

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5139570

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
MARK B. HURST	02/11/2010
RECEIVING PARTY DATA	
Name:	DISH TECHNOLOGIES L.L.C.
Street Address:	9601 S. MERIDIAN BLVD.
City:	ENGLEWOOD
State/Country:	COLORADO
Postal Code:	80112
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16107733
CORRESPONDENCE DATA	
Fax Number:	(480)385-5061
<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:	480-385-5060
Email:	ipdept@dish.com
Correspondent Name:	LKGLOBAL (DISH TECHNOLOGIES L.L.C.)
Address Line 1:	7010 E. COCHISE ROAD
Address Line 4:	SCOTTSDALE, ARIZONA 85253
ATTORNEY DOCKET NUMBER:	066.0153C2
NAME OF SUBMITTER:	BRETT A. CARLSON
SIGNATURE:	/BRETT A. CARLSON/
DATE SIGNED:	09/13/2018
Total Attachments: 16	
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page1.tif	
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page2.tif	
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page3.tif	
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page4.tif	
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page5.tif	
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page6.tif	

source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page7.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page8.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page9.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page10.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page11.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page12.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page13.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page14.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page15.tif
source=20180913_AssignmentDocs_P2010-02-02-_066-0153C3#page16.tif



Colorado Secretary of State
 Date and Time: 11/07/2012 01:32 PM
 ID Number: 20101689290
 Document number: 20121620697
 Amount Paid: \$25.00

Document must be filed electronically.
 Paper documents will not be accepted.

Document processing fee
 Fees & forms/cover sheets
 are subject to change.

\$25.00

To access other information or print
 copies of filed documents,
 visit www.sos.state.co.us and
 select Business.

ABOVE SPACE FOR OFFICE USE ONLY

Articles of Amendment

filed pursuant to §7-90-301, et seq. and §7-80-209 of the Colorado Revised Statutes (C.R.S.)

ID number: 20101689290
 1. Entity name: EchoStar Advanced Technologies L.L.C.
(If changing the name of the limited liability company, indicate name BEFORE the name change)

2. New Entity name: DISH Digital L.L.C.
 (if applicable)

3. Use of Restricted Words *(if any of these terms are contained in an entity name, true name of an entity, trade name or trademark stated in this document, mark the applicable box):*

"bank" or "trust" or any derivative thereof
 "credit union" "savings and loan"
 "insurance", "casualty", "mutual", or "surety"

4. Other amendments, if any, are attached.

5. If the limited liability company's period of duration as amended is less than perpetual, state the date on which the period of duration expires:

(mm/dd/yyyy)

OR

If the limited liability company's period of duration as amended is perpetual, mark this box:

6. (Optional) Delayed effective date: _____
(mm/dd/yyyy)

Notice:

Causing this document to be delivered to the secretary of state for filing shall constitute the affirmation or acknowledgment of each individual causing such delivery, under penalties of perjury, that the document is the individual's act and deed, or that the individual in good faith believes the document is the act and deed of the person on whose behalf the individual is causing the document to be delivered for filing, taken in conformity with the requirements of part 3 of article 90 of title 7, C.R.S., the constituent documents, and the organic statutes, and that the individual in good faith believes the facts stated in the document are true and the document complies with the requirements of that Part, the constituent documents, and the organic statutes.

This perjury notice applies to each individual who causes this document to be delivered to the secretary of state, whether or not such individual is named in the document as one who has caused it to be delivered.

7. Name(s) and address(es) of the individual(s) causing the document to be delivered for filing:

Pagels	Eric		
<small>(Last)</small>	<small>(First)</small>	<small>(Middle)</small>	<small>(Suffix)</small>
9601 S. Meridian Blvd.			
<small>(Street name and number or Post Office Box information)</small>			
Englewood	CO	80112	
<small>(City)</small>	<small>(State)</small>	<small>(Postal/Zip Code)</small>	
	United States		
<small>(Province – if applicable)</small>	<small>(Country – if not US)</small>		

(The document need not state the true name and address of more than one individual. However, if you wish to state the name and address of any additional individuals causing the document to be delivered for filing, mark this box and include an attachment stating the name and address of such individuals.)

Disclaimer:

This form, and any related instructions, are not intended to provide legal, business or tax advice, and are offered as a public service without representation or warranty. While this form is believed to satisfy minimum legal requirements as of its revision date, compliance with applicable law, as the same may be amended from time to time, remains the responsibility of the user of this form. Questions should be addressed to the user's attorney.

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT2967050

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
DISH DIGITAL L.L.C.	08/01/2014
RECEIVING PARTY DATA	
Name:	EHOSTAR TECHNOLOGIES L.L.C.
Street Address:	100 INVERNESS TERRACE EAST
City:	ENGLEWOOD
State/Country:	COLORADO
Postal Code:	80112
PROPERTY NUMBERS Total: 54	
Property Type	Number
Patent Number:	7818444
Patent Number:	8402156
Patent Number:	8612624
Patent Number:	8683066
Patent Number:	8190760
Patent Number:	8321401
Patent Number:	8332905
Patent Number:	8418207
Patent Number:	8776151
Patent Number:	8683543
Application Number:	11116783
Application Number:	14106051
Application Number:	11737669
Application Number:	14222245
Application Number:	13481528
Application Number:	13843379
Application Number:	12210146
Application Number:	13619214
Application Number:	13757571
Application Number:	12370568
Application Number:	12508449

PATENT

Property Type	Number
Application Number:	14222412
Application Number:	13857786
Application Number:	12554730
Application Number:	12643700
Application Number:	13027220
Application Number:	13706983
Application Number:	13706993
Application Number:	13707022
Application Number:	13707031
Application Number:	13707044
Application Number:	13707008
Application Number:	14144235
Application Number:	13837058
Application Number:	14145025
Application Number:	61747839
Application Number:	14145115
Application Number:	14145375
Application Number:	62019319
Application Number:	13596911
Application Number:	61653312
Application Number:	13732065
Application Number:	13843411
Application Number:	61747960
Application Number:	13840503
Application Number:	61791044
Application Number:	13837108
Application Number:	13836688
Application Number:	61800847
Application Number:	14216235
Application Number:	13843494
Application Number:	29441124
Application Number:	62018892
Application Number:	62018839

CORRESPONDENCE DATA

Fax Number: (303)728-5048

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.

Phone: (303) 706-4506

Email: max.gratton@echostar.com

PATENT

Correspondent Name: MAX S GRATTON
Address Line 1: 100 INVERNESS TERRACE EAST
Address Line 2: LEGAL DEPARTMENT
Address Line 4: ENGLEWOOD, COLORADO 80112

NAME OF SUBMITTER: MAX S GRATTON (REG. NO. 56,541)

SIGNATURE: /Max S Gratton/

DATE SIGNED: 08/04/2014

Total Attachments: 11

source=Patent Assignment - Execution Draft#page1.tif
source=Patent Assignment - Execution Draft#page2.tif
source=Patent Assignment - Execution Draft#page3.tif
source=Patent Assignment - Execution Draft#page4.tif
source=Patent Assignment - Execution Draft#page5.tif
source=Patent Assignment - Execution Draft#page6.tif
source=Patent Assignment - Execution Draft#page7.tif
source=Patent Assignment - Execution Draft#page8.tif
source=Patent Assignment - Execution Draft#page9.tif
source=Patent Assignment - Execution Draft#page10.tif
source=Patent Assignment - Execution Draft#page11.tif

PATENT ASSIGNMENT

WHEREAS, DISH Digital L.L.C., a limited liability company organized under the laws of the state of Colorado and having a place of business at 9601 S. Meridian Blvd., Englewood, Colorado (“**ASSIGNOR**”), owns rights in, to and under the patent applications set forth in the attached Exhibit B (the “**Properties**”); and

WHEREAS, EchoStar Technologies L.L.C., a limited liability company organized under the laws of the State of Texas, United States of America and having a place of business at 100 Inverness Terrace East, Englewood, Colorado 80112 (“**ASSIGNEE**”), is desirous of acquiring ASSIGNOR’S entire right, title and interest in, to and under the Properties.

WHEREAS, Assignor, to the extent they own any right, title and interest in and to the Properties is desirous of assigning any and all such rights, title and/or interest to Assignee.

NOW, THEREFORE, for USD \$1.00 and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Assignor has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto the ASSIGNEE, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the Properties and any and all letters patent or patents in the United States of America and all foreign countries which may be granted therefore and thereon (including any divisions, continuations, continuations-in-part, reissues, reexaminations or extensions of letters patents and other related applications arising from, corresponding to and/or claiming priority to any of the Properties) and the registration thereof, and all rights under the International Convention for the Protection of Industrial Property, the same to be held and enjoyed by the ASSIGNEE for its own use and enjoyment and for the use and enjoyment of its successors, legal representatives and assigns, to the full end of the term or terms for which letters patent may be granted, as fully and entirely as the same would have been held and enjoyed by the ASSIGNOR had this assignment not been made, and further including all income, royalties, damages and payments for past or future infringements and misappropriations thereof, all rights to sue for past, present and future infringements or misappropriations thereof, and all rights corresponding to any of the above throughout the world and for the full term or terms of assigned Properties;

AND for the same consideration, ASSIGNOR hereby covenants and agrees to and with ASSIGNEE, its successors, legal representatives and assigns, that ASSIGNOR will encourage its employees named as inventors on one or more of the assigned Properties, to make, execute and deliver any and all other instruments in writing as may be necessary to assign the Properties to ASSIGNEE, including, but not limited to, any and all further application papers, affidavits, assignments and other documents, and that ASSIGNOR will communicate to ASSIGNEE, its successors, legal representatives and assigns, all facts known to ASSIGNOR relating to the Properties, and that ASSIGNOR will testify in all legal proceedings and generally do all things which may be necessary or desirable to more

effectually secure to and vest in ASSIGNEE, its successors, legal representatives and assigns, the entire right, title and interest in and to the Properties;

AND THE ASSIGNOR HEREBY authorizes and requests the Commissioner of the United States Patent and Trademark Office, and any official of any country or countries foreign to the United States, whose duty is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

IN WITNESS WHEREOF, the undersigned have executed this Patent Assignment
as of the 1st day of August 2014.

DISH DIGITAL L.L.C.

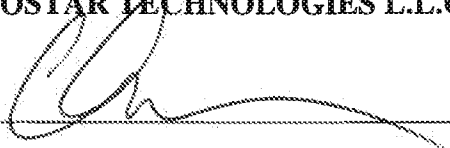
By: Robert E. Olson

Name: Robert E. Olson

Title: Executive Vice President and Chief Financial Officer

State of Colorado			
County of Douglas			
The foregoing instrument was acknowledged before me this August 1, 2014, by Robert E. Olson, Executive Vice President and Chief Financial Officer of DISH Digital L.L.C., a Colorado limited liability corporation, on behalf of the corporation.			
<u>Tracy Strickland</u> (Notary's official signature)	<table border="1"><tr><td>TRACY STRICKLAND NOTARY PUBLIC STATE OF COLORADO</td></tr><tr><td>MY COMMISSION EXPIRES <u>9-22-14</u></td></tr></table>	TRACY STRICKLAND NOTARY PUBLIC STATE OF COLORADO	MY COMMISSION EXPIRES <u>9-22-14</u>
TRACY STRICKLAND NOTARY PUBLIC STATE OF COLORADO			
MY COMMISSION EXPIRES <u>9-22-14</u>			
9-22-14 (Commission Expiration)	(Notary Seal)		

ECHOSTAR TECHNOLOGIES L.L.C.

By: 

Name: Dean A. Manson

Title: Executive Vice President, General Counsel and Secretary

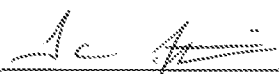
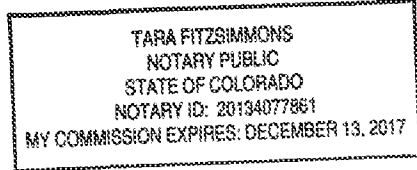
State of Colorado	
County of Arapahoe	
The foregoing instrument was acknowledged before me this August 1, 2014, by Dean A. Manson, Executive Vice President, General Counsel and Secretary of EchoStar Technologies L.L.C., a Texas limited liability corporation, on behalf of the corporation.	
 (Notary's official signature)	
December 13, 2017 (Commission Expiration)	(Notary Seal)

Exhibit B

ASSIGNED PATENTS AND PATENT APPLICATIONS

U.S. Patents

Patent No.	Country	Title
7,818,444	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
8,402,156	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
8,612,624	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
8,683,066	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
8,190,760	US	System and Method of Managing Multiple Video Players
8,321,401	US	User Interface with Available Multimedia Content from Multiple Multimedia Websites
8,370,514	US	System and method of minimizing network bandwidth retrieved from an external network
8,332,905	US	Virtual set-top box that emulates processing of IPTV video content
8,418,207	US	Dynamic Video Source Selection
8,776,151	US	Method for Simplifying Adaptive Rate RS-DVR Video Storage
8,683,543	US	Virtual set-top box that executes service provider middleware

U.S. Patent Applications

Filing Date	Application No.	Country	Title
Apr 28, 2005	11116783	US	Apparatus, system, and method for adaptive-rate shifting of streaming content
Dec 13, 2013	14106051	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
Apr 19, 2007	11737669	US	APPARATUS, SYSTEM AND METHOD FOR RESILIENT CONTENT ACQUISITION
Mar 21, 2014	14222245	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming

Filing Date	Application No.	Country	Title
May 25, 2012	13481528	US	System and Method of Managing Multiple Video Players
Mar 15, 2013	13843379	US	SYSTEM AND METHOD OF MANAGING MULTIPLE VIDEO PLAYERS EXECUTING ON MULTIPLE DEVICES
Sep 12, 2008	12210146	US	Predictively Selecting Video Quality Profiles for Streaming Video
Sep 14, 2012	13619214	US	User Interface with Available Multimedia Content from Multiple Multimedia Websites
Feb 1, 2013	13757571	US	System and method of minimizing network bandwidth retrieved from an external network
Feb 12, 2009	12370568	US	Advertisement Management for Live Internet Multimedia Content
Jul 23, 2009	12508449	US	Messaging Service for Providing Updates for Multimedia Content of a Live Event Delivered Over the Internet
Mar 21, 2014	14222412	US	Virtual Set-top Box
Apr 5, 2013	13857786	US	Dynamic Video Source Selection
Sep 4, 2009	12554730	US	Controlling Access to Copies of Media Content by a Client Device
Dec 21, 2009	12643700	US	Audio Splitting with Codec-Enforced Frame Sizes
Feb 14, 2011	13027220	US	SYSTEMS AND METHODS TO PROVIDE TRICK PLAY DURING STREAMING PLAYBACK
Dec 6, 2012	13706983	US	REMOTE STORAGE DIGITAL VIDEO RECORDER FOR MULTIPLE BITRATE DIGITAL MEDIA CONTENT, AND RELATED OPERATING METHODS AND FEATURES
Dec 6, 2012	13706993	US	Method for Disk Failure Resiliency for Adaptive Rate RS-DVR
Dec 6, 2012	13/707,022	US	Method for Multichannel Start Over Using RS-DVR Using Late Binding at Time of Playback of Subscribers to Individual Video Copies

Filing Date	Application No.	Country	Title
Dec 6, 2012	13/707,031	US	Method for Simplifying Adaptive Rate RS-DVR Video Storage
Dec 6, 2012	13/707,044	US	Hybrid Shared Single Copy Combined with Per Subscriber Copy RS-DVR Video Sharing System
		US	Automatic synchronizing multiple computers
Dec 6, 2012	13/707,008	US	Method for Using Single File Video Storage of Multiple Bit Rates with Fault Tolerance and Performance Enhancements for Adaptive Rate RS-DVR
Dec 30, 2013	14/144,235	US	ADAPTIVE MULTICAST DELIVERY OF MEDIA STREAMS
Mar 15, 2013	13/837,058	US	EFFICIENT ASSIGNMENT OF PROGRAM COPIES IN A NETWORK DIGITAL VIDEO RECORDER
Dec 31, 2013	14/145,025	US	METHODS AND APPARATUS FOR PROVIDING SOCIAL VIEWING OF MEDIA CONTENT
Dec 31, 2012	61/747,839	US	PROACTIVE MULTI-PATH ROUTING
Dec 31, 2013	14/145,115	US	METHODS AND APPARATUS FOR PROACTIVE MULTI-PATH ROUTING
Dec 31, 2013	14/145,375	US	METHODS AND APPARATUS FOR ESTIMATING PACKET LOSS
June 30, 2014	62/019,319	US	Adaptive Data Segment Delivery Arbitration for Bandwidth Optimization
Aug 28, 2012	13/596,911	US	ADAPTIVE BIT RATE TRANSCODE AND CACHING FOR OFF AIR TELEVISION PROGRAMMING DELIVERY
May 30, 2012	61/653,312	US	MODULAR ANTENNA SYSTEM
Dec 31, 2012	13/732,065	US	MODULAR ANTENNA SYSTEM
Mar 15, 2013	13/843,411	US	PLAYBACK STALL AVOIDANCE IN ADAPTIVE MEDIA STREAMING

Filing Date	Application No.	Country	Title
Dec 31, 2012	61/747,960	US	OPTIMIZATION TECHNIQUE FOR SCHEDULING STREAMLET PROCESSING
Mar 15, 2013	13/840,503	US	SCHEDULING SEGMENT DATA DELIVERY IN AN ADAPTIVE MEDIA STREAM TO AVOID STALLING
Mar 15, 2013	61/791,044	US	ASYMMETRIC CONTENT DELIVERY OF MEDIA CONTENT
Mar 15, 2013	13/837,108	US	PLACESHIFTING OF ADAPTIVE MEDIA STREAMS
Mar 15, 2013	13/836,688	US	PRE-DISTRIBUTION IDENTIFICATION OF BROADCAST TELEVISION CONTENT USING AUDIO FINGERPRINTS
Mar 15, 2013	61/800,847	US	TELEVISION CONTENT MANAGMENT WITH INTEGRATED THIRD PARTY INTERFACE
Mar 17, 2014	14/216,235	US	TELEVISION CONTENT MANAGMENT WITH INTEGRATED THIRD PARTY INTERFACE
Mar 15, 2013	13/843,494	US	CHUNKING OF MULTIPLE TRACK AUDIO FOR ADAPTIVE BIT RATE STREAMING
Dec 31, 2012	29/441,124	US	Indoor Antenna
June 30, 2014	62/018,892	US	Improved Wi-Fi Routing
June 30, 2014	62/018,839	US	Systems and Processes for Efficiently Storing and Retrieving Video Content

Foreign Patents

Patents

Patent No.	Country	Title
2011213730	AU	Apparatus, system, and method for adaptive-rate shifting of streaming content
5320740	JP	Apparatus, system, and method for

		adaptive-rate shifting of streaming content
10-1082642	KR	Apparatus, system, and method for adaptive-rate shifting of streaming content
2463329	GB	Virtual Set-top Box
306950	MX	Dynamic Video Source Selection

Foreign Patent Applications

Filing Date	Application No.	Country	Title
May 2, 2005	PCTUS2005015091	WO	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	2005241481	AU	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	2564861	CA	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	200580022210X	CN	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	057440158	EP	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	121545594	EP	Method for Presenting Rate-Adaptive Streams
May 2, 2005	National stage of PCT/US2005/015091	IN	Apparatus, system, and method for adaptive-rate shifting of streaming content
Aug 1, 2008	PCTUS2008009281	WO	Apparatus, System, and Method for Multi-Bitrate Content Streaming
Feb 10, 2010	PCTUS2010023789	WO	Advertisement Management for Live Internet Multimedia Content
Sep 10, 2009	PCTGB2009002167	WO	Dynamic Video Source Selection
Sep 10, 2009	2736330	CA	Dynamic Video Source Selection
Sep 10, 2009	097850861	EP	Dynamic Video Source Selection
Sep 3, 2010	PCTUS2010047910	WO	Controlling Access to Copies of Media Content by a Client Device

Filing Date	Application No.	Country	Title
Dec 21, 2010	PCTUS2010061658	WO	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	2010339666	AU	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	1120120148729	BR	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2012	2784779	CA	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	2010800614889	CN	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2012	108427394	EP	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	220482	IL	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	5366/CHENP/2012	IN	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	2012544958	JP	Audio Splitting with Codec-Enforced Frame Sizes
Jul 13, 2012	1020127018246	KR	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	MXa2012007243	MX	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	2012045621	SG	Audio Splitting with Codec-Enforced Frame Sizes
Feb 14, 2011	PCTUS2011024807	WO	SYSTEMS AND METHODS TO PROVIDE TRICK PLAY DURING STREAMING PLAYBACK
Feb 14, 2011	2,789,448	CA	Rewind and Fast-Forward Viewing Experience on a Web-Based Streaming Playback Platform
Feb 14, 2011	2011800150889	CN	SYSTEMS AND METHODS TO PROVIDE TRICK PLAY DURING STREAMING PLAYBACK
Feb 14, 2011	117045195	EP	SYSTEMS AND METHODS TO PROVIDE TRICK PLAY DURING STREAMING PLAYBACK
Feb 14, 2011	MXa2012009358	MX	SYSTEMS AND METHODS TO PROVIDE TRICK PLAY DURING STREAMING PLAYBACK

Filing Date	Application No.	Country	Title
Dec 4, 2012	PCTUS2012067796	WO	REMOTE STORAGE DIGITAL VIDEO RECORDER FOR MULTIPLE BITRATE DIGITAL MEDIA CONTENT, AND RELATED OPERATING METHODS AND FEATURES
		EP	REMOTE STORAGE DIGITAL VIDEO RECORDER FOR MULTIPLE BITRATE DIGITAL MEDIA CONTENT, AND RELATED OPERATING METHODS AND FEATURES
Dec 30, 2013	PCTUS2013078358	WO	ADAPTIVE MULTICAST DELIVERY OF MEDIA STREAMS
Feb 25, 2013	PCTUS1327612	WO	ADAPTIVE BIT RATE TRANSCODE AND CACHING FOR OFF AIR TELEVISION PROGRAMMING DELIVERY
Mar 13, 2014	PCTUS201426391	WO	PLAYBACK STALL AVOIDANCE IN ADAPTIVE MEDIA STREAMING
Dec 31, 2013	PCTUS2013078518	WO	SCHEDULING SEGMENT DATA DELIVERY IN AN ADAPTIVE MEDIA STREAM TO AVOID STALLING
Mar 13, 2014	PCTUS2014026399	WO	PLACESHIFTING OF ADAPTIVE MEDIA STREAMS
Mar 13, 2014	PCTUS2014026102	WO	CHUNKING OF MULTIPLE TRACK AUDIO FOR ADAPTIVE BIT RATE STREAMING