/16/2020 | N/A | N/A | Bulldog |
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REEL: 007980 FRAME: 0081

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|--------------------|---|-------------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN124-AVA- US17 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/835,209 | 3/30/2020 | US-2020-0228873 | 7/16/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA- US18 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/835,213 | 3/30/2020 | US-2020-0228874 | 7/16/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA- US19 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/835,215 | 3/30/2020 | US-2020-0228875 | 7/16/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN124-AVA- US20 | Method and System for Presenting Additional Content at a Media System | United States of America | Published | 16/835,217 | 3/30/2020 | US-2020-0228876 | 7/16/2020 | N/A | N/A | Bulldog |
| Roku, Inc. | GN125-AVA- DE01 | Selection of Content from a Stream of Video or Audio Data | Germany (Federal Republic of) | Granted | 5773404.8 | 8/9/2005 | N/A | N/A | 1779659 | 10/7/2020 | Gracenote |
| Roku, Inc. | GN125-AVA- US01 | Selection of Content from a Stream of Video or Audio Data | United States of America | Granted | 11/573,455 | 2/9/2007 | US-2009-0226148 | 9/10/2009 | 8,406,607 | 3/26/2013 | Gracenote |
| Roku, Inc. | GN125-AVA- US02 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | Granted | 13/778,439 | 2/27/2013 | US-2013-0302011 | 11/14/2013 | 9,143,718 | 9/22/2015 | Gracenote |
| Roku, Inc. | GN125-AVA- US03 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | Granted | 14/789,048 | 7/1/2015 | US-2015-0304597 | 10/22/2015 | 9,414,008 | 8/9/2016 | Gracenote |
| Roku, Inc. | GN125-AVA- US04 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | Granted | 15/204,366 | 7/7/2016 | US-2016-0323533 | 11/3/2016 | 9,736,549 | 8/15/2017 | Gracenote |

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REEL: 007980 FRAME: 0082

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN125-AVA-US05 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | Granted | 15/285,056 | 10/4/2016 | US-2017-0026716 | 1/26/2017 | 9,794,644 | 10/17/2017 | Gracenote |
| Roku, Inc. | GN125-AVA-US06 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | Granted | 15/703,687 | 9/13/2017 | US-2018-0014088 | 1/11/2018 | 9,986,306 | 5/29/2018 | Gracenote |
| Roku, Inc. | GN125-AVA-US07 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | Granted | 15/971,608 | 5/4/2018 | US-2018-0316986 | 11/11/2018 | 10,555,052 | 2/4/2020 | Gracenote |
| Roku, Inc. | GN125-AVA-US08 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | Granted | 16/734,081 | 1/3/2020 | US-2020-0145731 | 5/7/2020 | 10,945,049 | 3/9/2021 | Gracenote |
| Roku, Inc. | GN125-AVA-US09 | Method and Apparatus for Selection of Content from a Stream of Data | United States of America | Granted | 16/734,283 | 1/3/2020 | US-2020-0145732 | 5/7/2020 | 10,924,816 | 2/16/2021 | Gracenote |
| Roku, Inc. | GN125-AVA-US10 | Method and Apparatus for Selection of Content from a Stream of Video or Audio Data | United States of America | Application | 17/148,700 | 1/14/2021 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN126-AVA-US01 | Identifying Video Content Via Fingerprint Matching | United States of America | Granted | 13/735,426 | 1/7/2013 | US-2014-0195548 | 7/10/2014 | 9,495,451 | 11/15/2016 | Gracenote |
| Roku, Inc. | GN126-AVA-US02 | Identifying Media Content Via Fingerprint Matching | United States of America | Granted | 15/287,063 | 10/6/2016 | US-2017-0024470 | 1/26/2017 | 10,866,988 | 12/15/2020 | Gracenote |
| Roku, Inc. | GN126-AVA-US03 | Video Fingerprinting | United States of America | Granted | 14/263,647 | 4/28/2014 | US-2014-0236988 | 8/21/2014 | 9,323,840 | 4/26/2016 | Gracenote |
| Roku, Inc. | GN126-AVA-US04 | Video Fingerprinting | United States of America | Published | 15/136,412 | 4/22/2016 | US-2016-0267180 | 9/15/2016 | N/A | N/A | Gracenote |
| Roku, Inc. | GN126-AVA-US05 | Identifying Media Content Via Fingerprint Matching | United States of America | Application | 17/096,826 | 11/12/2020 | N/A | N/A | N/A | N/A | Gracenote |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|-------------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN127-AVA-US02 | Inserting Advertisements into Video Content | United States of America | Granted | 13/626,282 | 3/14/2013 | US-2014-0196085 | 7/10/2014 | 9,794,642 | 10/17/2017 | Gracenote |
| Roku, Inc. | GN127-AVA-US03 | Inserting Advertisements into Video Content | United States of America | Granted | 15/700,054 | 9/8/2017 | US-2018-0020265 | 1/18/2018 | 10,110,970 | 10/23/2018 | Gracenote |
| Roku, Inc. | GN127-AVA-US04 | Inserting Advertisements into Video Content | United States of America | Granted | 16/018,056 | 6/26/2018 | US-2019-0007748 | 1/3/2019 | 10,595,097 | 3/17/2020 | Gracenote |
| Roku, Inc. | GN127-AVA-US05 | Inserting Advertisements into Video Content | United States of America | Published | 16/779,547 | 1/31/2020 | US-2020-0245034 | 7/30/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN128-AVA-AU01 | Authorizing Devices Based on IdentifyingContent Distributor | Australia | Granted | 2013371482.0 | 12/18/2013 | 2013371482 | 8/20/2015 | 2013371482 | 12/18/2017 | Gracenote |
| Roku, Inc. | GN128-AVA-DE01 | Authorizing Devices Based on IdentifyingContent Distributor | Germany (Federal Republic of) | Granted | 13870108.1 | 12/18/2013 | 2944051 | 11/18/2015 | 2944051 | 6/5/2019 | Gracenote |
| Roku, Inc. | GN128-AVA-EP01 | Authorizing Devices Based on IdentifyingContent Distributor | European Patent | Expired | 13870108.1 | 12/18/2013 | 2944051 | 11/18/2015 | 2944051 | 6/5/2019 | Gracenote |
| Roku, Inc. | GN128-AVA-FR01 | Authorizing Devices Based on IdentifyingContent Distributor | France | Granted | 13870108.1 | 12/18/2013 | 2944051 | 11/18/2015 | 2944051 | 6/5/2019 | Gracenote |
| Roku, Inc. | GN128-AVA-GB01 | Authorizing Devices Based on IdentifyingContent Distributor | United Kingdom | Granted | 13870108.1 | 12/18/2013 | 2944051 | 11/18/2015 | 2944051 | 6/5/2019 | Gracenote |
| Roku, Inc. | GN128-AVA-HK01 | Authorizing Devices Based on IdentifyingContent Distributor | Hong Kong | Granted | 16105674.4 | 5/17/2016 | HK1217835 | 1/20/2017 | 1217835 | 4/29/2020 | Gracenote |
| Roku, Inc. | GN128-AVA-KR01 | Authorizing Devices Based on IdentifyingContent Distributor | Korea, Republic of (KR) | Granted | 2015-7021476 | 12/18/2013 | 10-2015-0106904 | 9/22/2015 | 10-2017602 | 8/28/2019 | Gracenote |

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| Roku, Inc. | GN128-AVA-KR02 | Authorizing Devices Based on IdentifyingContent Distributor | Korea, Republic of (KR) | Granted | 2019-7025227 | 12/18/2013 | N/A | N/A | 10-2094651 | 3/23/2020 | Gracenote |
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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN128-AVA-KR03 | Authorizing Devices Based onIdentifying Content Distributor | Korea, Republic of (KR) | Application | 2020-7008195 | 3/20/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN128-AVA-US02 | Authorizing Devices Based on Identifying Content Distributor | United States of America | Granted | 13/826,606 | 3/14/2013 | US-2014-0196077 | 7/10/2014 | 8,997,164 | 3/31/2015 | Gracenote |
| Roku, Inc. | GN128-AVA-US03 | Authorizing Devices Based on IdentifyingContent Distributor | United States of America | Granted | 14/640,253 | 3/6/2015 | US-2015-0181263 | 6/25/2015 | 9,596,490 | 3/14/2017 | Gracenote |
| Roku, Inc. | GN128-AVA-US05 | Authorizing Devices Based onIdentifying Content Distributor | United States of America | Published | 16/947,748 | 8/14/2020 | US-2020-0374569 | 11/26/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN129-AVA-US01 | Detecting An Event Within Interactive Media Including Spatialized Multi-Channel Audio Content | United States of America | Granted | 13/795,877 | 3/12/2013 | US-2014-0274353 | 9/18/2014 | 9,372,531 | 6/21/2016 | Gracenote |
| Roku, Inc. | GN129-AVA-US02 | Detecting an Event within Interactive Media Including Spatialized Multi-Channel Audio Content | United States of America | Granted | 15/003,658 | 1/21/2016 | US-2016-0139756 | 5/19/2016 | 10,055,010 | 8/21/2018 | Gracenote |
| Roku, Inc. | GN129-AVA-US03 | Detecting an Event Within Interactive Media | United States of America | Granted | 16/017,170 | 6/25/2018 | US-2018-0307300 | 10/25/2018 | 10,156,894 | 12/18/2018 | Gracenote |
| Roku, Inc. | GN129-AVA-US04 | Detecting and Responding to an Event Within an Interactive Videogame | United States of America | Granted | 16/168,412 | 10/23/2018 | US-2019-0056778 | 2/21/2019 | 10,345,892 | 7/9/2019 | Gracenote |
| Roku, Inc. | GN129-AVA-US05 | Detecting and Responding to an Event Within an Interactive Videogame | United States of America | Granted | 16/425,490 | 5/29/2019 | US-2019-0278366 | 9/12/2019 | 10,824,222 | 11/3/2020 | Gracenote |
| Roku, Inc. | GN129-AVA-US06 | Detecting and Responding to an Event within an Interactive Videogame | United States of America | Published | 16/947,969 | 8/26/2020 | US-2020-0379549 | 12/3/2020 | N/A | N/A | Gracenote |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|------------------|------------|-----------|
| Roku, Inc. | GN130-AVA-US02 | Search And Identification Of Video Content | United States of America | Granted | 13/839,782 | 3/15/2013 | US-2014-0193027 | 7/10/2014 | 9,146,990 | 9/29/2015 | Gracenote |
| Roku, Inc. | GN130-AVA-US03 | Search And Identification Of Video Content | United States of America | Granted | 14/828,293 | 8/17/2015 | US-2015-0356178 | 12/10/2015 | 9,959,345 | 5/1/2018 | Gracenote |
| Roku, Inc. | GN131-AVA-US01 | Displaying An Actionable Element Over Playing Content | United States of America | Granted | 14/020,295 | 9/6/2013 | US-2015-0074703 | 3/12/2015 | 10,965,991 | 3/30/2021 | Gracenote |
| Roku, Inc. | GN131-AVA-US02 | Displaying an Actionable Element Over Playing Content | United States of America | Granted | 16/124,928 | 9/7/2018 | US-2019-0007741 | 1/3/2019 | 10,979,771 | 4/13/2021 | Gracenote |
| Roku, Inc. | GN131-AVA-US03 | Displaying an Actionable Element Over Playing Content | United States of America | Published | 16/126,771 | 9/10/2018 | US-2019-0007742 | 1/3/2019 | N/A | N/A | Gracenote |
| Roku, Inc. | GN131-AVA-US04 | Displaying an Actionable Element Over Playing Content | United States of America | Granted | 16/178,116 | 11/1/2018 | US-2019-0075362 | 3/7/2019 | 10,965,992 | 3/30/2021 | Gracenote |
| Roku, Inc. | GN132-AVA-US01 | Identifying Video Content Via Color-Based Fingerprint Matching | United States of America | Granted | 14/061,043 | 10/23/2013 | US-2015-0110340 | 4/23/2015 | 9,465,995 | 10/11/2016 | Gracenote |
| Roku, Inc. | GN132-AVA-US02 | Identifying Video Content Via Color-Based Fingerprint Matching | United States of America | Granted | 15/286,787 | 10/6/2016 | US-2017-0091524 | 3/30/2017 | 10,503,956 | 12/10/2019 | Gracenote |
| Roku, Inc. | GN132-AVA-US03 | Identifying Video Content Via Color-Based Fingerprint Matching | United States of America | Published | 16/692,124 | 11/22/2019 | US-2020-0089934 | 3/19/2020 | N/A | N/A | Gracenote |
| Roku, Inc. | GN137-AVA-CN01 | Dynamic Video Overlays | China | Granted | 201680074415.0 | 12/16/2016 | CN108496368A | 9/4/2018 | ZL201680074415.0 | 11/24/2020 | Gracenote |
| Roku, Inc. | GN137-AVA-CN02 | Dynamic Video Overlays | China | Application | 202011252640.3 | 11/11/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN137-AVA-CN03 | Dynamic Video Overlays | China | Application | 202011254676.5 | 11/11/2020 | N/A | N/A | N/A | N/A | Gracenote |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|------------------------|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN137-AVA-CN04 | Dynamic Video Overlays | China | Application | 202011252620. | 11/11/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN137-AVA-CN05 | Dynamic Video Overlays | China | Application | 202011257196. | 11/11/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN137-AVA-EP01 | Dynamic Video Overlays | European Patent | Published | 16876800.0 | 12/16/2016 | 3391651 | 10/24/2018 | N/A | N/A | Gracenote |
| Roku, Inc. | GN137-AVA-JP01 | Dynamic Video Overlays | Japan | Published | 2018-531572 | 12/16/2016 | 2018-537925 | 12/20/2018 | N/A | N/A | Gracenote |
| Roku, Inc. | GN137-AVA-KR01 | Dynamic Video Overlays | Korea, Republic of (KR) | Granted | 2018-7019944 | 12/16/2016 | N/A | N/A | 2147230 | 8/18/2020 | Gracenote |
| Roku, Inc. | GN137-AVA-KR02 | Dynamic Video Overlays | Korea, Republic of (KR) | Granted | 2020-7023726 | 12/16/2016 | N/A | N/A | 2185022 | 11/25/2020 | Gracenote |
| Roku, Inc. | GN137-AVA-KR03 | Dynamic Video Overlays | Korea, Republic of (KR) | Application | 2020-7033924 | 11/25/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN137-AVA-US02 | Dynamic Video Overlays | United States of America | Granted | 15/381,496 | 12/16/2016 | US-2017-0150213 | 5/25/2017 | 10,142,680 | 11/27/2018 | Gracenote |
| Roku, Inc. | GN137-AVA-US03 | Dynamic Video Overlays | United States of America | Granted | 15/381,497 | 12/16/2016 | US-2017-0180792 | 6/22/2017 | 10,785,530 | 9/22/2020 | Gracenote |
| Roku, Inc. | GN137-AVA-US04 | Dynamic Video Overlays | United States of America | Granted | 15/381,513 | 12/16/2016 | US-2017-0180793 | 6/22/2017 | 10,412,447 | 9/10/2019 | Gracenote |
| Roku, Inc. | GN137-AVA-US05 | Dynamic Video Overlays | United States of America | Granted | 15/381,556 | 12/16/2016 | US-2017-0180794 | 6/22/2017 | 10,136,183 | 11/20/2018 | Gracenote |
| Roku, Inc. | GN137-AVA-US06 | Dynamic Video Overlays | United States of America | Granted | 15/381,572 | 12/16/2016 | US-2017-0180795 | 6/22/2017 | 10,123,073 | 11/6/2018 | Gracenote |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|-----------|
| Roku, Inc. | GN137-AVA-US07 | Dynamic Video Overlays | United States of America | Granted | 16/140,539 | 9/25/2018 | US-2019-0132641 | 5/2/2019 | 10,893,320 | 1/12/2021 | Gracenote |
| Roku, Inc. | GN137-AVA-US08 | Dynamic Video Overlays | United States of America | Granted | 16/520,294 | 7/23/2019 | US-2020-0053422 | 2/13/2020 | 10,869,086 | 12/15/2020 | Gracenote |
| Roku, Inc. | GN137-AVA-US09 | Dynamic Video Overlays | United States of America | Application | 16/928,683 | 7/14/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN137-AVA-US10 | Dynamic Video Overlays | United States of America | Application | 17/098,409 | 11/15/2020 | N/A | N/A | N/A | N/A | Gracenote |
| Roku, Inc. | GN141-AVA-US02 | Digital Video Content Fingerprinting Using Image Pixel Intensity and Color Information | United States of America | Granted | 12/955,416 | 11/29/2010 | N/A | N/A | 8,666,152 | 3/4/2014 | Zettera |
| Roku, Inc. | GN142-AVA-US02 | Scalable, Adaptable, and Manageable System for Multimedialidentification | United States of America | Granted | 13/102,479 | 5/6/2011 | N/A | N/A | 8,655,878 | 2/18/2014 | Zettera |

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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN142-AVA-US03 | Scalable, Adaptable, and Manageable System for MultimedialIdentification | United States of America | Granted | 14/151,335 | 1/9/2014 | N/A | N/A | 9,058,355 | 6/16/2015 | Zettera |
| Roku, Inc. | GN142-AVA-US04 | Scalable, Adaptable, and Manageable System for Multimedial Identification | United States of America | Granted | 14/151,294 | 1/9/2014 | N/A | N/A | 8,965,863 | 2/24/2015 | Zettera |
| Roku, Inc. | GN142-AVA-US05 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | Granted | 14/718,218 | 5/21/2015 | US-2015-0254344 | 9/10/2015 | 9,785,708 | 10/10/2017 | Zettera |
| Roku, Inc. | GN142-AVA-US06 | Scalable, Adaptable, and Manageable System for Multimedia Identification | United States of America | Application | 16/597,648 | 10/9/2019 | N/A | N/A | N/A | N/A | Zettera |
| Roku, Inc. | GN143-AVA-US02 | Digital Video Content Fingerprinting Based on Scale Invariant Interest Region Detection with an Array of Anisotropic Filters | United States of America | Granted | 12/612,729 | 11/5/2009 | US-2010-0303338 | 12/2/2010 | 8,189,945 | 5/29/2012 | Zettera |

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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN143-AVA-US03 | Digital Video Content Fingerprinting Based on Scale Invariant Interest Region Detection with an Array of Anisotropic Filters | United States of America | Granted | 13/455,560 | 4/25/2012 | US-2012-0207402 | 8/16/2012 | 8,781,245 | 7/15/2014 | Zettera |
| Roku, Inc. | GN143-AVA-US04 | Digital Video Content Fingerprinting Based on Scale Invariant Interest Region Detection with an Array of Anisotropic Filters | United States of America | Granted | 14/298,261 | 6/6/2014 | US-2015-0003731 | 1/1/2015 | 9,396,393 | 7/19/2016 | Zettera |
| Roku, Inc. | GN143-AVA-US05 | Digital Video Content Fingerprinting Based on Scale Invariant Interest Region Detection with an Array of Anisotropic Filters | United States of America | Granted | 15/186,901 | 6/20/2016 | US-2016-0307037 | 10/20/2016 | 9,652,672 | 5/16/2017 | Zettera |
| Roku, Inc. | GN144-AVA-US02 | Methods and Apparatus for Providing a Scalable Identification of Digital Video Sequences | United States of America | Granted | 12/141,163 | 6/18/2008 | US-2008-0310731 | 12/18/2008 | 8,229,227 | 7/24/2012 | Zettera |
| Roku, Inc. | GN144-AVA-US03 | Methods and Apparatus for Providing a Scalable Identification of Digital Video Sequences | United States of America | Granted | 13/488,568 | 6/5/2012 | US-2012-0237129 | 9/20/2012 | 8,666,168 | 3/4/2014 | Zettera |

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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN145-AVA-US02 | Method And Apparatus For Multi-Dimensional Content Search And Video Identification | United States of America | Granted | 12/141,337 | 6/18/2008 | US-2008-0313140 | 12/18/2008 | 8,171,030 | 5/1/2012 | Zettera |
| Roku, Inc. | GN145-AVA-US03 | Method And Apparatus For Multi-Dimensional Content Search And Video Identification | United States of America | Granted | 13/432,914 | 3/28/2012 | US-2012-0207387 | 8/16/2012 | 9,323,841 | 4/26/2016 | Zettera |
| Roku, Inc. | GN145-AVA-US04 | Method And Apparatus For Multi-Dimensional Content Search And Video Identification | United States of America | Granted | 15/078,056 | 3/23/2016 | US-2016-0275084 | 9/22/2016 | 9,489,455 | 11/8/2016 | Zettera |
| Roku, Inc. | GN145-AVA-US05 | Method And Apparatus For Multi-Dimensional Content Search And Video Identification | United States of America | Granted | 15/290,364 | 10/11/2016 | US2017-0192980 | 7/6/2017 | 10,210,252 | 2/19/2019 | Zettera |
| Roku, Inc. | GN145-AVA-US06 | Method and Apparatus for Multi-Dimensional Content Search and Video Identification | United States of America | Granted | 16/240,859 | 1/7/2019 | US-2019-0272290 | 9/5/2019 | 10977307 | 4/13/2021 | Zettera |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | GN145-AVA-US07 | Method and Apparatus for Multi-Dimensional Content Search and Video Identification | United States of America | Published | 16/442,006 | 6/14/2019 | US-2020-0004779 | 1/2/2020 | N/A | N/A | Zettera |
| Roku, Inc. | GN145-AVA-US08 | Method and Apparatus for Multi-Dimensional Content Search and Video Identification | United States of America | Published | 16/442,398 | 6/14/2019 | US-2020-0004780 | 1/2/2020 | N/A | N/A | Zettera |
| Roku, Inc. | GN145-AVA-US09 | Method and Apparatus for Multi-Dimensional Content Search and Video Identification | United States of America | Published | 16/442,404 | 6/14/2019 | US02020-0004781 | 1/2/2020 | N/A | N/A | Zettera |
| Roku, Inc. | GN145-AVA-US10 | Method and Apparatus for Multi-Dimensional Content Search and Video Identification | United States of America | Published | 16/442,414 | 6/14/2019 | US-2020-0004782 | 1/2/2020 | N/A | N/A | Zettera |
| Roku, Inc. | GN145-AVA-US11 | Method and Apparatus for Multi-Dimensional Content Search and Video Identification | United States of America | Application | 17/017,589 | 9/10/2020 | N/A | N/A | N/A | N/A | Zettera |
| Roku, Inc. | GN147-AVA-US02 | Digital Video Fingerprinting Based on Resulant/Weighted Gradient Orientation Computation | United States of America | Granted | 12/491,896 | 6/25/2009 | US-2010-0007797 | 1/14/2010 | 8,385,644 | 2/26/2013 | Zettera |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN148-AVA-US02 | Media Fingerprinting And Identification System | United States of America | Granted | 12/772,566 | 5/3/2010 | US-2010-0318515 | 12/16/2010 | 8,195,689 | 6/5/2012 | Zettera |
| Roku, Inc. | GN148-AVA-US03 | Media Fingerprinting and Identification System | United States of America | Granted | 13/463,137 | 5/3/2012 | US-2012-0215789 | 8/23/2012 | 8,364,703 | 1/29/2013 | Zettera |
| Roku, Inc. | GN148-AVA-US04 | Media Fingerprinting and Identification System | United States of America | Granted | 13/7719,603 | 12/19/2012 | US-2013-0179452 | 7/11/2013 | 8,688,731 | 4/1/2014 | Zettera |
| Roku, Inc. | GN148-AVA-US05 | Media Fingerprinting and Identification System | United States of America | Granted | 14/059,688 | 10/22/2013 | US-2014-0052737 | 2/20/2014 | 9,053,104 | 6/9/2015 | Zettera |
| Roku, Inc. | GN148-AVA-US06 | Media Fingerprinting and Identification System | United States of America | Granted | 14/7711,054 | 5/13/2015 | US-2015-0242399 | 8/27/2015 | 9,195,663 | 11/24/2015 | Zettera |
| Roku, Inc. | GN148-AVA-US07 | Media Fingerprinting and Identification System | United States of America | Granted | 14/885,110 | 10/16/2015 | US-2016-0034452 | 2/4/2016 | 9,323,754 | 4/26/2016 | Zettera |
| Roku, Inc. | GN148-AVA-US08 | Media Fingerprinting and Identification System | United States of America | Granted | 15/073,858 | 3/18/2016 | US-2016-0267079 | 9/15/2016 | 9,471,674 | 10/18/2016 | Zettera |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | GN148-AVA-US09 | Media Fingerprinting and Identification System | United States of America | Granted | 16/285,002 | 9/14/2016 | US-2017-0066671 | 3/9/2017 | 10,402,443 | 9/3/2019 | Zettera |
| Roku, Inc. | GN148-AVA-US10 | Media Fingerprinting and Identification System | United States of America | Published | 16/383,473 | 4/12/2019 | US-2019-0251111 | 8/15/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN148-AVA-US11 | Media Fingerprinting and Identification System | United States of America | Granted | 16/355,727 | 3/16/2019 | US-2019-0213210 | 7/11/2019 | 10,423,654 | 9/24/2019 | Zettera |
| Roku, Inc. | GN148-AVA-US12 | Media Fingerprinting and Identification System | United States of America | Published | 16/385,575 | 4/16/2019 | US-2019-0251112 | 8/15/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN148-AVA-US14 | Media Fingerprinting and Identification System | United States of America | Published | 16/387,443 | 4/17/2019 | US-2019-0243851 | 8/8/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN148-AVA-US15 | Media Fingerprinting and Identification System | United States of America | Published | 16/387,448 | 4/17/2019 | US-2019-0251113 | 8/15/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN148-AVA-US16 | Media Fingerprinting and Identification System | United States of America | Published | 16/387,456 | 4/17/2019 | US-2019-0251114 | 8/15/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN148-AVA-US17 | Media Fingerprinting and Identification System | United States of America | Published | 16/365,577 | 3/26/2019 | US-2019-0220478 | 7/18/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN148-AVA-US18 | Media Fingerprinting and Identification System | United States of America | Published | 16/367,921 | 3/28/2019 | US-2019-0228030 | 7/25/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN148-AVA-US19 | Media Fingerprinting and Identification System | United States of America | Published | 16/388,740 | 4/18/2019 | US-2019-0251115 | 8/15/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN148-AVA-US20 | Media Fingerprinting and Identification System | United States of America | Granted | 16/388,747 | 4/18/2019 | US-2019-0243852 | 8/8/2019 | 10,387,482 | 8/20/2019 | Zettera |
| Roku, Inc. | GN148-AVA-US21 | Media Fingerprinting and Identification System | United States of America | Published | 16/388,750 | 4/18/2019 | US-2019-0251116 | 8/15/2019 | N/A | N/A | Zettera |

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| Roku, Inc. | GN148-AVA-US22 | Media Fingerprinting and Identification System | United States of America | Application | 16/502,857 | 7/3/2019 | N/A | N/A | N/A | N/A | N/A | Zettera |
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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | GN148-AVA-US23 | Media Fingerprinting and Identification System | United States of America | Published | 16/553,658 | 8/28/2019 | US-2019-0384786 | 12/19/2019 | N/A | N/A | Zeiterra |
| Roku, Inc. | GN148-AVA-US24 | Media Fingerprinting and Identification System | United States of America | Granted | 16/596,291 | 10/8/2019 | N/A | N/A | 10,579,668 | 3/3/2020 | Zeiterra |
| Roku, Inc. | GN148-AVA-US25 | Media Fingerprinting and Identification System | United States of America | Application | 16/874,896 | 5/15/2020 | N/A | N/A | N/A | N/A | Zeiterra |
| Roku, Inc. | GN148-AVA-US26 | Media Fingerprinting and Identification System | United States of America | Published | 16/869,214 | 5/7/2020 | US-2020-0265079 | 8/20/2020 | N/A | N/A | Zeiterra |
| Roku, Inc. | GN149-AVA-US02 | Multi-Media Content Identification Using Multi-Level Content Signature Correlation and Fast Similarity Search | United States of America | Granted | 12/788,796 | 5/27/2010 | US-2010-0306193 | 12/2/2010 | 8,335,786 | 12/18/2012 | Zeiterra |
| Roku, Inc. | GN150-AVA-US02 | Distributed and Tiered Architecture for Content Search and Content Monitoring | United States of America | Granted | 13/276,110 | 10/18/2011 | US-2012-0095958 | 4/19/2012 | 8,959,108 | 2/17/2015 | Zeiterra |
| Roku, Inc. | GN150-AVA-US03 | Distributed and Tiered Architecture for Content Search and Content Monitoring | United States of America | Granted | 14/589,366 | 1/5/2015 | US-2015-0112988 | 4/23/2015 | 9,262,421 | 2/16/2016 | Zeiterra |

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REEL: 007980 FRAME: 0097

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN150-AVA-US04 | Distributed and Tiered Architecture for Content Search and Content Monitoring | United States of America | Granted | 14/990,565 | 1/7/2016 | US-2016-0132500 | 5/12/2016 | 9,436,689 | 9/6/2016 | Zettera |
| Roku, Inc. | GN150-AVA-US05 | Distributed and Tiered Architecture for Content Search and Content Monitoring | United States of America | Granted | 15/163,004 | 5/24/2016 | US-2016-0371269 | 12/22/2016 | 9,646,007 | 5/9/2017 | Zettera |
| Roku, Inc. | GN150-AVA-US05 | Distributed and Tiered Architecture for Content Search and Content Monitoring | United States of America | Granted | 15/163,004 | 5/24/2016 | US-2016-0371269 | 12/22/2016 | 9,646,007 | 5/9/2017 | Zettera |
| Roku, Inc. | GN151-AVA-US02 | TV Content Segmentation, Categorization and Identification and Time-Aligned Applications | United States of America | Granted | 13/327,359 | 12/15/2011 | N/A | N/A | 9,510,044 | 11/29/2016 | Zettera |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN152-AVA-US02 | Media Content Identification on Mobile Devices | United States of America | Granted | 13/590,701 | 8/21/2012 | N/A | N/A | 9,313,359 | 4/12/2016 | Zettera |
| Roku, Inc. | GN152-AVA-US03 | Media Content Identification on Mobile Devices | United States of America | Published | 15/053,064 | 2/25/2016 | US-2016-0249093 | 8/25/2016 | N/A | N/A | Zettera |
| Roku, Inc. | GN152-AVA-US04 | Media Content Identification on Mobile Devices | United States of America | Published | 16/441,924 | 6/14/2019 | US-2019-0373311 | 12/5/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN152-AVA-US05 | Media Content Identification on Mobile Devices | United States of America | Published | 16/441,936 | 6/14/2019 | US-2019-0373312 | 12/5/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN152-AVA-US06 | Media Content Identification on Mobile Devices | United States of America | Published | 16/441,949 | 6/14/2019 | US-2019-0379927 | 12/12/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN152-AVA-US07 | Media Content Identification on Mobile Devices | United States of America | Granted | 16/441,956 | 6/14/2019 | US-2019-0387273 | 12/19/2019 | 10986399 | 4/20/2021 | Zettera |

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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN152-AVA-US08 | Media Content Identification on Mobile Devices | United States of America | Published | 16/441,967 | 6/14/2019 | US-2019-0379928 | 12/12/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN152-AVA-US09 | Media Content Identification on Mobile Devices | United States of America | Published | 16/441,987 | 6/14/2019 | US-2019-0379929 | 12/12/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN152-AVA-US10 | Media Content Identification on Mobile Devices | United States of America | Published | 16/441,996 | 6/14/2019 | US-2019-0379930 | 12/12/2019 | N/A | N/A | Zettera |
| Roku, Inc. | GN152-AVA-US11 | Media Content Identification on Mobile Devices | United States of America | Published | 16/442,392 | 6/14/2019 | US-2019-0379931 | 12/12/2019 | N/A | N/A | Zettera |

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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | 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 | Granted | 13/647,996 | 10/9/2012 | N/A | N/A | 9,299,364 | 3/29/2016 | Zettera |
| Roku, Inc. | 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 | Granted | 15/050,123 | 2/22/2016 | N/A | N/A | 9,798,513 | 10/24/2017 | Zettera |
| Roku, Inc. | GN154-AVA-US02 | Method for Efficient DataBase Formation and Search on Portable Media Devices Acting Synchronously with Television Programming | United States of America | Granted | 13/826,502 | 3/14/2013 | US-2013-0246457 | 9/19/2013 | 9,367,544 | 6/14/2016 | Zettera |

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REEL: 007980 FRAME: 0101

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN156-AVA-US02 | Robust Audio Identification with Interference Cancellation | United States of America | Granted | 15/456,859 | 3/13/2017 | N/A | N/A | 10,360,905 | 7/23/2019 | Zettera |
| Roku, Inc. | GN156-AVA-US03 | Robust Audio Identification with Interference Cancellation | United States of America | Application | 16/140,538 | 9/25/2018 | N/A | N/A | N/A | N/A | Zettera |
| Roku, Inc. | GN159-AVA-US02 | Method To Differentiate And Classify Fingerprints Using Fingerprint Neighborhood Analysis | United States of America | Granted | 15/456,861 | 3/13/2017 | N/A | N/A | 10,956,484 | 3/23/2021 | Zettera |

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REEL: 007980 FRAME: 0102

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN159-AVA-US03 | Method to Differentiate and Classify Fingerprints Using Fingerprint Neighborhood Analysis | United States of America | Granted | 16/140,531 | 9/24/2018 | N/A | N/A | 10,970,328 | 4/6/2021 | Zettera |
| Roku, Inc. | GN159-AVA-US04 | Method to Differentiate and Classify Fingerprints Using Fingerprint Neighborhood Analysis | United States of America | Application | 16/929,858 | 7/15/2020 | N/A | N/A | N/A | N/A | Zettera |
| Roku, Inc. | GN160-AVA-US02 | Digital Video Fingerprinting Using Motion Segmentation | United States of America | Granted | 15/456,856 | 3/13/2017 | N/A | N/A | 10,318,813 | 6/11/2019 | Zettera |
| Roku, Inc. | GN160-AVA-US03 | Digital Video Fingerprinting Using Motion Segmentation | United States of America | Granted | 16/140,534 | 9/25/2018 | US-2019-0138813 | 5/9/2019 | 10,733,985 | 8/4/2020 | Zettera |
| Roku, Inc. | GN160-AVA-US04 | Digital Video Fingerprinting Using Motion Segmentation | United States of America | Published | 16/916,179 | 6/30/2020 | US-2021-0020171 | 1/21/2021 | N/A | N/A | Zettera |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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REEL: 007980 FRAME: 0104

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN190-AVA-TW01 | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Modify Operation of the Playback Device | Taiwan | Published | 108122258.0 | 6/26/2019 | 202007174 | 2/1/2020 | N/A | N/A | Organic |
| Roku, Inc. | 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 | Granted | 16/181,961 | 11/6/2018 | US-2020-0021789 | 1/16/2020 | 10,791,312 | 9/29/2020 | Organic |
| Roku, Inc. | 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 | Published | 17/003,203 | 8/26/2020 | US-2020-0389637 | 12/10/2020 | N/A | N/A | Organic |
| Roku, Inc. | 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 | Published | 108122259.0 | 6/26/2019 | 202008790 | 2/16/2020 | N/A | N/A | Organic |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | 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 | Granted | 16/181.978 | 11/6/2018 | US-2020-0029129 | 1/23/2020 | 10,827,224 | 11/3/2020 | Organic |
| Roku, Inc. | 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 | Published | 17/003,211 | 8/26/2020 | US2020-0396513 | 12/17/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN192-AVA-TW01 | Modifying Playback of Replacement Content Based on Control Messages | Taiwan | Published | 108122260.0 | 6/26/2019 | 202008795 | 2/16/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN192-AVA-US02 | Modifying Playback of Replacement Content Based on Control Messages | United States of America | Published | 16/182,201 | 11/6/2018 | US-2020-0029118 | 1/23/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN193-AVA-CN01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | China | Published | 201980001136.5 | 6/7/2019 | CN110959293A | 4/3/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN193-AVA-CN03 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content (Client Side) | China | Published | 201980001137.X | 6/7/2019 | 111183650 | 5/19/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN193-AVA-TW01 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Taiwan | Granted | 108122190.0 | 6/25/2019 | 202007179 | 2/1/2020 | 1701947 | 8/11/2020 | Organic |
| Roku, Inc. | GN193-AVA-TW03 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content (Client Side) | Taiwan | Published | 108122899.0 | 6/28/2019 | 202007180 | 2/1/2020 | N/A | N/A | Organic |

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REEL: 007980 FRAME: 0106

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN193-AVA-TW04 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Taiwan | Published | 109126783.0 | 8/7/2020 | 202044845 | 12/1/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN193-AVA-TW05 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | Taiwan | Application | 109146501.0 | 12/28/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN193-AVA-US02 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | Granted | 16/166.561 | 10/22/2018 | N/A | N/A | 10,506,275 | 12/10/2019 | Organic |
| Roku, Inc. | GN193-AVA-US03 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | Granted | 16/166.948 | 10/22/2018 | US-2020-0021877 | 1/16/2020 | 10,623,800 | 4/14/2020 | Organic |
| Roku, Inc. | GN193-AVA-US05 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | Granted | 16/674.652 | 11/5/2019 | US-2020-0068248 | 2/27/2020 | 10,979,758 | 4/13/2021 | Organic |
| Roku, Inc. | GN193-AVA-US06 | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | Granted | 16/790.335 | 2/13/2020 | US-2020-0186860 | 6/11/2020 | 10,992,981 | 4/27/2021 | Organic |
| Roku, Inc. | GN194-AVA-CN01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | China | Published | 201980001148.8 | 6/7/2019 | CN111034204A | 4/17/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN194-AVA-TW01 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Taiwan | Published | 108122188.0 | 6/25/2019 | 202008793 | 2/16/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN194-AVA-US02 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | United States of America | Granted | 16/166.962 | 10/22/2018 | US-2020-0029107 | 1/23/2020 | 10,820,020 | 10/27/2020 | Organic |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN194-AVA-US03 | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | United States of America | Published | 16/924,806 | 7/9/2020 | US-2020-0344506 | 10/29/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN195-AVA-CN01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | China | Published | 201980001147. 3 | 6/7/2019 | 110999311 | 4/10/2020 | N/A | N/A | Organic |
| Roku, Inc. | 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 | Published | 201980001138. 4 | 6/7/2019 | 111213385 | 5/29/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN195-AVA-TW01 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Taiwan | Published | 108122189.0 | 6/25/2019 | 202008794 | 2/16/2020 | N/A | N/A | Organic |
| Roku, Inc. | 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 | Published | 108122901.0 | 6/28/2019 | 202008796 | 2/16/2020 | N/A | N/A | Organic |
| Roku, Inc. | 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 | Granted | 16/166,971 | 10/22/2018 | US-2020-0029108 | 1/23/2020 | 10,904,587 | 1/26/2021 | Organic |
| Roku, Inc. | 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 | Granted | 16/166,981 | 10/22/2018 | US-2020-0029115 | 1/23/2020 | 10,715,840 | 7/14/2020 | Organic |
| Roku, Inc. | 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 | Published | 16/890,592 | 6/2/2020 | US-2020-0296436 | 9/17/2020 | N/A | N/A | Organic |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | 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 | Application | 17/247,517 | 12/15/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN204-AVA-CN01 | Dynamic Playback of Transition Frames while Transitioning Between Playback of Media Streams | China | Published | 201980001149.2 | 6/7/2019 | 111418215 | 7/14/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN204-AVA-TW01 | Dynamic Playback of Transition Frames while Transitioning Between Playback of Media Streams | Taiwan | Published | 108122594.0 | 6/27/2019 | 202010313 | 3/1/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN204-AVA-TW02 | Dynamic Playback of Transition Frames while Transitioning Between Playback of Media Streams | Taiwan | Application | 109145505.0 | 12/22/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN204-AVA-US02 | Dynamic Playback of Transition Frames while Transitioning Between Playback of Media Streams | United States of America | Published | 16/183,185 | 11/7/2018 | US-2020-0059691 | 2/20/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN204-AVA-WO01 | Dynamic Playback of Transition Frames while Transitioning Between Playback of Media Streams | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2019/035996 | 6/7/2019 | WO2020/036667 | 2/20/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN205-AVA-CN01 | Dynamic Reduction in Playback of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | China | Published | 201980001150.5 | 6/7/2019 | CN11316659A | 6/19/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN205-AVA-TW01 | Dynamic Reduction in Playback of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | Taiwan | Published | 108122595.0 | 6/27/2019 | 202010314 | 3/1/2020 | N/A | N/A | Organic |

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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN205-AVA-TW02 | Dynamic Reduction in Playback of Replacement Content with End of Replaced Content | Taiwan | Application | 109145507.0 | 12/22/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN205-AVA-US02 | Dynamic Reduction in Playback of Replacement Content to Help Align End of Replacement Content With End of Replaced Content | United States of America | Published | 16/183,266 | 11/7/2018 | US-2020-0059692 | 2/20/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN205-AVA-WO01 | Dynamic Reduction in Playback of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2019/036001 | 6/7/2019 | WO2020/036668 | 2/20/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN216-AVA-TW01 | Detection of Mute and Compensation Therefor During Media Replacement Event | Taiwan | Published | 108141307.0 | 11/14/2019 | 202021371 | 6/1/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN216-AVA-TW02 | Detection of Mute and Compensation Therefor During Media Replacement Event | Taiwan | Application | 110100332.0 | 1/6/2021 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN216-AVA-US02 | Detection of Mute and Compensation Therefor During Media Replacement Event | United States of America | Published | 16/433,530 | 6/6/2019 | US-2020-0162788 | 5/21/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN216-AVA-US03 | Detection of Mute and Compensation Therefor During Media Replacement Event | United States of America | Published | 16/847,532 | 4/13/2020 | US-2020-0245024 | 7/30/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN216-AVA-WO01 | Detection of Mute and Compensation Therefor During Media Replacement Event | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2019/054798 | 10/4/2019 | WO2020/101819 | 5/22/2020 | N/A | N/A | Organic |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN217-AVA-TW01 | Volume Edge Case for DAI – Detect Volume Adjustments Using Loudness Level Profile | Taiwan | Published | 108141663.0 | 11/15/2019 | 202034705 | 9/16/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN217-AVA-TW02 | Detection of Media Playback Audio Volume Level and Corresponding Adjustment to Audio During Media Replacement Event | Taiwan | Published | 108141593.0 | 11/15/2019 | 202027513 | 7/16/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN217-AVA-US02 | Detection of Media Playback Loudness Level and Corresponding Adjustment to Audio During Media Replacement Event | United States of America | Published | 16/673,859 | 11/4/2019 | US-2020-0159489 | 5/21/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN217-AVA-US04 | Monitoring Loudness Level During Media Replacement Event Using Shorter Time Constant | United States of America | Published | 16/684,514 | 11/14/2019 | US-2020-0162048 | 5/21/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN217-AVA-US05 | Detection of Volume Adjustments During Media Replacement Events Using Loudness Level Profiles | United States of America | Published | 16/684,510 | 11/14/2019 | US-2020-0162049 | 5/21/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN217-AVA-WO01 | Volume Edge Case For Dai – Monitor Loudness Level During Media Content Replacement Event Using Shorter Time Co | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2019/061632 | 11/15/2019 | WO2020/102632 | 5/22/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN217-AVA-WO02 | Volume Edge Case for DAI – Detect Volume Adjustments Using Loudness Level Profile | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2019/061633 | 11/15/2019 | WO2020/102633 | 5/22/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN217-AVA-WO03 | Detection of Media Playback Audio Volume Level and Corresponding Adjustment to Audio During Media Replacement Event | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2019/059882 | 11/5/2019 | WO2020/101951 | 5/22/2020 | N/A | N/A | Organic |
| Roku, Inc. | 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 | Application | 109132960.0 | 9/23/2020 | N/A | N/A | N/A | N/A | Organic |

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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN221-AVA-US01 | Method and System for Use of Automatic Content Recognition to Trigger Dynamic Ad Insertion in Response to Repeat Playback of Ad | United States of America | Application | 16/668,833 | 10/30/2019 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN221-AVA-WO01 | Method and System for Use of Automatic Content Recognition to Trigger Dynamic Ad Insertion in Response to Repeat Playback of Ad | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/049356 | 9/4/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | 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 | Published | 16/586,552 | 9/27/2019 | US-2021-0021893 | 1/21/2021 | N/A | N/A | Organic |
| Roku, Inc. | 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 | within 30 months of PCT filing | PCT/US2020/042743 | 7/20/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | 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 | Published | 16/586,542 | 9/27/2019 | US02021-0021884 | 1/21/2021 | N/A | N/A | Organic |
| Roku, Inc. | GN229-AVA-WO01 | Method and System for Use of Network Affiliation as Basis to Determine Channel Rendered by Content Presentation Device | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/042742 | 7/20/2020 | N/A | N/A | N/A | N/A | Organic |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN232-AVA-US02 | Use of Steganographically-Encoded Data as Basis to Control Dynamic Content Modification as to at Least One Modifiable Content Segment Identified Based on Fingerprint Analysis | United States of America | Published | 15/929,225 | 2/14/2020 | US-2020-0404371 | 12/24/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN232-AVA-WO01 | Use of Steganographically-Encoded Data as Basis to Control Dynamic Content Modification as to at Least One Modifiable Content Segment Identified Based on Fingerprint Analysis | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/037884 | 6/16/2020 | WO2020/257163 | 12/24/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN234-AVA-US02 | Content-Modification System with Determination of Input-Buffer Switching Delay Feature | United States of America | Published | 16/905,172 | 6/18/2020 | US-2020-0404216 | 12/24/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN234-AVA-WO01 | Content-Modification System with Determination of Input-Buffer Switching Delay Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/038387 | 6/18/2020 | WO2020/257424 | 12/24/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN245-AVA-TW01 | Use of Watermarking to Trigger Fingerprint-Related Action | Taiwan | Application | 109120280.0 | 6/16/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN245-AVA-US03 | Use of Watermarking to Trigger Fingerprint-Related Action | United States of America | Published | 15/929,219 | 2/6/2020 | US-2020-0275168 | 8/27/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN245-AVA-WO01 | Use of Watermarking to Trigger Fingerprint-Related Action | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/037898 | 6/16/2020 | WO2020/263621 | 12/30/2020 | N/A | N/A | Organic |
| Roku, Inc. | GN246-AVA-US02 | Use of Watermarking to Control Abandonment of Dynamic Content Modification | United States of America | Application | 15/929,212 | 1/29/2020 | N/A | N/A | 11,006,191 | 5/11/2021 | Organic |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|---------|
| Roku, Inc. | GN246-AVA-WO01 | Use of Watermarking to Control Abandonment of Dynamic Content Modification | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/044762 | 8/3/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN247-AVA-US01 | Responding to Emergency-Alert Audio Tone by Abandoning Dynamic Content Modification | United States of America | Application | 16/947,182 | 7/22/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN255-AVA-US01 | Media Channel Identification and Action with Multi-Match Disambiguation Feature | United States of America | Application | 63/126,383 | 12/16/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN255-AVA-US02 | Media Channel Identification and Action with Multi-Match Disambiguation Feature | United States of America | Application | 63/126,384 | 12/16/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN258-AVA-TW01 | Content-Modification System with Delay Buffer Feature | Taiwan | Application | 109138014.0 | 11/22/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN258-AVA-US02 | Content Modification System with Buffer Feature | United States of America | Application | 17/086,119 | 10/30/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN258-AVA-WO01 | Content-Modification System with Delay Buffer Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/058399 | 10/30/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN262-AVA-US02 | Content-Modification System with Client-Side Advertisement Caching | United States of America | Application | 16/949,515 | 10/31/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN262-AVA-WO01 | Content-Modification System with Client-Side Advertisement Caching | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/070730 | 10/31/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN263-AVA-TW01 | Dynamic Ad Insertion Decision-making for Linear Live TV | Taiwan | Application | 109135184.0 | 10/12/2020 | N/A | N/A | N/A | N/A | Organic |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | GN263-AVA-US02 | Dynamic Ad Insertion Decision-Making for Linear Live TV | United States of America | Application | 16/949,014 | 10/9/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN263-AVA-WO01 | Dynamic Ad Insertion Decision-making for Linear Live TV | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/070645 | 10/9/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN266-AVA-US01 | Content-Modification System with Local Avail Detection Feature | United States of America | Application | 63/109,208 | 11/3/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN269-AVA-US01 | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 63/046,014 | 6/30/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN270-AVA-US01 | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 63/046,022 | 6/30/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN271-AVA-US01 | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 63/046,028 | 6/30/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN272-AVA-US01 | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 63/046,035 | 6/30/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN273-AVA-US01 | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 63/046,043 | 6/30/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | GN280-AVA-US01 | Detecting that Query Fingerprints Represent Standard-Definition Media Content, to Facilitate Standard-Definition Dynamic Content Revision | United States of America | Application | 63/199,110 | 12/7/2020 | N/A | N/A | N/A | N/A | Organic |
| Roku, Inc. | SOR001-AVA-US02 | Content Management of a Feed | United States of America | Granted | 14/820,476 | 8/6/2015 | N/A | N/A | 9,641,870 | 5/2/2017 | Sorenson |
| Roku, Inc. | SOR001-AVA-US03 | Content Management of a Content Feed | United States of America | Granted | 15/459,627 | 3/15/2017 | N/A | N/A | 10,395,277 | 8/27/2019 | Sorenson |
| Roku, Inc. | SOR001-AVA-US04 | Content Management of a Content Feed | United States of America | Published | 16/295,626 | 3/7/2019 | US-2019-0272563 | 9/5/2019 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR002-AVA-US02 | Automatic Content Recognition (ACR) Fingerprinting and Video Encoding | United States of America | Granted | 14/839,339 | 8/28/2015 | N/A | N/A | 9,628,830 | 4/18/2017 | Sorenson |
| Roku, Inc. | SOR002-AVA-US03 | Automatic Content Recognition (ACR) Fingerprinting and Video Encoding | United States of America | Granted | 15/457,483 | 3/13/2017 | N/A | N/A | 10,687,092 | 6/16/2020 | Sorenson |
| Roku, Inc. | SOR002-AVA-US04 | Automatic Content Recognition (ACR) Fingerprinting and Video Encoding | United States of America | Application | 16/868,651 | 5/7/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR003-AVA-US02 | Content Replacement with Onscreen Displays | United States of America | Granted | 14/820,490 | 8/6/2015 | US-2016-0234564 | 8/11/2016 | 9,743,153 | 8/22/2017 | Sorenson |
| Roku, Inc. | SOR003-AVA-US03 | Content Replacement with Onscreen Displays | United States of America | Granted | 15/658,345 | 7/24/2017 | US-2018-0014087 | 1/11/2018 | 10,057,657 | 8/21/2018 | Sorenson |
| Roku, Inc. | SOR004-AVA-CN01 | Detecting Channel Change in Automatic Content Recognition FingerprintMatching | China | Granted | 201680043941,0 | 5/26/2016 | 107852252 | 3/27/2018 | 107852252 | 10/22/2019 | Sorenson |
| Roku, Inc. | SOR004-AVA-CN02 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | China | Published | 201910904897,3 | 5/26/2016 | 110830843 | 2/21/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR004-AVA-CN03 | Detecting Channel Change in Automatic Content Recognition FingerprintMatching | China | Published | 201910905526,7 | 9/24/2019 | 110730361 | 1/24/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR004-AVA-EP01 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | European Patent | Published | 16808025,7 | 5/26/2016 | 3308480 | 4/18/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR004-AVA-HK01 | Detecting Channel Change in Automatic Content Recognition FingerprintMatching | Hong Kong | Published | 42020004698,5 | 3/23/2020 | 40014843A | 8/28/2020 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR004-AVA-HK02 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | Hong Kong | Published | 42020004690 2 | 3/23/2020 | 40014838A | 8/28/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR004-AVA-JP01 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | Japan | Granted | 2018-517124 | 5/26/2016 | 2018-523433 | 8/16/2018 | 6672454 | 3/6/2020 | Sorenson |
| Roku, Inc. | SOR004-AVA-JP02 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | Japan | Published | 2019-094709 | 5/26/2016 | 2019-179557 | 10/17/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR004-AVA-KR01 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | Korea, Republic of (KR) | Granted | 10-2018-7001098 | 5/26/2016 | 10-2018-0035790 | 4/6/2018 | 10-2054912 | 12/5/2019 | Sorenson |
| Roku, Inc. | SOR004-AVA-KR02 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | Korea, Republic of (KR) | Granted | 10-2019-7036058 | 5/26/2016 | 10-2197311 | 1/5/2021 | 10-2197311 | 12/24/2020 | Sorenson |
| Roku, Inc. | SOR004-AVA-KR03 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | Korea, Republic of (KR) | Application | 10-2020-7037208 | 12/23/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR004-AVA-US02 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | United States of America | Granted | 14/815,256 | 7/31/2015 | US-2016-0366474 | 12/15/2016 | 9,516,377 | 12/6/2016 | Sorenson |
| Roku, Inc. | SOR004-AVA-US03 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | United States of America | Granted | 15/266,524 | 9/15/2016 | US-2017-0013324 | 1/12/2017 | 9,706,261 | 7/11/2017 | Sorenson |
| Roku, Inc. | SOR004-AVA-US04 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | United States of America | Granted | 15/617,591 | 6/8/2017 | US-2017-0272836 | 9/21/2017 | 9,877,085 | 1/23/2018 | Sorenson |
| Roku, Inc. | SOR005-AVA-US01 | Overlay Content and Aggregation of Viewing Data | United States of America | Granted | 14/820,484 | 8/6/2015 | N/A | N/A | 9,380,325 | 6/28/2016 | Sorenson |
| Roku, Inc. | SOR005-AVA-US02 | Overlay Content and Aggregation of Viewing Data | United States of America | Granted | 15/182,229 | 6/14/2016 | N/A | N/A | 9,661,385 | 5/23/2017 | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR005-AVA-US03 | Overlay Content and Aggregation of Viewing Data | United States of America | Granted | 15/483,762 | 4/10/2017 | N/A | N/A | 9,912,991 | 3/6/2018 | Sorenson |
| Roku, Inc. | SOR005-AVA-US04 | Overlay Content and Aggregation of Viewing Data | United States of America | Granted | 15/895,775 | 2/13/2018 | US-2018-0184166 | 6/28/2018 | 10,313,753 | 6/4/2019 | Sorenson |
| Roku, Inc. | SOR005-AVA-US05 | Providing Restricted Overlay Content to an Authorized Client Device | United States of America | Granted | 16/411,533 | 5/14/2019 | US-2019-0268657 | 8/29/2019 | 10,798,448 | 10/6/2020 | Sorenson |
| Roku, Inc. | SOR005-AVA-US06 | Criteria Verification to Facilitate Providing of Highest Cross per Mile (CPM) Overlays to Client Devices | United States of America | Granted | 16/411,602 | 5/14/2019 | US-2019-0268658 | 8/29/2019 | 10,757,477 | 8/25/2020 | Sorenson |
| Roku, Inc. | SOR005-AVA-US07 | Providing Restricted Overlay Content to an Authorized Client Device | United States of America | Published | 16/928,770 | 7/14/2020 | US-2020-0344524 | 10/29/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR006-AVA-CN01 | Devices and Non-Transitory Machine-Readable Storage Medium for Sequentially Overlaying Media Content | China | Granted | 201680063089.3 | 9/27/2016 | 108353201 | 7/31/2018 | 108353201 | 11/24/2020 | Sorenson |
| Roku, Inc. | SOR006-AVA-CN02 | Devices and Non-Transitory Machine-Readable Storage Medium for Sequentially Overlaying Media Content | China | Application | 202011279263.2 | 11/16/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR006-AVA-GB01 | Sequentially Overlaying Media Content | United Kingdom | Published | 1805115.1 | 9/27/2016 | GB2556850 | 6/6/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR006-AVA-HK01 | Sequentially Overlaying Media Content | Hong Kong | Published | 19101474.2 | 9/27/2016 | 1258989A | 11/22/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR006-AVA-KR01 | Sequentially Overlaying Media Content | Korea, Republic of (KR) | Granted | 10-2018-7012371 | 9/27/2016 | 10-2018-0084765 | 7/25/2017 | 10-2076642 | 2/6/2020 | Sorenson |
| Roku, Inc. | SOR006-AVA-KR02 | Sequentially Overlaying Media Content | Korea, Republic of (KR) | Application | 10-2020-7003558 | 2/6/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR006-AVA-MX01 | Sequentially Overlaying Media Content | Mexico | Published | MX/a/2018/003808 | 9/27/2016 | N/A | 1/14/2019 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR006-AVA-US03 | Sequentially Overlaying Media Content | United States of America | Granted | 15/130,823 | 4/15/2016 | US-2017-0099506 | 4/6/2017 | 9,848,214 | 12/19/2017 | Sorenson |
| Roku, Inc. | SOR006-AVA-US04 | Sequentially Overlaying Media Content | United States of America | Granted | 15/842,750 | 12/14/2017 | US-2018-0109822 | 4/19/2018 | 10,334,286 | 6/25/2019 | Sorenson |
| Roku, Inc. | SOR006-AVA-US05 | Sequentially Overlaying Media Content | United States of America | Published | 16/399,267 | 4/30/2019 | US-2019-0261030 | 8/22/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR006-AVA-US06 | Sequentially Overlaying Media Content | United States of America | Published | 16/399,354 | 4/30/2019 | US-2019-0261031 | 8/22/2019 | 10,979,756 | 4/13/2021 | Sorenson |
| Roku, Inc. | SOR006-AVA-US07 | Sequentially Overlaying Media Content | United States of America | Published | 16/399,401 | 4/30/2019 | US-2019-0261032 | 8/22/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR006-AVA-US08 | Sequentially Overlaying Media Content | United States of America | Published | 16/399,450 | 4/30/2019 | US-2019-0261033 | 8/22/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR007-AVA-CN01 | Frequency Capping for Multimedia Content | China | Published | 201680062705. | 9/27/2016 | 108351857 | 7/31/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR007-AVA-GB01 | Frequency Capping for Multimedia Content | United Kingdom | Published | 1805116.9 | 9/27/2016 | GB2558453 | 7/11/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR007-AVA-HK01 | Frequency Capping for Multimedia Content | Hong Kong | Published | 19101472.4 | 9/27/2016 | 1258987A | 11/22/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR007-AVA-KR01 | Frequency Capping for Multimedia Content | Korea, Republic of (KR) | Granted | 10-2018-7012363 | 9/27/2016 | 10-2018-0084764 | 7/25/2018 | 10-1993913 | 6/21/2019 | Sorenson |
| Roku, Inc. | SOR007-AVA-KR02 | Frequency Capping for Multimedia Content | Korea, Republic of (KR) | Application | 10-2019-7017960 | 9/27/2018 | N/A | N/A | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR007-AVA-MX01 | Frequency Capping for Multimedia Content | Mexico | Application | MX/a/2018/003807 | 9/27/2016 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR007-AVA-US01 | Frequency Capping for Media Content | United States of America | Granted | 15/164,682 | 5/25/2016 | US-2017-0099511 | 4/6/2017 | 9,723,347 | 8/1/2017 | Sorenson |
| Roku, Inc. | SOR007-AVA-US02 | Frequency Capping for Media Content | United States of America | Granted | 15/641,796 | 7/5/2017 | US-2017-0302984 | 10/19/2017 | 10,187,682 | 1/22/2019 | Sorenson |
| Roku, Inc. | SOR008-AVA-CN01 | Dynamic Video Advertisement Replacement | China | Published | 201680057676.1 | 8/16/2016 | 108140199 | 6/8/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR008-AVA-GB01 | Dynamic Video Advertisement Replacement | United Kingdom | Published | 1805117.7 | 8/16/2016 | 2557531 | 6/20/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR008-AVA-KR01 | Dynamic Video Advertisement Replacement | Korea, Republic of (KR) | Granted | 10-2018-7009915 | 8/16/2016 | 10-2018-0082427 | 7/18/2018 | 10-2075512 | 2/4/2020 | Sorenson |
| Roku, Inc. | SOR008-AVA-KR02 | Dynamic Video Advertisement Replacement | Korea, Republic of (KR) | Application | 10-2020-7003289 | 2/4/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR008-AVA-MX01 | Dynamic Video Advertisement Replacement | Mexico | Application | MX/a/2018/002966 | 8/16/2016 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR008-AVA-US02 | Dynamic Video Advertisement Replacement | United States of America | Granted | 15/058,750 | 3/2/2016 | US-2017-0070789 | 3/9/2017 | 9,743,154 | 8/22/2017 | Sorenson |
| Roku, Inc. | SOR008-AVA-US03 | Dynamic Video Advertisement Replacement | United States of America | Granted | 15/650,425 | 7/14/2017 | US-2017-0325005 | 11/9/2017 | 10,110,969 | 10/23/2018 | Sorenson |
| Roku, Inc. | SOR008-AVA-US04 | Dynamic Video Advertisement Replacement | United States of America | Granted | 16/144,361 | 9/27/2018 | US-2019-0028778 | 1/24/2019 | 10,728,627 | 7/28/2020 | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR008-AVA-US05 | Dynamic Video Advertisement Replacement | United States of America | Granted | 16/399,525 | 4/30/2019 | US-2019-0261059 | 8/22/2019 | 10,728,628 | 7/28/2020 | Sorenson |
| Roku, Inc. | SOR008-AVA-US06 | Dynamic Video Advertisement Replacement | United States of America | Granted | 16/399,548 | 4/30/2019 | US-2019-0261060 | 8/22/2019 | 10,728,629 | 7/28/2020 | Sorenson |
| Roku, Inc. | SOR008-AVA-US07 | Dynamic Video Advertisement Replacement | United States of America | Published | 16/908,677 | 6/22/2020 | US-2020-0322695 | 10/8/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR009-AVA-US01 | Creating and Fulfilling Dynamic Advertisement Replacement Inventory | United States of America | Granted | 15/058,819 | 3/2/2016 | N/A | N/A | 9,854,326 | 12/26/2017 | Sorenson |
| Roku, Inc. | SOR009-AVA-US02 | Creating and Fulfilling Dynamic Advertisement Replacement Inventory | United States of America | Granted | 15/831,838 | 12/5/2017 | US-2018-0098133 | 4/5/2018 | 10,771,858 | 9/8/2020 | Sorenson |
| Roku, Inc. | SOR009-AVA-US03 | Creating and Fulfilling Dynamic Advertisement Replacement Inventory | United States of America | Granted | 16/399,577 | 4/30/2019 | US-2019-0261061 | 8/22/2019 | 10,764,653 | 9/1/2020 | Sorenson |
| Roku, Inc. | SOR009-AVAUS04 | Creating and Fulfilling Dynamic Advertisement Replacement Inventory | United States of America | Published | 16/931,402 | 7/20/2020 | US-2020-0351571 | 11/5/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR010-AVA-CN01 | Media Content Matching and Indexing | China | Published | 201680062405. | 9/27/2016 | 108352914 | 7/31/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR010-AVA-GB01 | Media Content Matching and Indexing | United Kingdom | Published | 1805125.0 | 9/27/2016 | 2557156 | 6/13/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR010-AVA-HK01 | Media Content Matching and Indexing | Hong Kong | Published | 19101473.3 | 9/27/2016 | 1258988A | 11/22/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR010-AVA-KR01 | Media Content Matching and Indexing | Korea, Republic of (KR) | Granted | 10-2018-7014587 | 9/27/2016 | 10-2018-0084812 | 7/25/2018 | 10-2083996 | 2/26/2020 | Sorenson |
| Roku, Inc. | SOR010-AVA-KR02 | Media Content Matching and Indexing | Korea, Republic of (KR) | Application | 10-2020-7005598 | 2/26/2020 | N/A | N/A | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR010- AVA-MX01 | Media Content Matching and Indexing | Mexico | Application | MX/a/2018/003 806 | 9/27/2016 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR010- AVA-US02 | Media Content Matching and Indexing | United States of America | Granted | 15/081,738 | 3/25/2016 | US-2017-0118538 | 4/27/2017 | 9,813,781 | 11/7/2017 | Sorenson |
| Roku, Inc. | SOR010- AVA-US03 | Media Content Matching and Indexing | United States of America | Granted | 15/728,687 | 10/10/2017 | US-2018-0035175 | 2/1/2018 | 10,187,705 | 1/22/2019 | Sorenson |
| Roku, Inc. | SOR010- AVA-US04 | Media Content Matching and Indexing | United States of America | Granted | 16/217,980 | 12/12/2018 | US-2019-0200101 | 6/27/2019 | 10,827,234 | 11/3/2020 | Sorenson |
| Roku, Inc. | SOR010- AVA-US05 | Media Content Matching and Indexing | United States of America | Published | 16/948,766 | 9/30/2020 | US-2021-0014577 | 1/14/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR011- AVA-CN01 | Digital Overlay Offers on Connected Media Devices | China | Published | 201680054373, 4 | 9/13/2016 | 108141563 | 6/8/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR011- AVA-GB01 | Digital Overlay Offers on Connected Media Devices | United Kingdom | Published | 1805114.4 | 9/13/2016 | 2556849 | 6/6/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR011- AVA-KR01 | Digital Overlay Offers on Connected Media Devices | Korea, Republic of (KR) | Granted | 10-2018- 7010846 | 9/13/2016 | 10-2018-0084750 | 7/25/2018 | 2123108 | 6/9/2020 | Sorenson |
| Roku, Inc. | SOR011- AVA-KR02 | Digital Overlay Offers on Connected Media Devices | Korea, Republic of (KR) | Application | 10-2020- 7016540 | 6/9/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR011- AVA-MX01 | Digital Overlay Offers on Connected Media Devices | Mexico | Application | MX/a/2018/003 399 | 9/13/2016 | N/A | N/A | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR011-AVA-US02 | Digital Overlay Offers on Connected Media Devices | United States of America | Granted | 15/130,639 | 4/15/2016 | US-2017-0085934 | 3/23/2017 | 10,075,755 | 9/11/2018 | Sorenson |
| Roku, Inc. | SOR011-AVA-US03 | Digital Overlay Offers on Connected Media Devices | United States of America | Granted | 15/418,439 | 1/27/2017 | US-2017-0142464 | 5/18/2017 | 10,341,705 | 7/2/2019 | Sorenson |
| Roku, Inc. | SOR011-AVA-US04 | Digital Overlay Offers on Connected Media Devices | United States of America | Granted | 16/052,267 | 8/1/2018 | US-2018-0343483 | 11/29/2018 | 10,341,706 | 7/2/2019 | Sorenson |
| Roku, Inc. | SOR011-AVA-US05 | Digital Overlay Offers on Connected Media Devices | United States of America | Granted | 16/388,070 | 4/18/2019 | US-2019-0281338 | 9/12/2019 | 10,863,222 | 12/8/2020 | Sorenson |
| Roku, Inc. | SOR011-AVA-US06 | Digital Overlay Offers on Connected Media Devices | United States of America | Granted | 16/388,081 | 4/18/2019 | US-2019-0246156 | 8/8/2019 | 10,863,223 | 12/8/2020 | Sorenson |
| Roku, Inc. | SOR011-AVA-US07 | Digital Overlay Offers on Connected Media Devices | United States of America | Granted | 16/388,097 | 4/18/2019 | US-2019-0246157 | 8/8/2019 | 10,869,078 | 12/15/2020 | Sorenson |
| Roku, Inc. | SOR011-AVA-US08 | Digital Overlay Offers on Connected Media Devices | United States of America | Application | 17/090,126 | 11/5/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR012-AVA-US02 | Video Fingerprinting Based on Fourier Transform of Histogram | United States of America | Granted | 15/098,135 | 4/13/2016 | N/A | N/A | 9,848,235 | 12/19/2017 | Sorenson |
| Roku, Inc. | SOR012-AVA-US03 | Video Fingerprinting Based on Fourier Transform of Histogram | United States of America | Granted | 15/826,044 | 11/29/2017 | US-2018-0084303 | 3/22/2018 | 10,390,083 | 8/20/2019 | Sorenson |
| Roku, Inc. | SOR012-AVA-US04 | Video Fingerprinting Based on Fourier Transform of Histogram | United States of America | Published | 16/502,649 | 7/3/2019 | US-2019-0327525 | 10/24/2019 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR013-AVA-US02 | Fingerprinting Media Content Using Hashing | United States of America | Granted | 15/138,678 | 4/26/2016 | US-2017-0244999 | 8/24/2017 | 9,906,831 | 2/27/2018 | Sorenson |
| Roku, Inc. | SOR013-AVA-US03 | Fingerprinting Media Content Using Hashing | United States of America | Granted | 15/886,848 | 2/2/2018 | US-2018-0160169 | 6/7/2018 | 10,116,987 | 10/30/2018 | Sorenson |
| Roku, Inc. | SOR013-AVA-US04 | Fingerprinting Media Content Using Hashing | United States of America | Application | 16/802,820 | 2/27/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR014-AVA-CN01 | Fingerprint Layouts for Content Fingerprinting | China | Published | 201780064956.X | 3/9/2017 | CN109906611A | 6/18/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR014-AVA-EP01 | Fingerprint Layouts for Content Fingerprinting | European Patent | Published | 17844056.6 | 3/9/2017 | 3500943 | 6/26/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR014-AVA-HK01 | Fingerprint Layouts for Content Fingerprinting | Hong Kong | Published | 19127286.3 | 3/9/2017 | N/A | 4/17/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR014-AVA-JP01 | Fingerprint Layouts for Content Fingerprinting | Japan | Granted | 2019-511582 | 3/9/2017 | 2019-532560 | 11/7/2019 | 6750103 | 8/14/2020 | Sorenson |
| Roku, Inc. | SOR014-AVA-JP02 | Fingerprint Layouts for Content Fingerprinting | Japan | Published | 2020-136267 | 8/12/2020 | 2020-205594 | 12/24/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR014-AVA-KR01 | Fingerprint Layouts for Content Fingerprinting | Korea, Republic of (KR) | Granted | 2019-7007862 | 3/9/2017 | N/A | N/A | 10-2173417 | 10/28/2020 | Sorenson |
| Roku, Inc. | SOR014-AVA-KR02 | Fingerprint Layouts for Content Fingerprinting | Korea, Republic of (KR) | Application | 2020-7031089 | 10/28/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR014-AVA-KR03 | Fingerprint Layouts for Content Fingerprinting | Korea, Republic of (KR) | Application | 2020-7031093 | 10/28/2020 | N/A | N/A | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR014-AVA-US02 | Fingerprint Layouts for Content Fingerprinting | United States of America | Granted | 15/243,658 | 8/22/2016 | US-2017-0272814 | 9/21/2017 | 10,063,917 | 8/28/2018 | Sorenson |
| Roku, Inc. | SOR014-AVA-US03 | Fingerprint Layouts for Content Fingerprinting | United States of America | Granted | 16/035,051 | 7/13/2018 | US-2018-0343494 | 11/29/2018 | 10,257,570 | 4/9/2019 | Sorenson |
| Roku, Inc. | SOR014-AVA-US04 | Fingerprint Layouts for Content Fingerprinting | United States of America | Granted | 16/287,752 | 2/27/2019 | US-2019-0215560 | 7/11/2019 | 10,743,062 | 8/11/2020 | Sorenson |
| Roku, Inc. | SOR014-AVA-US05 | Fingerprint Layouts for Content Fingerprinting | United States of America | Published | 16/925,730 | 7/10/2020 | US-2020-0413132 | 12/31/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR015-AVA-US02 | Interweaving Media Content | United States of America | Granted | 14/881,852 | 10/13/2015 | N/A | N/A | 10,194,177 | 1/29/2019 | Sorenson |
| Roku, Inc. | SOR015-AVA-US03 | Interweaving Media Content | United States of America | Published | 16/217,852 | 12/12/2018 | US-2019-0222873 | 7/18/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR016-AVA-US01 | Automatic Content Recognition Search Optimization | United States of America | Granted | 14/736,158 | 6/10/2015 | N/A | N/A | 10,509,824 | 12/17/2019 | Sorenson |
| Roku, Inc. | SOR016-AVA-US02 | Automatic Content Recognition Search Optimization | United States of America | Published | 16/588,211 | 9/30/2019 | US-2020-0026730 | 1/23/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR017-AVA-CN01 | Automatic Content Recognition Fingerprint Sequence Matching | China | Published | 201680023388.4 | 4/21/2016 | 107851103 | 3/27/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR017-AVA-EP01 | Automatic Content Recognition Fingerprint Sequence Matching | European Patent | Published | 16783829.1 | 4/21/2016 | 3286669 | 2/28/2018 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR017-AVA-JP01 | Automatic Content Recognition Fingerprint Sequence Matching | Japan | Granted | 2018-506796 | 4/21/2016 | 2018-521601 | 8/2/2018 | 6438628 | 11/22/2018 | Sorenson |
| Roku, Inc. | SOR017-AVA-KR01 | Automatic Content Recognition Fingerprint Sequence Matching | Korea, Republic of (KR) | Granted | 10-2017-7033908 | 4/21/2016 | 10-2018-0036647 | 4/9/2018 | 10-2063117 | 12/31/2019 | Sorenson |
| Roku, Inc. | SOR017-AVA-KR02 | Automatic Content Recognition Fingerprint Sequence Matching | Korea, Republic of (KR) | Application | 10-2019-7038947 | 12/31/2019 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR017-AVA-US02 | Automatic Content Recognition with local Matching | United States of America | Granted | 14/813,416 | 7/30/2015 | US-2016-0316262 | 10/27/2016 | 10,750,236 | 8/18/2020 | Sorenson |
| Roku, Inc. | SOR017-AVA-US03 | Automatic Content Recognition with local Matching | United States of America | Published | 16/924,119 | 7/8/2020 | US-2020-0344520 | 10/29/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR018-AVA-CN01 | Automatic Content Recognition Fingerprint Sequence Matching | China | Published | 201680023473, 0 | 4/25/2016 | 107851104 | 3/27/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR018-AVA-EP01 | Automatic Content Recognition Fingerprint Sequence Matching | European Patent | Published | 16784091, 7 | 4/25/2016 | 3286673 | 2/28/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR018-AVA-JP01 | Automatic Content Recognition Fingerprint Sequence Matching | Japan | Granted | 2018-506816 | 4/25/2016 | 2018-523419 | 8/16/2018 | 6612432 | 11/8/2019 | Sorenson |
| Roku, Inc. | SOR018-AVA-JP02 | Automatic Content Recognition Fingerprint Sequence Matching | Japan | Published | 2019-197011 | 10/30/2019 | 2020-025322 | 2/13/2020 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR019-AVA-US02 | Content Comparison Testing on Linear Media Streams | United States of America | Granted | 15/164,714 | 5/25/2016 | US-2017-0238037 | 8/17/2017 | 10,432,994 | 10/1/2019 | Sorenson |
| Roku, Inc. | SOR019-AVA-US03 | Content Comparison Testing on Linear Media Streams | United States of America | Granted | 16/555,507 | 8/29/2019 | US-2019-0387266 | 12/19/2019 | 10,721,515 | 7/21/2020 | Sorenson |
| Roku, Inc. | SOR019-AVA-US04 | Content Comparison Testing on Linear Media Streams | United States of America | Published | 16/899,261 | 6/11/2020 | US-2020-0304857 | 9/24/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR020-AVA-US02 | Interactive Overlays to Determine Viewer Data | United States of America | Granted | 15/938,049 | 3/28/2018 | US-2018-0288473 | 10/4/2018 | 10,462,514 | 10/29/2019 | Sorenson |
| Roku, Inc. | SOR020-AVA-US03 | Interactive Overlays to Determine Viewer Data | United States of America | Granted | 16/574,858 | 9/18/2019 | US-2020-0014972 | 1/9/2020 | 10,869,083 | 12/15/2020 | Sorenson |
| Roku, Inc. | SOR020-AVA-US04 | Interactive Overlays to Determine Viewer Data | United States of America | Application | 17/094,150 | 11/10/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR021-AVA-CN01 | Targeted Content Placement Using Overlays | China | Published | 201880022785.9 | 3/28/2018 | 110476428 | 11/19/2019 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR021-AVA-EP01 | Targeted Content Placement Using Overlays | European Patent | Published | 18717816.5 | 3/28/2018 | 3603079 | 2/5/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR021-AVA-HK01 | Targeted Content Placement Using Overlays | Hong Kong | Published | 62020011726.0 | 7/20/2020 | 40022724A | 11/20/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR021-AVA-JP01 | Targeted Content Placement Using Overlays | Japan | Published | 2019-553182 | 3/28/2018 | 2020-512775 | 4/23/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR021-AVA-KR01 | Targeted Content Placement Using Overlays | Korea, Republic of (KR) | Application | 2019-7028430 | 3/28/2018 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR021-AVA-US02 | Targeted Content Placement Using Overlays | United States of America | Granted | 15/938,167 | 3/28/2018 | US-2018-0288494 | 10/4/2018 | 10,542,326 | 1/21/2020 | Sorenson |
| Roku, Inc. | SOR021-AVA-US03 | Targeted Content Placement Using Overlays | United States of America | Published | 16/704,356 | 12/5/2019 | US-2020-0107082 | 4/2/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR022-AVA-US02 | Employing Automatic Content Recognition to Allow Resumption of Watching Interrupted Media Program from Television Broadcast | United States of America | Published | 15/933,899 | 3/23/2018 | US-2018-0278973 | 9/27/2018 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR023-AVA-KR01 | Enabling Interactive Control of Live Television Broadcast Streams | Korea, Republic of (KR) | Granted | 2019-7027609 | 3/23/2018 | N/A | N/A | 2117922 | 5/27/2020 | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|---------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR023-AVA-KR02 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | Korea, Republic of (KR) | Application | 2020-7015181 | 5/27/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR023-AVA-US02 | Enabling Interactive Control of Live Television Broadcast Streams | United States of America | Granted | 15/934,753 | 3/23/2018 | US-2018-0279005 | 9/27/2018 | 10,182,263 | 1/15/2019 | Sorenson |
| Roku, Inc. | SOR023-AVA-US03 | Enabling Interactive Control of Live Television Broadcast Streams | United States of America | Published | 16/495,337 | 9/18/2019 | US-2020-0021858 | 1/16/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR024-AVA-US01 | Obtaining Viewer Demographics Through Advertisement Selections | United States of America | Granted | 15/725,260 | 10/4/2017 | US-2019-0104344 | 4/4/2019 | 10,277,958 | 4/30/2019 | Sorenson |
| Roku, Inc. | SOR024-AVA-US02 | Obtaining Viewer Demographics Through Advertisement Selections | United States of America | Granted | 16/366,790 | 3/27/2019 | US-2019-0327537 | 10/24/2019 | 10,897,657 | 1/19/2021 | Sorenson |
| Roku, Inc. | SOR024-AVA-US03 | Obtaining Viewer Demographics Through Advertisement Selections | United States of America | Application | 17/128,860 | 12/21/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR025-AVA-AU01 | Cold Matching by Automatic Content Recognition | Australia | Published | 2018331314.0 | 9/10/2018 | N/A | 1/28/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR025-AVA-BR01 | Cold Matching by Automatic Content Recognition | Brazil | Published | 112020005084 9.0 | 9/10/2018 | N/A | 9/15/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR025-AVA-CA01 | Cold Matching by Automatic Content Recognition | Canada | Application | 3075730.0 | 9/10/2018 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR025-AVA-CN01 | Cold Matching by Automatic Content Recognition | China | Published | 201880059344. 6 | 9/10/2018 | CN111133765A | 5/8/2020 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR025-AVA-EP01 | Cold Matching by Automatic Content Recognition | European Patent | Published | 18782578.1 | 9/10/2018 | 3682644 | 7/22/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR025-AVA-JP01 | Cold Matching by Automatic Content Recognition | Japan | Published | 2020-515170 | 9/10/2018 | 2020-533918 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR025-AVA-KR01 | Cold Matching by Automatic Content Recognition | Korea, Republic of (KR) | Application | 2020-7010283 | 9/10/2018 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR025-AVA-US01 | Cold Matching by Automatic Content Recognition | United States of America | Granted | 15/703,684 | 9/13/2017 | US-2019-0079961 | 3/14/2019 | 10,803,038 | 10/13/2020 | Sorenson |
| Roku, Inc. | SOR025-AVA-US02 | Cold Matching by Automatic Content Recognition | United States of America | Published | 16/946,862 | 7/9/2020 | US-2020-0341960 | 10/29/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR026-AVA-AU01 | Flagging Advertisement Frames for Automatic Content Recognition | Australia | Granted | 2018331308.0 | 9/10/2018 | N/A | N/A | 2018331308 | 1/7/2021 | Sorenson |
| Roku, Inc. | SOR026-AVA-BR01 | Flagging Advertisement Frames for Automatic Content Recognition | Brazil | Published | 1120200050865.0 | 9/10/2018 | N/A | 8/18/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR026-AVA-CA01 | Flagging Advertisement Frames for Automatic Content Recognition | Canada | Published | 3075620.0 | 9/10/2018 | 3075620 | 3/21/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR026-AVA-CN01 | Flagging Advertisement Frames for Automatic Content Recognition | China | Published | 201880059810.0 | 9/10/2018 | CN111095940A | 5/1/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR026-AVA-EP01 | Flagging Advertisement Frames for Automatic Content Recognition | European Patent | Published | 18782247.3 | 9/10/2018 | 3682643 | 7/22/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR026-AVA-JP01 | Flagging Advertisement Frames for Automatic Content Recognition | Japan | Published | 2020-515215 | 9/10/2018 | 2020-533920 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR026-AVA-KR01 | Flagging Advertisement Frames for Automatic Content Recognition | Korea, Republic of (KR) | Granted | 2020-7008760 | 9/10/2018 | N/A | N/A | 10-2148248 | 8/20/2020 | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR026-AVA-KR02 | Flagging Advertisement Frames for Automatic Content Recognition | Korea, Republic of (KR) | Application | 2020-7023993 | 8/20/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR026-AVA-US01 | Flagging Advertisement Frames for Automatic Content Recognition | United States of America | Granted | 15/703,391 | 9/13/2017 | US-2019-0082231 | 3/14/2019 | 10,306,333 | 5/28/2019 | Sorenson |
| Roku, Inc. | SOR026-AVA-US02 | Flagging Advertisement Frames for Automatic Content Recognition | United States of America | Granted | 16/409,733 | 5/10/2019 | US-2019-0268670 | 8/29/2019 | 10,887,667 | 1/5/2021 | Sorenson |
| Roku, Inc. | SOR026-AVA-US03 | Flagging Advertisement Frames for Automatic Content Recognition | United States of America | Application | 17/247,070 | 11/27/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR027-AVA-CN01 | Frame Certainty for Automatic Content Recognition | China | Published | 201880025752. X | 6/29/2018 | 110537371 | 12/3/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR027-AVA-EP01 | Frame Certainty for Automatic Content Recognition | European Patent | Published | 18752314.7 | 6/29/2018 | 3646197 | 5/6/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR027-AVA-HK01 | Frame Certainty for Automatic Content Recognition | Hong Kong | Application | 62020007501.3 | 5/14/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR027-AVA-JP01 | Frame Certainty for Automatic Content Recognition | Japan | Published | 2019-552201 | 6/29/2018 | 2020-511880 | 4/16/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR027-AVA-KR01 | Frame Certainty for Automatic Content Recognition | Korea, Republic of (KR) | Application | 2019-7027218 | 6/29/2018 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR027-AVA-US02 | Frame Certainty for Automatic Content Recognition | United States of America | Granted | 16/023,555 | 6/29/2018 | US-2019-0007733 | 1/3/2019 | 10,715,863 | 7/14/2020 | Sorenson |
| Roku, Inc. | SOR027-AVA-US03 | Frame Certainty for Automatic Content Recognition | United States of America | Published | 16/925,552 | 7/10/2020 | US-2020-0413131 | 12/31/2020 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR028-AVA-US01 | Scene Frame Matching for Automatic Content Recognition | United States of America | Granted | 15/726,987 | 10/6/2017 | US-2019-0108401 | 4/11/2019 | 10,922,551 | 2/16/2021 | Sorenson |
| Roku, Inc. | SOR028-AVA-US02 | Scene Frame Matching for Automatic Content Recognition | United States of America | Granted | 16/390,410 | 4/22/2019 | US-2019-0251361 | 8/15/2019 | 10,963,699 | 3/30/2021 | Sorenson |
| Roku, Inc. | SOR028-AVA-US03 | Scene Frame Matching for Automatic Content Recognition | United States of America | Published | 16/447,344 | 6/20/2019 | US-2019-0303681 | 10/3/2019 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR028-AVA-US04 | Scene Frame Matching for Automatic Content Recognition | United States of America | Application | 17/142,619 | 1/6/2021 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR029-AVA-US01 | Method and System for Image Compression Using Block Size Heuristics | United States of America | Granted | 10/029,142 | 12/20/2001 | US-2003-0118101 | 6/26/2003 | 6,909,748 | 6/21/2005 | Sorenson |
| Roku, Inc. | SOR031-AVA-US01 | Method, Graphical Interface and Computer-Readable Medium for Forming a Batch Job | United States of America | Granted | 11/140,773 | 5/31/2005 | US-2006-0288294 | 12/21/2006 | 7,885,979 | 2/8/2011 | Sorenson |
| Roku, Inc. | SOR032-AVA-US01 | Method, Graphical Interface and Computer-Readable Medium for Reformating Data | United States of America | Granted | 11/141,434 | 5/31/2005 | US-2006-0271848 | 11/30/2006 | 7,975,219 | 7/5/2011 | Sorenson |
| Roku, Inc. | SOR033-AVA-US01 | Method, Graphical Interface and Computer-Readable Medium for Generating a Preview of a Reformatted Preview Segment | United States of America | Granted | 11/140,784 | 5/31/2005 | US-2006-0271836 | 11/30/2006 | 8,296,649 | 10/23/2012 | Sorenson |
| Roku, Inc. | SOR034-AVA-US02 | Client-Side Video Advertisement Replacement Using Automatic Content Recognition | United States of America | Granted | 14/468,080 | 8/25/2014 | N/A | N/A | 10,825,056 | 11/3/2020 | Sorenson |
| Roku, Inc. | SOR034-AVA-US03 | Client-Side Video Advertisement Replacement Using Automatic Content Recognition | United States of America | Granted | 16/395,509 | 4/26/2019 | US-2019-0251602 | 8/15/2019 | 10,810,629 | 10/20/2020 | Sorenson |
| Roku, Inc. | SOR034-AVA-US04 | Client-Side Video Advertisement Replacement Using Automatic Content Recognition | United States of America | Published | 16/930,087 | 7/15/2020 | US-2020-0349612 | 11/5/2020 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
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| Roku, Inc. | SOR035-AVA-US02 | Content-Modification System with Broadcast Schedule Utilization Feature | United States of America | Published | 16/895,794 | 6/8/2020 | US-2020-0389681 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR035-AVA-WO01 | Schedule-Assisted ReplacementContent Advanced Delivery | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036622 | 6/8/2020 | WO2020/247919 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR036-AVA-US02 | Content Modification System with In-Band Message Data Utilization Feature | United States of America | Published | 16/895,806 | 6/8/2020 | US-2020-0389688 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR036-AVA-WO01 | Content-Modification System with In-Band Message Data Utilization Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036632 | 6/8/2020 | WO2020/247921 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR037-AVA-TW01 | Content-Modification System with Content-Presentation Device Grouping Feature | Taiwan | Application | 109119092.0 | 6/5/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR037-AVA-US02 | Content-Modification System with Content-Presentation Device Grouping Feature | United States of America | Published | 16/892,131 | 6/3/2020 | US-2020-0389687 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR037-AVA-WO01 | Content-Modification System with Content-Presentation Device Grouping Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036443 | 6/5/2020 | WO2020/247833 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR038-AVA-TW01 | Content-Modification System with Responsive Transmission of Reference Fingerprint Data Feature | Taiwan | Published | 109115458.0 | 5/8/2020 | 202046137 | 12/16/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR038-AVA-US02 | Content Modification System with Responsive Transmission of Reference Fingerprint Data Feature | United States of America | Published | 16/870,451 | 5/8/2020 | US-2020-0359065 | 11/12/2020 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR038-AVA-WO01 | Content-Modification System with Responsive Transmission of Reference Fingerprint Data Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032106 | 5/8/2020 | WO2020/231813 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR039-AVA-TW01 | Content-Modification System with Technical Characteristic-Based Selection Feature | Taiwan | Application | 109119088.0 | 6/5/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR039-AVA-US02 | Content-Modification System with Technical Characteristic-Based Selection Feature | United States of America | Published | 16/835,935 | 3/31/2020 | US-2020-0389694 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR039-AVA-WO01 | Content-Modification System with Technical Characteristic-Based Selection Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036448 | 6/5/2020 | WO2020/247838 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR040-AVA-US02 | Content-Modification System With Geographic Area-Based Feature | United States of America | Granted | 16/836,034 | 3/31/2020 | US-2020-0356755 | 11/12/2020 | 10,846,506 | 11/24/2020 | Sorenson |
| Roku, Inc. | SOR040-AVA-US03 | Content-Modification System With Geographic Area-Based Feature | United States of America | Application | 17/069,356 | 10/13/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR040-AVA-WO01 | Content-Modification System with Geographic Area-Based Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032110 | 5/8/2020 | WO2020/231814 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR041-AVA-US02 | Content-Modification System With Geographic Area-Based Feature | United States of America | Published | 16/836,090 | 3/31/2020 | US-2020-0356756 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR041-AVA-WO01 | Content-Modification System With Geographic Area-Based Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032143 | 5/8/2020 | WO2020/231829 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR042-AVA-TW01 | Content-Modification System with Determination of Input-Buffer Switch Delay Feature | Taiwan | Application | 109115457.0 | 5/8/2020 | N/A | N/A | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR042-AVA-US02 | Content-Modification System with Determination of Input-Buffer Switch Delay Feature | United States of America | Published | 16/870,482 | 5/8/2020 | US-2020-0359089 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR042-AVA-WO01 | Content-Modification System with Determination of Input-Buffer Switch Delay Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032120 | 5/8/2020 | WO2020/231817 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR043-AVA-US02 | Content-Modification System with Geographic Area-Based Feature | United States of America | Published | 16/836,253 | 3/31/2020 | US-2020-0356757 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR043-AVA-WO01 | Content-Modification System With Geographic Area-Based Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032122 | 5/8/2020 | WO2020/231818 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR044-AVA-US02 | Content Modification System with Responsive Transmission of ReferenceFingerprint Data Feature | United States of America | Published | 16/872,073 | 5/11/2020 | US-2020-0359110 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR044-AVA-WO01 | Content-Modification System with Responsive Transmission of Reference Fingerprint Data Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032350 | 5/11/2020 | WO2020/231927 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR045-AVA-TW01 | Content Modification System with Fingerprint Data Match and Mismatch Detection Feature | Taiwan | Application | 109115459.0 | 5/8/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR045-AVA-US02 | Content Modification System with Fingerprint Data Match and Mismatch Detection Feature | United States of America | Published | 16/869,860 | 5/8/2020 | US-2020-0356758 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR045-AVA-WO01 | Content Modification System with Fingerprint Data Match and Mismatch Detection Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032127 | 5/8/2020 | WO2020/231821 | 11/19/2020 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR047-AVA-TW01 | Content-Modification System with Use of Multiple Fingerprint Data Types Feature | Taiwan | Application | 109115461.0 | 5/8/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR047-AVA-US02 | Content-Modification System with Use of Multiple Fingerprint Data Types Feature | United States of America | Granted | 16/836,170 | 3/31/2020 | N/A | N/A | 10,796,159 | 10/6/2020 | Sorenson |
| Roku, Inc. | SOR047-AVA-US03 | Content-Modification System with Use of Multiple Fingerprint Data Types Feature | United States of America | Published | 16/994,033 | 8/14/2020 | US-2020-0372256 | 11/26/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR047-AVA-WO01 | Content-Modification System with Use of Multiple Fingerprint Data Types Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032133 | 5/8/2020 | WO2020/231823 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR048-AVA-TW01 | Content-Modification System with Overlay Handling Feature | Taiwan | Application | 109119090.0 | 6/5/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR048-AVA-US02 | Content-Modification System With Overlay Handling Feature | United States of America | Published | 16/855,268 | 4/22/2020 | US-2020-0389685 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR048-AVA-WO01 | Content-Modification System with Overlay Handling Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036451 | 6/5/2020 | WO2020/247840 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR049-AVA-US02 | Content Modification System with Fingerprint Data Mismatch and Responsive Action Feature | United States of America | Published | 16/870,583 | 5/8/2020 | US-2020-0356759 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR049-AVA-WO01 | Content-Modification System with Fingerprint Data Mismatch and Responsive Action Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032113 | 5/8/2020 | WO2020/231815 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR050-AVA-TW01 | Content Modification System with Issue Detection and Responsive Action Feature | Taiwan | Application | 109115462.0 | 5/8/2020 | N/A | N/A | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|---------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR050- AVA-US02 | Content Modification System with Issue Detection and Responsive Action Feature | United States of America | Published | 16/835,569 | 3/31/2020 | US-2020-0359080 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR050- AVA-WO01 | Content-Modification System with Issue Detection and Responsive Action Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032135 | 5/8/2020 | WO2020/231824 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR051- AVA-TW01 | Content-Modification System with Volume Level Adjustment Feature | Taiwan | Application | 109115456.0 | 5/8/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR051- AVA-US02 | Content Modification System with Volume Level Adjustment Feature | United States of America | Published | 16/835,635 | 3/31/2020 | US-2020-0359082 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR051- AVA-WO01 | Content-Modification System with Volume Level Adjustment Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032138 | 5/8/2020 | WO2020/231826 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR056- AVA-TW01 | Content-Modification System with Responsive Transmission of Reference Fingerprint Data Feature | Taiwan | Published | 109115460.0 | 5/8/2020 | 202046742 | 12/16/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR056- AVA-US02 | Content Modification System with Responsive Transmission of Reference Fingerprint Data Feature | United States of America | Published | 16/870,460 | 5/8/2020 | US-2020-0359066 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR056- AVA-WO01 | Content-Modification System with Responsive Transmission of Reference Fingerprint Data Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032139 | 5/8/2020 | WO2020/231827 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR057- AVA-US02 | Content-Modification System With Transmission Delay-Based Feature | United States of America | Granted | 16/836,098 | 3/31/2020 | US-2020-0359092 | 11/12/2020 | 10,972,794 | 4/6/2021 | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR057-AVA-US03 | Content-Modification System With Transmission Delay-Based Feature | United States of America | Published | 16/836,082 | 3/31/2020 | US-2020-0359091 | 11/12/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR057-AVA-WO01 | Content-Modification System with Transmission Delay-Based Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/032118 | 5/8/2020 | WO2020/231816 | 11/19/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR058-AVA-US02 | Content Modification System with Testing and Reporting Feature | United States of America | Published | 16/850,499 | 4/16/2020 | US2020-0389695 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR058-AVA-WO01 | Content-Modification System with Testing and Reporting Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036445 | 6/5/2020 | WO2020/247835 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR059-AVA-US02 | Content-Modification System With System Resource Request Feature | United States of America | Granted | 16/895,685 | 6/8/2020 | US-2020-0389680 | 12/10/2020 | 10,986,382 | 4/20/2021 | Sorenson |
| Roku, Inc. | SOR059-AVA-WO01 | Content-Modification System with System Resource Request Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036633 | 6/8/2020 | WO2020/247922 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR060-AVA-US02 | Content-Modification System With Probability-Based Selection Feature | United States of America | Published | 16/853,932 | 4/21/2020 | US-2020-0389684 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR060-AVA-WO01 | Content-Modification System with Probability-Based Selection Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036456 | 6/5/2020 | WO2020/247845 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR061-AVA-TW01 | Content-Modification System with Supplemental Content Stitching Feature | Taiwan | Application | 109119089.0 | 6/5/2020 | 202106032 | 2/1/2021 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR061-AVA-US02 | Content-Modification System with Supplemental Content Stitching Feature | United States of America | Published | 16/866,005 | 5/4/2020 | US-2020-0389689 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR061-AVA-WO01 | Content-Modification System with Supplemental Content Stitching Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036459 | 6/5/2020 | WO2020/247847 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR062-AVA-TW01 | Content-Modification System with Unscheduling Feature | Taiwan | Application | 109119087.0 | 6/5/2020 | 202106032 | 2/1/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR062-AVA-US02 | Content-Modification System with Unscheduling Feature | United States of America | Published | 16/866,023 | 5/4/2020 | US-2020-0389686 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR062-AVA-WO01 | Content-Modification System with Unscheduling Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/036461 | 6/5/2020 | WO2020/247849 | 12/10/2020 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR063-AVA-TW01 | Content-Modification System with Broadcast Schedule Utilization Feature | Taiwan | Application | 109124819.0 | 7/22/2020 | 202106038 | 2/1/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR063-AVA-US02 | Content-Modification System with Broadcast Schedule Utilization Feature | United States of America | Application | 16/934,972 | 7/21/2020 | US-2021-0029398-A1 | 1/28/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR063-AVA-WO01 | Content-Modification System with Broadcast Schedule Utilization Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/042990 | 7/22/2020 | WO2021016303 | 1/28/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR064-AVA-TW01 | Content-Modification System with Broadcast Schedule Utilization Feature | Taiwan | Application | 109124820.0 | 7/22/2020 | 202106039 | 2/1/2021 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR064-AVA-US02 | Content Modification System with Broadcast Schedule Utilization Feature | United States of America | Application | 16/934,974 | 7/21/2020 | US-2021-0029399-A1 | 1/28/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR064-AVA-WO01 | Content-Modification System with Broadcast Schedule Utilization Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/042906 | 7/21/2020 | WO2021016255 | 1/28/21 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR067-AVA-TW01 | Content-Modification System with Broadcast Schedule Utilization Feature | Taiwan | Application | 109128205.0 | 8/19/2020 | 202110200 | 3/1/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR067-AVA-US04 | Content Modification System with Broadcast Schedule Utilization Feature | United States of America | Application | 16/996,701 | 8/18/2020 | US-2021-0058674-A1 | 2/25/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR067-AVA-WO01 | Content-Modification System with Broadcast Schedule Utilization Feature | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/048922 | 8/19/2020 | WO2021034892 | 2/25/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR068-AVA-TW01 | Use of In-Band Metadata as Basis to Access Reference Fingerprints to Facilitate Content-Related Action | Taiwan | Application | 109131270.0 | 9/11/2020 | 202114432 | 4/1/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR068-AVA-US02 | Use of In-Band Metadata as Basis to Access Reference Fingerprints to Facilitate Content-Related Action | United States of America | Application | 15/929,210 | 1/28/2020 | US-2021-0084091-A1 | 3/18/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR068-AVA-WO01 | Use of In-Band Metadata as Basis to Access Reference Fingerprints to Facilitate Content-Related Action | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/049374 | 9/4/2020 | WO2021050376 | 3/18/2021 | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|---------------------------|--------------------------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR069-AVA-TW01 | Method and System for Re-Uniting Metadata with Media-Stream Content at a Media Client, to Facilitate Action by the Media Client | Taiwan | Application | 109131266.0 | 9/11/2020 | 202114434 | 4/1/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR069-AVA-US02 | Method and System for Re-Uniting Metadata with Media-Stream Content at a Media Client, to Facilitate Action by the Media Client | United States of America | Application | 15/929,211 | 1/28/2020 | US-2021-0084345-A1 | 3/18/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR069-AVA-WO01 | Method and System for Re-Uniting Metadata with Media-Stream Content at a Media Client, to Facilitate Action by the Media Client | Patent Cooperation Treaty | within 30 months of PCT filing | PCT/US2020/049362 | 9/4/2020 | WO2021050374 | 3/18/2021 | N/A | N/A | Sorenson |
| Roku, Inc. | SOR070-AVA-US01 | Content-Modification System With Feature For Managing Multiple Content-Modification Requests | United States of America | Application | 17/146,569 | 1/12/2021 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR073-AVA-US01 | Real-time Guaranteed Campaign Delivery Optimization Using Broadcast Schedules And Historic Viewing Data | United States of America | Application | 63/056,988 | 7/27/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR073-AVA-US02 | Real-time Guaranteed Campaign Delivery Optimization Using Broadcast Schedules and Historic Viewing Data | United States of America | Application | 17/089,930 | 11/5/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR074-AVA-US01 | Advertising Campaign To Viewing Device Suitability Matching | United States of America | Application | 63/059,118 | 7/30/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR074-AVA-US02 | Advertising Campaign to Viewing Device Suitability Matching | United States of America | Application | 17/115,363 | 12/8/2020 | N/A | N/A | N/A | N/A | Sorenson |

| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|--|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|----------|
| Roku, Inc. | SOR076-AVA-US01 | Automated Replacement of Unwanted and Unethical Adverts in Linear TV Streams | United States of America | Application | 63/198,593 | 10/29/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR077-AVA-US01 | Replacement Advertising Selection Using Viewer Switching Behavior And Pay Points | United States of America | Application | 63/053,998 | 7/20/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR077-AVA-US02 | Replacement Advertising Selection Using Viewer Switching Behavior and Pay Points | United States of America | Application | 17/076,404 | 10/21/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR078-AVA-US01 | Viewer Retention Through Targeted Advertisements Based On Viewer Behavior | United States of America | Application | 63/056,990 | 7/27/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR078-AVA-US02 | Viewer Retention Through Targeted Advertisements Based on Viewer Behavior | United States of America | Application | 17/096,542 | 11/12/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR079-AVA-US01 | Increasing Advertisement Revenue By Repeated Re-Evaluation Of Value Of Advertisement Spot | United States of America | Application | 63/057,834 | 7/28/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR079-AVA-US02 | Increasing Advertisement Revenue by Repeated Re-Evaluation of Value of Advertisement Spot | United States of America | Application | 17/108,281 | 12/1/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR080-AVA-US01 | Replacement Advertisement Selection After Channel Changes | United States of America | Application | 63/059,119 | 7/30/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR080-AVA-US02 | Replacement Advertisement Selection After Channel Changes | United States of America | Application | 17/118,400 | 12/10/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR081-AVA-US01 | Adjustment of Supplemental Content Duration to Avoid Pauses in Consecutive Content-Modification Operations | United States of America | Application | 63/198,595 | 10/29/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR082-AVA-US01 | Adjustment of Supplemental Content Duration to Avoid Flash Frames | United States of America | Application | 63/198,596 | 10/29/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR083-AVA-US01 | Using Multiple Video Buffers to Increase Success Rate of Content-Modification Operations | United States of America | Application | 63/198,594 | 10/29/2020 | N/A | N/A | N/A | N/A | Sorenson |

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| Roku, Inc. | SOR084-AVA-US01 | Content-Modification System With Multiple Video Buffers Feature | United States of America | Application | 16/951,180 | 11/18/2020 | N/A | N/A | N/A | N/A | Sorenson |
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| Grantors | Patent Reference | Application Title | Country | Record Status | Application Number | Application Filing Date | Publication Number | Publication Date | Patent Number | Issue Date | Source |
|------------|------------------|---|--------------------------|---------------|--------------------|-------------------------|--------------------|------------------|---------------|------------|------------|
| Roku, Inc. | SOR085-AVA-US01 | Content-Modification System With Content Segment Frequency Feature | United States of America | Application | 63/119,225 | 11/30/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR086-AVA-US01 | Server-side Matching of Supplemental Content Audio to Perceived Audio by End-user | United States of America | Application | 63/117,670 | 11/24/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | SOR091-AVA-US01 | Content-Modification System | United States of America | Application | 63/082,892 | 9/24/2020 | N/A | N/A | N/A | N/A | Sorenson |
| Roku, Inc. | | Method and System for Remotely Controlling Consumer Electronic | United States of America | Application | 16/942,711 | 7/29/2020 | US-2020-0366945-A1 | 2020-11-19 | N/A | N/A | Gracenothe |
| Roku, Inc. | | Computing System with Channel-Change-Based Trigger Feature | United States of America | Application | 17/175,788 | 2/15/2021 | N/A | N/A | N/A | N/A | Gracenothe |
| Roku, Inc. | | Displaying an Actionable Element Over Playing Content | United States of America | Application | 17/190,859 | 3/3/2021 | N/A | N/A | N/A | N/A | Gracenothe |
| Roku, Inc. | | Displaying an Actionable Element Over Playing Content | United States of America | Application | 17/190,870 | 3/3/2021 | N/A | N/A | N/A | N/A | Gracenothe |
| Roku, Inc. | | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | Application | 17/196,762 | 3/9/2021 | N/A | N/A | N/A | N/A | Gracenothe |
| Roku, Inc. | | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | United States of America | Application | 17/213,921 | 3/26/2021 | N/A | N/A | N/A | N/A | Gracenothe |
| Roku, Inc. | | Content-Modification System with Broadcast Schedule Utilization Feature | United States of America | Application | PCT/US2020/042990 | 7/22/2020 | WO2021016303 | 1/28/2021 | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Feature for Detecting and Responding to a Content Modification by a Tuner Device | United States of America | Application | PCT/US2021/018974 | 2/22/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Feature for Detecting And Responding to a Content Modification by a Tuner Device | United States of America | Application | PCT/US2021/018995 | 2/22/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Criteria Verification to Facilitate Providing of Highest Cost Per Mile (Cpm) Overlays to Client Devices | United States of America | Application | 16/928,765 | 7/14/2020 | US-2020-0344523-A1 | 10/29/2020 | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Feature for Detecting and Responding to a Content Modification by a Tuner Device | United States of America | Application | 17/162,299 | 1/29/2021 | N/A | N/A | N/A | N/A | Nielsen |

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| Roku, Inc. | | Content-Modification System with Feature for Detecting and Responding to a Content Modification by a Tuner Device | United States of America | Application | 17/162,310 | 1/29/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Feature for Detecting and Responding to a Content Modification by a Tuner Devices | United States of America | Application | 17/162,490 | 1/29/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 17/180,213 | 2/19/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 17/180,231 | 2/19/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 17/180,242 | 2/19/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 17/180,263 | 2/19/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Jitter Effect Mitigation Feature | United States of America | Application | 17/180,289 | 2/19/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Transmission Delay-Based Feature | United States of America | Application | 17/191,372 | 3/3/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with System Resource Request Feature | United States of America | Application | 17/201,322 | 3/15/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Use of Video Frame Format as Basis for Differential Handling of Automatic Content Recognition and Associated Action | United States of America | Application | 17/208,283 | 3/22/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Advertisement Revenue Optimization and Viewer Retention Features | United States of America | Application | 17/223,223 | 4/6/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Use of Watermarking to Control Abandonment of Dynamic Content Modification | United States of America | Application | 17/301,705 | 4/12/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System With Advertisement Reconciliation Feature | United States of America | Application | 63/148,219 | 2/11/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Feature for Exposing Multiple Devices in a Household to The Same Advertisement | United States of America | Application | 63/148,220 | 2/11/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Feature for Controlling Viewer Exposure to Spoilers in Advertisements | United States of America | Application | 63/148,221 | 2/11/2021 | N/A | N/A | N/A | N/A | Nielsen |

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|------------|---------------|--|--------------------------|-------------|----------------|-----------|--------------------|-----------|-----|-----|---------|
| Roku, Inc. | | Content-Modification System with Advertisement Revenue Optimization and Viewer Retention Features | United States of America | Application | 63/148,223 | 2/11/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Volume-Level Detection Feature | United States of America | Application | 63/148,268 | 2/11/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content Modification System with Viewer Behavior-Based Content Delivery Selection Feature | United States of America | Application | 63/148,568 | 2/11/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content Modification System with Prioritized Content Delivery Feature | United States of America | Application | 63/148,575 | 2/11/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with User Experience Analysis Feature | United States of America | Application | 63/148,582 | 2/11/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Household Coordination Feature | United States of America | Application | 63/149,532 | 2/15/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Quiet Content Detection Feature | United States of America | Application | 63/150,490 | 2/17/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Content-Modification System with Feature for Prioritizing Channels Used in Channel Identification | United States of America | Application | 63/166,052 | 3/25/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Use of Scte Data to Facilitate Ad Harvesting for Dynamic Ad Replacement | United States of America | Application | 63/200,090 | 2/12/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Centralized Application of Policy Rules to Dynamically Define Ad-Inventories for Dynamic Ad Replacement | United States of America | Application | 63/200,092 | 2/12/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | | Use of Scte Data to Correct Schedule Drift | United States of America | Application | 63/200,093 | 2/12/2021 | N/A | N/A | N/A | N/A | Nielsen |
| Roku, Inc. | 16-197-CON4 | Media Channel Identification and Action with Multi-Match Detection Based on Reference Stream Comparison | United States of America | Application | 17/248,352 | 1/21/2021 | US-2021-0144435-A1 | 5/13/2021 | N/A | N/A | |
| Roku, Inc. | 18-1020-WO-CN | Modifying Playback of Replacement Content Based on Control Messages | China | Application | 201980047554.8 | 1/15/2021 | CN112514409A | 3/16/2021 | N/A | N/A | |
| Roku, Inc. | 18-1018-WO-CN | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals that Modify Operation of the Playback Device | China | Application | 201980047223.4 | 1/14/2021 | CN112470486A | 3/9/2021 | N/A | N/A | |
| Roku, Inc. | 18-1019-WO-CN | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | China | Application | 201980047693.0 | 1/15/2021 | CN112425182A | 2/26/2021 | N/A | N/A | |

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| Roku, Inc. | 19-247-EP-HK | Flagging Advertisement Frames for Automatic Content Recognition | Hong Kong | Application | 62021024068.0 | 1/21/2021 | 40033929 | 4/16/2021 | N/A | N/A | |
| Roku, Inc. | 19-246-EP-HK | Cold Matching by Automatic Content Recognition | Hong Kong | Application | 62021024067.2 | 1/21/2021 | 40033928 | 4/16/2021 | N/A | N/A | |
| Roku, Inc. | 16-195-EP-DIV | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | European Patent | Application | 21152181.0 | 1/18/2021 | 3829181 | 6/2/2021 | N/A | N/A | |
| Roku, Inc. | 16-214-EP-DIV | Method and System for Detecting and Responding to Changing of Media Channel | European Patent | Application | 20216175.8 | 12/21/2021 | 3829179 | 6/2/2021 | N/A | N/A | |
| Roku, Inc. | 18-1020-WO-EP | Modifying Playback of Replacement Content Based on Control Messages | European Patent | Application | 19838621.1 | 2/18/2021 | 3824648 | 5/26/2021 | N/A | N/A | |
| Roku, Inc. | 18-1019-WO-EP | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | European Patent | Application | 19838103.0 | 2/18/2021 | 3824647 | 5/26/2021 | N/A | N/A | |
| Roku, Inc. | 18-1018-WO-EP | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals that Modify Operation of the Playback Device | European Patent | Application | 19838101.4 | 2/15/2021 | 3824646 | 5/26/2021 | N/A | N/A | |
| Roku, Inc. | 18-1017-WO-EP | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | European Patent | Application | 19838757.3 | 2/15/2021 | 3824642 | 5/26/2021 | N/A | N/A | |
| Roku, Inc. | 18-1227-WO-EP | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | European Patent | Application | 19837362.3 | 2/15/2021 | 3824641 | 5/26/2021 | N/A | N/A | |
| Roku, Inc. | 18-1051-WO-EP | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | European Patent | Application | 19837119.7 | 2/18/2021 | 3824640 | 5/26/2021 | N/A | N/A | |
| Roku, Inc. | 18-1050-WO-EP | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | European Patent | Application | 19838379.6 | 2/18/2021 | 3824638 | 5/26/2021 | N/A | N/A | |
| Roku, Inc. | 19-229-GB-DIV | Dynamic Video Advertisement Replacement | United Kingdom | Application | 2019630.9 | 8/16/2016 | 2588048 | 4/14/2021 | N/A | N/A | |
| Roku, Inc. | 19-239-JP-DIV2 | Automatic Recognition Fingerprint Sequence Matching | Japan | Application | 2020-218559 | 12/28/2020 | 2021-064960 | 4/22/2021 | N/A | N/A | |
| Roku, Inc. | 16-006-KR-DIV3 | Computing System with Channel-Change-Based Trigger Feature | Korea, Republic of (KR) | Application | 2021-7002549 | 1/5/2017 | N/A | N/A | N/A | N/A | |
| Roku, Inc. | 16-1850-KR-DIV3 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | Granted | 2021-7000757 | 1/11/2021 | N/A | N/A | 2246597 | | 4/26/2021 |
| Roku, Inc. | 16-1850-KR-DIV4 | Computing System with Content-Characteristic-Based Trigger Feature | Korea, Republic of (KR) | Application | 2021-7012397 | 4/26/2021 | N/A | N/A | N/A | N/A | |

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| Roku, Inc. | 16-190-CON4 | Media Channel Identification and Action with Multi-Media Detection and Disambiguation Based on Matching with Differential Reference-Fingerprint Feature | United States of America | Application | 17/249,107 | 2/19/2021 | US-2021-0176523-A1 | 6/10/2021 | N/A | N/A | | |
| Roku, Inc. | 16-194-CON5 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Location | United States of America | Application | 17/301,787 | 4/14/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 16-195-CON4 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | United States of America | Application | 17/301,825 | 4/15/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 16-195-JP-DIV2 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Single-Match | Japan | Application | 2021-021605 | 2/15/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 16-196-JP-DIV2 | Media Channel Identification with Multi-Match Detection and Disambiguation Based on Time of Broadcast | Japan | Application | 2021-025105 | 2/28/2017 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 16-214-JP-DIV2 | Method and System for Detecting and Responding to Changing of Media Channel | Japan | Application | 2021-067530 | 2/28/2017 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 17-129-CON2 | Detecting and Responding to Rendering of Interactive Video Content | United States of America | Application | 17/249,318 | 2/26/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 17-129-KR-DIV | Detecting and Responding to Rendering of Interactive Video Content | Korea, Republic of (KR) | Application | 2021-7011026 | 4/14/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 17-383-KR-DIV3 | Authorizing Devices Based on Identifying Content Distributor | Korea, Republic of (KR) | Application | 2021-7014280 | 5/12/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 17-392-KR-DIV3 | Dynamic Video Overlays | Korea, Republic of (KR) | Application | 2021-7006944 | 3/8/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 18-1017-TW-DIV2 | CDynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | Taiwan | Application | 110113406 | 4/14/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 18-1017-WO-JP | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Japan | Application | 2021-502404 | 1/15/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 18-1017-WO-KR | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Playback Content | Korea, Republic of (KR) | Application | 2021-7004195 | 2/10/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 18-1018-WO-JP | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals that Modify Operation of the Playback Device | Japan | Application | 2021-502622 | 1/15/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 18-1018-WO-KR | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals that Modify Operation of the Playback Device | Korea, Republic of (KR) | Application | 2021-7004194 | 2/10/2021 | N/A | N/A | N/A | N/A | | |
| Roku, Inc. | 18-1019-TW-DIV | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | Taiwan | Application | 110114901 | 4/26/2021 | N/A | N/A | N/A | N/A | | |

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| Roku, Inc. | 18-1019-WO-JP | Modifying Playback of Replacement Content Responsive to Detection of Remote Control Signals That Control a Device Providing Video to the Playback Device | Japan | Application | 2021-503047 | 1/19/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1019-WO-KR | 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) | Application | 2021-7004196 | 2/10/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1020-WO-JP | Modifying Playback of Replacement Content Based on Control Messages | Japan | Application | 2021-503046 | 1/19/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1020-WO-KR | Modifying Playback of Replacement Content Based on Control Messages | Korea, Republic of (KR) | Application | 2021-7004197 | 2/10/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1050-TW-DIV | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Taiwan | Application | 110103493 | 1/29/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1050-WO-JP | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Japan | Application | 2021-502952 | 1/19/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1050-WO-KR | Advanced Preparation for Content Revision Based on Expected Latency in Obtaining New Content | Korea, Republic of (KR) | Application | 2021-7004200 | 2/10/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1051-WO-JP | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Japan | Application | 2021-502961 | 1/19/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1051-WO-KR | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Korea, Republic of (KR) | Application | 2021-7004201 | 2/10/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1165-WO-EP | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | European Patent | Application | 19849629.1 | 3/15/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1165-WO-KR | Dynamic Playout of Transition Frames while Transitioning Between Playout of Media Streams | Korea, Republic of (KR) | Application | 2021-7006327 | 3/2/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1166-WO-KR | Dynamic Reduction in Playout of Replacement Content to Help Align End of Replacement Content with End of Replaced Content | Korea, Republic of (KR) | Application | 2021-7006324 | 3/2/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1225-WO-EP | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | European Patent | Application | 19838759.9 | 6/7/2019 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1225-WO-JP | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | Japan | Application | 2021-502405 | 1/15/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1225-WO-KR | Dynamic Control of Fingerprinting Rate to Facilitate Time-Accurate Revision of Media Content | Korea, Republic of (KR) | Application | 2021-7004198 | 2/10/2021 | N/A | N/A | N/A | N/A |

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| Roku, Inc. | 18-1227-US-CON2 | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | United States of America | Application | 17/302,720 | 5/11/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1227-WO-JP | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Japan | Application | 2021-503012 | 1/19/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1227-WO-KR | Establishment and Use of Time Mapping Based on Interpolation Using Low-Rate Fingerprinting, to Help Facilitate Frame-Accurate Content Revision | Korea, Republic of (KR) | Application | 2021-7004199 | 2/10/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1866-TW-DIV | DETECTION OF MEDIA PLAYBACK LOUDNESS LEVEL AND CORRESPONDING ADJUSTMENT TO AUDIO DURING MEDIA REPLACEMENT EVENT | Taiwan | Application | 110107028 | 2/26/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 18-1866-US2-CON | Monitoring Loudness Level During Media Replacement Event Using Shorter Time Constant | United States of America | Application | 17/325,075 | 5/19/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-225-EP-DIV | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | European Patent | Application | 21151892.3 | 1/15/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-225-JP-DIV2 | Detecting Channel Change in Automatic Content Recognition Fingerprint Matching | Japan | Application | 2021-035979 | 5/26/2016 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-231-CN-DIV | Media Content Matching and Indexing | China | Application | 202110191670.6 | 2/19/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-232-CN-DIV1 | Flagging Advertisement Frames for Automatic Content Recognition | China | Application | 202110164240.5 | 2/5/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-232-CN-DIV2 | Flagging Advertisement Frames for Automatic Content Recognition | China | Application | 202110163371.1 | 2/5/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-232-GB-DIV | Digital Overlay Offers on Connected Media Devices | United Kingdom | Application | 2101328.9 | 2/1/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-232-GB-DIV2 | Digital Overlay Offers on Connected Media Devices | United Kingdom | Application | 2106444.9 | 5/6/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-244-KR-DIV2 | Enabling Interactive Control of Live Television Broadcast Streams | Korea, Republic of (KR) | Application | 2021-7007089 | 3/9/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-246-AU-DIV | Cold Matching by Automatic Content Recognition | Australia | Application | 2021201776 | 3/22/2021 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 19-247-AU-DIV | Flagging Advertisement Frames for Automatic Content Recognition | Australia | Application | 2020289863 | 12/18/2020 | N/A | N/A | N/A | N/A |
| Roku, Inc. | 20-333-WO3 | Content-Modification System With Feature For Detecting And Responding To Content Modifications By Tuner | Patent Cooperation Treaty | Application | PCT/US2021/018997 | 2/22/2021 | N/A | N/A | N/A | N/A |

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| | | Devices | | | | | | | | | |
| Roku, Inc. | 21-0202-US | Content Modification System With Viewer Behavior-Based Content Delivery Selection Feature | United States of America | Applicati on | 17/229117 | 4/13/2021 | N/A | N/A | N/A | N/A | |
| Roku, Inc. | 21-0205-US | Content-Modification System with Feature For Controlling Viewer Exposure To Spoilers In Advertisements | United States of America | Applicati on | 17/228850 | 4/13/2021 | N/A | N/A | N/A | N/A | |
| Roku, Inc. | 21-0208-US | Content Modification System with Viewer Behavior-Based Content Delivery Selection Feature | United States of America | Applicati on | 17/229129 | 4/13/2021 | N/A | N/A | N/A | N/A | |

SCHEDULE I TO
TERMINATION AND RELEASE OF INTELLECTUAL PROPERTY SECURITY
AGREEMENT




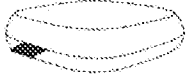

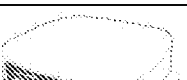

TRADEMARKS

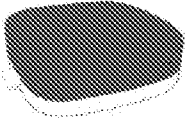




REEL/FRAME: 6575/0087

Trademark Registrations/Applications

UNITED STATES TRADEMARKS:

Registrations:

| Trademark Name | Owner | Class | App. Number | Reg. Number | Filing Date | Reg. Date |
|---|------------|---------------|-------------|-------------|-------------|------------|
|  | Roku, Inc. | 9, 38, 41, 42 | 86347739 | 5151588 | 7/25/2014 | 2/28/2017 |
|  | Roku, Inc. | 9, 38, 41, 42 | 86347740 | 4937515 | 7/25/2014 | 4/12/2016 |
|  | Roku, Inc. | 9, 38, 41, 42 | 86347736 | 4937514 | 7/25/2014 | 4/12/2016 |
| ROKU | Roku, Inc. | 9, 38, 41, 42 | 86347734 | 4937513 | 7/25/2014 | 4/12/2016 |
|  | Roku, Inc. | 9 | 86372743 | 4843920 | 8/20/2014 | 11/3/2015 |
|  | Roku, Inc. | 9 | 86372745 | 4839473 | 8/20/2014 | 10/27/2015 |
| STREAMING STICK | Roku, Inc. | 9, 28 | 86282756 | 4618984 | 5/15/2014 | 10/7/2014 |
|  | Roku, Inc. | 9 | 85691596 | 4329666 | 7/31/2012 | 4/30/2013 |
|  | Roku, Inc. | 9 | 85690425 | 4336488 | 7/30/2012 | 5/14/2013 |

| Trademark Name | Owner | Class | App. Number | Reg. Number | Filing Date | Reg. Date |
|--|--------------|-------|-------------|-------------|-------------|------------|
|  | Roku, Inc. | 9 | 85688053 | 4329664 | 7/26/2012 | 4/30/2013 |
|  | Roku, Inc. | 9 | 85688052 | 4329663 | 7/26/2012 | 4/30/2013 |
|  | Roku, Inc. | 9 | 85671642 | 4314899 | 7/9/2012 | 4/2/2013 |
|  | Roku, Inc. | 9 | 85660716 | 4286059 | 6/25/2012 | 2/5/2013 |
|  | Roku, Inc. | 9 | 85660714 | 4286058 | 6/25/2012 | 2/5/2013 |
| ROKU READY | Roku, Inc. | 9 | 85659333 | 4318939 | 6/22/2012 | 4/9/2013 |
| ROKU | Roku, L.L.C. | 9 | 78279128 | 3177666 | 7/25/2003 | 11/28/2006 |

Applications:

| Trademark Name | Owner | Class | App. Number | Filing Date |
|-------------------|------------|-------|-------------|-------------|
| ROKU | Roku, Inc. | 9 | 88039902 | 7/16/2018 |
| ROKU TOUCH | Roku, Inc. | 9 | 88039898 | 7/16/2018 |

REEL/FRAME: 6816/0570

Trademark Registrations/Applications

| Grantor | Mark | Application/ Registration No. | App/Reg Date |
|---------|------|-------------------------------|--------------|
|---------|------|-------------------------------|--------------|

| Grantor | Mark | Application/ Registration No. | App/Reg Date |
|---|--|--------------------------------------|---------------------|
| Roku, Inc. | ROKU | 88039902 | 10/15/2019 |
| Roku, Inc. | ROKU TOUCH | 88039898 | 10/15/2019 |
| Roku, Inc. (pending recordation of assignment from Giraffie Technologies Ltd.) | AVA | 1263330 | 2/9/2016 |
| Roku, Inc. (pending recordation of assignment from Giraffie Technologies Ltd.) | 4KVA | 1288156 | 7/5/2016 |
| Roku DX Holdings, Inc. | POWERED BY DATA. INSPIRED BY YOU | 87669968 | 6/5/2018 |
| Roku DX Holdings, Inc. | CLEAR SIGHT | 87554793 | 3/6/2018 |
| Roku DX Holdings, Inc. | DATA XU DATA. INSIGHT. ACTION. | 86887936 | 8/1/2017 |
| Roku DX Holdings, Inc. | ACTIVE ANALYTICS | 86416779 | 5/19/2015 |
| Roku DX Holdings, Inc. | DATA.INSIGHT.ACTION. | 85839420 | 9/17/2013 |
| Roku DX Holdings, Inc. | DATA XU | 77788458 | 3/2/2010 |
| Roku, Inc. | ROKU READY | 88432598 | 5/15/2019 |
| Roku, Inc. | Purple Housing (top of device) Design Mark | 88432600 | 5/15/2019 |
| Roku, Inc. | Purple Housing (bottom of device) Design Mark | 88432602 | 5/15/2019 |
| Roku, Inc. | Purple Housing (entire device) Design Mark | 88432599 | 5/15/2019 |
| Roku, Inc. | D-Pad Design Mark | 88434630 | 5/17/2019 |
| Roku DX Holdings, Inc. | TOTAL TV SYNC | 88567884 | 8/6/2019 |
| Roku DX Holdings, Inc. | ONEVIEW | 88079210 | 8/15/2018 |

REEL/FRAME: 7184/0863

Trademark Registrations/Applications

| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|----------------|--------------|-------------------------------|---------------|
| | | | | |

| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|-----------------------------|--|-----------------------------------|---------------|
| QUIBI Serial No: 88/112,870 Reg. No. 6,075,674 | United States of America | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 1968837 Reg. No. 1968837 | Australia | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 1930532 Reg. No. | Canada | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: 2018121596 Reg. No. 2018121596 | Turkey | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 3784128 Reg. No. Pending | Argentina | Class 09 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: 3784129 Reg. No. Pending | Argentina | Class 41 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: 916887413 Reg. No. 916887413 | Brazil | Class 09 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 916887448 Reg. No. 916887448 | Brazil | Class 38 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 916887561 Reg. No. 916887561 | Brazil | Class 41 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 916887618 Reg. No. 916887618 | Brazil | Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 1316863 Reg. No. 1310630 | Chile | Class 09 Class 41 | Quibi Holdings LLC | Registered |







| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|----------------|--|-------------------------------|--|
| QUIBI Serial No: 36737001 Reg. No. | China | Class 09 | Quibi Holdings LLC | Pending Opposition filed by Dragon Entertainment Media Invalidation Action filed against application for QUIBI in the name of Dragon Entertainment Media on 01/17/2020 |
| QUIBI Serial No: 36737000 Reg. No. 36737000 | China | Class 38 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 36736999 Reg. No. | China | Class 41 | Quibi Holdings LLC | Pending Opposition filed by Dragon Entertainment Media Invalidation Action filed against application for QUIBI in the name of Dragon Entertainment Media on 01/17/2020 |
| QUIBI Serial No: 36736998 Reg. No. 36736998 | China | Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 304852189 Reg. No. 304852189 | Hong Kong | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 2019008080 Reg. No. | Malaysia | Class 09 | Quibi Holdings LLC | Refused on the basis of lack of distinctiveness; Response to office action filed; examination pending |
| QUIBI Serial No: 2019008081 Reg. No. | Malaysia | Class 38 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: 2019008082 Reg. No. | Malaysia | Class 41 | Quibi Holdings LLC | Refused on the basis of lack of distinctiveness; Response to office action filed; examination pending |




| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|----------------------|--|-----------------------------------|---------------|
| QUIBI Serial No: 2019008083 Reg. No. | Malaysia | Class 42 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: 788463 Reg. No. 24053 | Peru | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 184135 Reg. No: 1440023509 | Saudi Arabia | Class 09 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 184136 Reg. No: 1440023510 | Saudi Arabia | Class 41 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 108013828 Reg. No. 2012796 | Taiwan | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 311069 Reg. No. 311069 | United Arab Emirates | Class 09 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 311070 Reg. No. 311070 | United Arab Emirates | Class 41 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: 201906268 Reg. No. Pending | South Africa | Class 09 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: 201906269 Reg. No. Pending | South Africa | Class 41 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: FTM2019145332 Reg. No. | Nigeria | Class 09 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: FTM2019145333 Reg. No. | Nigeria | Class 41 | Quibi Holdings LLC | Pending |







| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|---|--|-----------------------------------|---------------|
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Madrid Protocol Switzerland Colombia Egypt European Union Indonesia Israel India Iceland Republic of Korea Mexico Norway New Zealand African Intellectual Property Organisation Philippines Russian Federation Singapore Thailand Turkey See specific country below for current status. | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. | Colombia | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: IR1476360 Reg. No. | Egypt | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | European Union | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Iceland | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |




| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|--------------------|--|-----------------------------------|---------------------|
| QUIBI Serial No: IR1476360 Reg. No: IR1476360 | India | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Indonesia | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Israel | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Japan | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Abandonment pending |
| QUIBI Serial No: IR1476360 Reg. No. | Mexico | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | New Zealand | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Norway | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. | Republic of Korea | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Russian Federation | Class 38 Class 41 | Quibi Holdings LLC | Registered |







| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|--|--|--|------------------------|------------|
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Singapore | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Switzerland | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. | Thailand | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: IR1476360 Reg. No. | Turkey | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | African Intellectual Property Organisation | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| QUIBI Serial No: IR1476360 Reg. No. IR1476360 | Philippines | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| Q QUIBI (STYLIZED) Serial No: 88/207,188 Reg. No. 6,081,050  | United States of America | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 88/207,233 Reg. No. 6,081,051  | United States of America | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Registered |







| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|-----------|----------------------|------------------------|------------|
| Q (STYLIZED) Serial No: 1962111 Reg. No.  | Canada | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 3801096 Reg. No. Pending  | Argentina | Class 09 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 3801097 Reg. No. Pending  | Argentina | Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 917289862 Reg. No. 917289862  | Brazil | Class 09 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 917289927 Reg. No. 917289927  | Brazil | Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 1323916 Reg. No. 1324590  | Chile | Class 09 Class 41 | Quibi Holdings LLC | Registered |







| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|----------------|----------------------|-----------------------------------|---------------|
| Q (STYLIZED) Serial No: 304918780 Reg. No. 304918780  | Hong Kong | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 2019017515 Reg. No. Pending  | Malaysia | Class 09 | Quibi Holdings LLC | Pending |
| Q (STYLIZED) Serial No: 2019017517 Reg. No: Pending  | Malaysia | Class 41 | Quibi Holdings LLC | Pending |
| Q (STYLIZED) Serial No: 796778 Reg. No. 24540  | Peru | Class 09 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 184137 Reg. No: 1440023511  | Saudi Arabia | Class 09 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 184138 Reg. No: 1440023512  | Saudi Arabia | Class 41 | Quibi Holdings LLC | Registered |



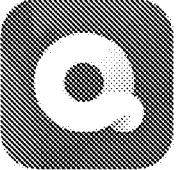
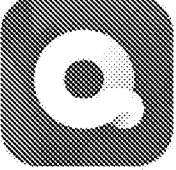
| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|----------------------|----------------------|------------------------|------------|
| Q (STYLIZED) Serial No: 108029534 Reg. No. 2021659  | Taiwan | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 311177 Reg. No. 311177  | United Arab Emirates | Class 09 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 311178 Reg. No. 311178  | United Arab Emirates | Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: 201912884 Reg. No. Pending  | South Africa | Class 09 | Quibi Holdings LLC | Pending |
| Q (STYLIZED) Serial No: 201912885 Reg. No. Pending  | South Africa | Class 41 | Quibi Holdings LLC | Pending |
| Q (STYLIZED) Serial No: FTMO2019149293 Reg. No.  | Nigeria | Class 09 | Quibi Holdings LLC | Pending |

| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|--|----------------------|---------------------------|------------|
| Q (STYLIZED) Serial No: FTMO2019149294 Reg. No.  | Nigeria | Class 41 | Quibi Holdings LLC | Pending |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Madrid Protocol Australia Switzerland China Colombia Egypt European Union Indonesia Israel India Iceland Japan Republic of Korea Mexico Norway New Zealand African Intellectual Property Organisation Philippines Russian Federation Singapore Thailand Turkey See specific country below for current status. | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Australia | Class 09 Class 41 | Quibi Holdings LLC | Registered |

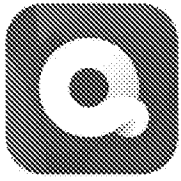


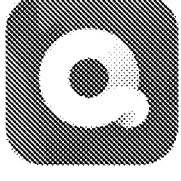
| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|----------------|----------------------|------------------------|--|
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | China | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No.  | European Union | Class 09 Class 41 | Quibi Holdings LLC | Pending Opposition filed by Sky UK Limited Cooling-off period expires: 01/31/2022 |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Colombia | Class Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No.  | Egypt | Class 09 Class 41 | Quibi Holdings LLC | Pending |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Iceland | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | India | Class 09 Class 41 | Quibi Holdings LLC | Registered |

| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|-------------|----------------------|------------------------|--|
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Indonesia | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Israel | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No.  | Japan | Class 09 Class 41 | Quibi Holdings LLC | Examination pending Examiner objected to description of goods/services. Examiner's proposed amendments accepted in amendment filed through WIPO. |
| Q (STYLIZED) Serial No: IR1481328 Reg. No.  | Mexico | Class 09 Class 41 | Quibi Holdings LLC | Examination pending |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | New Zealand | Class 09 Class 41 | Quibi Holdings LLC | Pending |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Norway | Class 09 Class 41 | Quibi Holdings LLC | Registered |

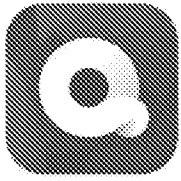


| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|--------------------|----------------------|------------------------|---|
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Republic of Korea | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Russian Federation | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Singapore | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Switzerland | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No.  | Thailand | Class 09 Class 41 | Quibi Holdings LLC | Provisional refusal issued based on a finding that the description of goods and services in Classes 9 and 41 is overly broad and/or vague |
| Q (STYLIZED) Serial No: IR1481328 Reg. No.  | Turkey | Class 09 Class 41 | Quibi Holdings LLC | Designated protection pending |

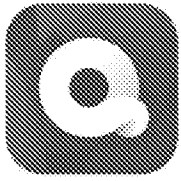


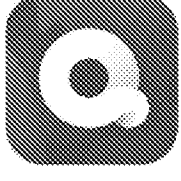
| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|--|--|--|------------------------|------------|
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | African Intellectual Property Organisation | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q (STYLIZED) Serial No: IR1481328 Reg. No. IR1481328  | Philippines | Class 09 Class 41 | Quibi Holdings LLC | Registered |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 88/697,890 Reg. No. 6,126,414  | United States of America | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Registered |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 2012758 Reg. No.  Application pending | Canada | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |

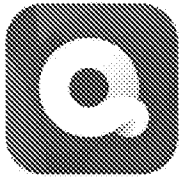


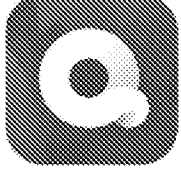
| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|-----------|----------------------------------|---------------------------|---------|
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 3893808 Reg. No.  | Argentina | Class 09 | Quibi Holdings LLC | Pending |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 3893809 Reg. No.  | Argentina | Class 38 | Quibi Holdings LLC | Pending |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 3893810 Reg. No.  | Argentina | Class 41 | Quibi Holdings LLC | Pending |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 305271741 Reg. No:  | Hong Kong | Class 09 Class 38 Class 42 | Quibi Holdings LLC | Pending |

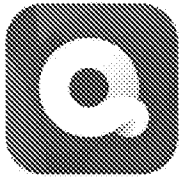


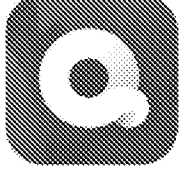
| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|--------------|----------|------------------------|---|
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 229583 Reg. No:</p>  | Saudi Arabia | Class 09 | Quibi Holdings LLC | Refused on basis of likelihood of confusion with registration for Q design owned by Qualcomm. Appeal not filed; abandonment pending |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 229584 Reg. No: 1441025726</p>  | Saudi Arabia | Class 38 | Quibi Holdings LLC | Registered |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 229585 Reg. No: 1441025727</p>  | Saudi Arabia | Class 41 | Quibi Holdings LLC | Registered |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 202010150 Reg. No:</p>  | South Africa | Class 09 | Quibi Holdings LLC | Office action issued requesting association of applications; response due: 02/19/2021 |

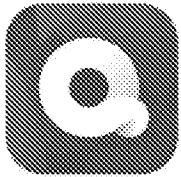
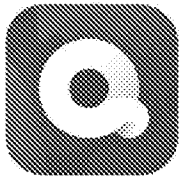

| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|----------------------|----------|------------------------|---|
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 202010151 Reg. No:</p>  | South Africa | Class 38 | Quibi Holdings LLC | Office action issued requesting association of applications; response due: 02/19/2021 |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 202010152 Reg. No:</p>  | South Africa | Class 41 | Quibi Holdings LLC | Office action issued requesting association of applications; response due: 02/19/2021 |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 329810 Reg. No: 329810</p>  | United Arab Emirates | Class 09 | Quibi Holdings LLC | Registered |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 329811 Reg. No: 329811</p>  | United Arab Emirates | Class 38 | Quibi Holdings LLC | Registered |

| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|---|----------------------------------|------------------------|--|
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: 329812 Reg. No: 329812  | United Arab Emirates | Class 41 | Quibi Holdings LLC | Registered |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No: IR1544115  | Madrid Protocol Australia Brazil Switzerland China European Union Indonesia Israel India Mexico Malaysia Norway New Zealand Philippines Russian Federation Singapore Thailand See specific country below for current status. | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Registered |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:  | Australia | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Application published for opposition; opposition period expired 12/30/2020 |

| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|----------------|----------------------------------|------------------------|--|
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:</p>  | Brazil | Class 09 Class 38 Class 41 | Quibi Holdings LLC | |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No: IR1544115</p>  | China | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Registered |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:</p>  | European Union | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Pending |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:</p>  | India | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Provisional refusal on basis of likelihood of confusion with existing Q design registrations. Response to provisional refusal filed; examination pending |

| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|-----------|----------------------------------|------------------------|---|
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:</p>  | Indonesia | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Pending |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:</p>  | Israel | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Application published for opposition; opposition period expires: 02/28/2021 |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:</p>  | Malaysia | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Pending |
| <p>Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:</p>  | Mexico | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Pending |


| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|--------------------|----------------------------------|------------------------|--|
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:  | New Zealand | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Pending |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:  | Norway | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Pending |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:  | Philippines | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Provisional refusal issued on basis of likelihood of confusion with existing registration for Q design owned by Salesforce; response due: 02/15/2021 |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No: IR1544115  | Russian Federation | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Registered |



| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|---|--------------------------|--|------------------------|---|
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:  | Singapore | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Partial provisional refusal issued relating to description of goods/services; amendment filed to address refusal |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:  | Switzerland | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Pending |
| Q STYLIZED IN PURPLE SQUARE DESIGN Serial No: IR1544115 Reg. No:  | Thailand | Class 09 Class 38 Class 41 | Quibi Holdings LLC | Pending |
| QUICK BITES Serial No: 88/771,522 Reg. No. | United States of America | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Suspended Advisory issued on basis of likelihood of confusion with pending application for QUICKBITES owned by Pauline Altman. Opposition to Altman's mark is pending. |






| Mark/Serial Number/Registration Number | Country | Class | Registrant / Applicant | Status |
|--|--------------------------|--|------------------------|--|
| QUICK BITES Serial No: 2012799 Reg. No. | Canada | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |
| QUICK BITES BIG STORIES Serial No: 88/771,507 Reg. No. | United States of America | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Suspended Advisory issued on basis of likelihood of confusion with pending application for QUICKBITES owned by Pauline Altman. Opposition to Altman's mark is pending. |
| QUICK BITES BIG STORIES Serial No: 2012839 Reg. No. | Canada | Class 09 Class 38 Class 41 Class 42 | Quibi Holdings LLC | Pending |





REEL/FRAME: 7260/0641

Trademark Registrations/Applications

| Owner | Trademark | Country | Application No. | Registration No. | Registration Date | Int. Classes | Trademark Status |
|------------------------------|---|--------------------------|-----------------|------------------|-------------------|-----------------|------------------|
| This Old House Ventures, LLC |  | United States of America | 75050758 | 2088753 | Aug 19 1997 | 16 | Registered |
| This Old House Ventures, LLC | ASK THIS OLD HOUSE | United States of America | 76449571 | 2841226 | May 11 2004 | 41 | Registered |
| This Old House Ventures, LLC | BUILD YOUR DREAM, DO IT RIGHT | United States of America | 87193430 | 5656267 | Jan 15 2019 | 16 | Registered |
| This Old House Ventures, | BUILD YOUR DREAM, DO | United States of | 87977773 | 5671574 | Feb 5 2019 | 35, 37, 38, 41, | Registered |

| | | | | | | | |
|------------------------------|---|--------------------------|---------------|---------------|-------------|--------------------------|------------|
| LLC | IT RIGHT | America | | | | 42, 44 | |
| This Old House Ventures, LLC | HOUSE ONE | Canada | 1830875 | TMA1071909 | Feb 6 2020 | 9, 16, 35, 37, 38, 41 | Registered |
| This Old House Ventures, LLC | HOUSE ONE | EU | 016548596 | | | 9, 16, 35, 37, 38, 41 | Pending |
| This Old House Ventures, LLC | HOUSE ONE | United States of America | 87978927 | 5789397 | Jun 25 2019 | 35, 37, 38, 41, 42, 44 | Registered |
| This Old House Ventures, LLC | HOUSE ONE | United States of America | 90241605 | | | 41 | Pending |
| This Old House Ventures, LLC | THIS OLD HOUSE | Canada | 0772080 | TMA465118 | Oct 25 1996 | | Registered |
| This Old House Ventures, LLC | THIS OLD HOUSE | Canada | 0804584 | TMA507711 | Feb 8 1999 | 8, 9, 16, 21, 25, 41, 42 | Registered |
| This Old House Ventures, LLC |  | EU | 016601353 | 016601353 | Sep 29 2017 | 9, 16, 35, 37, 38, 41 | Registered |
| This Old House Ventures, LLC |  | United Kingdom | UK00916601353 | UK00916601353 | Sep 29 2017 | 9, 16, 35, 37, 38, 41 | Registered |
| This Old House Ventures, LLC | THIS OLD HOUSE | United States of America | 74583909 | 1992003 | Aug 6 1996 | 16 | Registered |
| This Old House Ventures, LLC | THIS OLD HOUSE | United States of America | 75050759 | 2019384 | Nov 26 1996 | 16 | Registered |
| This Old House | THIS OLD | United States of | 76417092 | 2693188 | Mar 4 2003 | 25 | Registered |

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|------------------------------|---|--------------------------|---------------|---------------|-------------|-----------------------------------|------------|
| Ventures, LLC | HOUSE | America | | | | | |
| This Old House Ventures, LLC | THIS OLD HOUSE | United States of America | 77470201 | 3553590 | Dec 30 2008 | 9 | Registered |
| This Old House Ventures, LLC | THIS OLD HOUSE | United States of America | 78753407 | 3145567 | Sep 19 2006 | 37 | Registered |
| This Old House Ventures, LLC | THIS OLD HOUSE | United States of America | 85408214 | 4227312 | Oct 16 2012 | 9 | Registered |
| This Old House Ventures, LLC | THIS OLD HOUSE | United States of America | 86026346 | 4497564 | Mar 18 2014 | 35 | Registered |
| This Old House Ventures, LLC | THIS OLD HOUSE | United States of America | 87193632 | 5313302 | Oct 17 2017 | 9, 16, 35, 37, 38, 41, 42, 43, 44 | Registered |
| This Old House Ventures, LLC |  | Canada | 0804828 | TMA207705 | Feb 8 1999 | | Registered |
| This Old House Ventures, LLC |  | United Kingdom | UK00002121106 | UK00002121106 | Jan 17 1997 | 16, 41 | Registered |
| This Old House Ventures, LLC |  | EU | 002922474 | 002922474 | Feb 26 2004 | 9, 16, 37, 41, 42 | Registered |
| This Old House Ventures, LLC |  | United Kingdom | UK00002288735 | UK00002288735 | Dec 21 2001 | 9 | Registered |
| This Old House Ventures, LLC |  | United Kingdom | UK00902922474 | UK00902922474 | Feb 26 2004 | 9, 16, 37, 41, 42 | Registered |

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|------------------------------|---|--------------------------|----------|-----------|-------------|----------|------------|
| This Old House Ventures, LLC |  | United States of America | 75451306 | 2238871 | Apr 13 1999 | 16 | Registered |
| This Old House Ventures, LLC | THIS OLD HOUSE INSIDER | United States of America | 87192156 | 5278039 | Aug 29 2017 | 35, 38 | Registered |
| This Old House Ventures, LLC |  | Canada | 0804563 | TMA507710 | Feb 8 1999 | | Registered |
| This Old House Ventures, LLC |  | United States of America | 74678429 | 2080589 | Jul 22 1997 | 16 | Registered |
| This Old House Ventures, LLC |  | United States of America | 75078417 | 2113480 | Nov 18 1997 | 9, 37,41 | Registered |

REEL/FRAME: 7338/0626

Trademark Registrations/Applications

| Grantor | Mark | Country | Record Status | Application Number | Application Filing Date | International Class No(s). | Registration Number | Reg. Date |
|------------|------------------|---------|---------------|--------------------|-------------------------|----------------------------|---------------------|------------|
| Roku, Inc. | SORENSEN SQUEEZE | US | Granted | 76280703 | 7/5/2001 | 9 | 2,714,373 | 5/6/2003 |
| Roku, Inc. | SORENSEN MEDIA | US | Granted | 76016542 | 4/3/2000 | 38 | 2,729,675 | 6/24/2003 |
| Roku, Inc. | SORENSEN SPARK | US | Granted | 76468221 | 11/20/2002 | 9 | 2,769,101 | 9/30/2003 |
| Roku, Inc. | SQUEEZE | US | Granted | 76650238 | 11/14/2005 | 9 | 3,250,180 | 6/12/2007 |
| Roku, Inc. | ZAMPLE | US | Granted | 86208135 | 2/28/2014 | 42 | 4,620,489 | 10/14/2014 |
| Roku, Inc. | ZAMPLE | US | Granted | 86208127 | 2/28/2014 | 9 | 4,613,539 | 9/30/2014 |