PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5739711

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MARVELL WORLD TRADE LTD.	09/26/2019

RECEIVING PARTY DATA

Name:	MARVELL WORLD TRADE LTD.
Street Address:	L'HORIZON, GUNSITE ROAD, BRITTONS HILL
City:	ST. MICHAEL
State/Country:	BARBADOS
Postal Code:	BB14027

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	12466997

CORRESPONDENCE DATA

Fax Number: (408)222-2755

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: 4082222500
Email: syzemore@marvell.com
Correspondent Name: KELVIN VIVIAN
Address Line 1: 5488 MARVELL LANE
Address Line 4: SANTA CLARA, CALIFORNIA 95054

ATTORNEY DOCKET NUMBER:	MP2693D1
NAME OF SUBMITTER:	KELVIN VIVIAN
SIGNATURE:	/Kelvin Vivian/
DATE SIGNED:	09/26/2019

Total Attachments: 88
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ASSIGNMENT AND CANCELLATION OF EXCLUSIVE LICENSE
MWTL to MIL

WHEREAS, Marvell World Trade Ltd., a corporation of Barbados, having a place of business at L'Horizon, Gunsite Road, Brittons Hill, St. Michael, Barbados BB14027 (hereafter the "ASSIGNOR"), is the owner by respective Assignment of patents and patent applications identified in **Exhibit A** (hereafter the "ASSIGNED PATENTS"), attached hereto and incorporated herein by reference, and has granted an exclusive license for some or all of the ASSIGNED PATENTS to Marvell International Ltd., a corporation of Bermuda, having a place of business at Canon's Court, 22 Victoria Street, Hamilton, HM12, Bermuda (hereafter the "ASSIGNEE"); and

WHEREAS, ASSIGNOR and ASSIGNEE desire to cancel the exclusive licenses to the ASSIGNED PATENTS (if applicable), and ASSIGNEE desires to acquire the entire right, title, and interest of ASSIGNOR in, to and under said ASSIGNED PATENTS and all inventions and improvements described and claimed therein or entitled to the benefit thereof.

THEREFORE, for good and valuable consideration paid by ASSIGNEE, the receipt of which is hereby acknowledged, ASSIGNOR and ASSIGNEE hereby cancel the exclusive licenses to the ASSIGNED PATENTS (if applicable), and the ASSIGNOR does hereby sell, assign and transfer to the ASSIGNEE, ASSIGNOR's entire right, title and interest in and to the ASSIGNED PATENTS including all inventions and improvements disclosed therein and the right to sue for past, present and future infringement thereof, in the U.S. and every foreign country, and all patent rights, including extensions or derivations thereof, both foreign and domestic, that exist and may issue on the ASSIGNED PATENTS, and in any continuation, continuation-in-part, divisional, re-examination, priority application, reissue or extension of the ASSIGNED PATENTS, and further assigns to the ASSIGNEE the priority right provided by the International Convention. This assignment includes assignment to ASSIGNEE of the right to make application in its own behalf for protection of the ASSIGNED PATENTS and any patents issued on the ASSIGNED PATENTS, in the U.S. and countries foreign to the U.S., and to claim under the Patent Cooperation Treaty, the International Convention and/or other international arrangement for any such application the date of any earlier U.S. application (or any other application on the invention) to gain priority with respect to other applications. The ASSIGNED PATENTS and all patents that issue on the ASSIGNED PATENTS shall be held and enjoyed by the ASSIGNEE, its successors and assigns as fully and entirely as the same would have been held and enjoyed by the ASSIGNOR had this assignment not been made, including all rights therein provided by international conventions and treaties, and the right to sue for past, present and future infringement thereof.

By its undersigned representative, the ASSIGNOR agrees

a. to execute all papers necessary in connection with the ASSIGNED PATENTS and any continuing, divisional, reissue, reexamination or corresponding application thereof and also to execute separate Assignment in connection with such application as the ASSIGNEE may deem necessary or expedient;

b. to execute all papers necessary in connection with any interference which may be declared concerning the ASSIGNED PATENTS or any continuation, division, reissue or reexamination thereof and to cooperate with the ASSIGNEE in every way possible in obtaining evidence and going forward with such interference; and

c. to perform all affirmative acts which may be necessary to obtain a grant of a valid United States patent to the ASSIGNEE on any of the ASSIGNED PATENTS and on any continuation, division, reissue or reexamination of any of the ASSIGNED PATENTS.

IN WITNESS WHEREOF, executed by the ASSIGNOR's undersigned representative on the date following the undersigned's name.

MARVELL WORLD TRADE LTD.

By: _____

Name: STEVEN PARKER

Title: DIRECTOR

Date: SEPTEMBER 26, 2019

Accepted on behalf of:
Marvell International Ltd.

By: _____

Name: Sherman Taylor

Title: General Manager

Date: September 26, 2019

Exhibit A

Country	MP Number	Application Number	Filing Date	Patent Number	Issue Date	Status	Title	MP Family
US	MP0708	11/429,633	5/5/2006	7,995,543	8/9/2011	*Issued*	*Network Device For Implementing Multiple Access Points And Multiple Client Stations*	MP0708
US	MP0708C1	13/205,774	8/9/2011	N/A	N/A	*Abandoned*	*Network Device For Implementing Access Points And Multiple Client Stations*	MP0708
JP	MP0708WJD1	2012-097600	4/23/2012	5440890	12/27/2013	*Issued*	*Network Device For Implementing Multiple Access Points And Multiple Client Stations*	MP0708
WO	MP0708WO	PCT/US2007/010418	4/30/2007	N/A	N/A	*Expired*	*Network Device For Implementing Multiple Access Points And Multiple Client Stations*	MP0708
CN	MP0708WOCN	200780025336	4/30/2007	ZL200780025336.1	5/18/2011	*Issued*	*Network Device For Implementing Multiple Access Points And Multiple Client Stations*	MP0708
EP	MP0708WOEP	EP07794419.7	4/30/2007	EP2016788	6/16/2010	*Issued*	*Network Device for Implementing Multiple Access Points and Multiple Client Stations*	MP0708
DE	MP0708WOEPDE	07794419.7	4/30/2007	6020070072077	6/16/2010	*Issued*	*Network Device For Implementing Multiple Access Points And Multiple Client Stations*	MP0708
FR	MP0708WOEPFR	7794419.7	4/30/2007	2016788	6/16/2010	*Issued*	*Network Device For Implementing Multiple Access Points And Multiple Client Stations*	MP0708
GB	MP0708WOEPGB	7794419.7	4/30/2007	2016788	6/16/2010	*Issued*	*Network Device For Implementing Multiple Access Points And Multiple Client Stations*	MP0708

JP	MP0708WOJP	2009-509637	4/30/2007	4986304	5/11/2012	*Issued*	*Network Device For Implementing Multiple Access Points And Multiple Client Stations*	MP0708
US	MP0872PR	60/749,222	12/9/2005	N/A	N/A	*Expired*	*Method for Detection and Estimation of Frequency Variation*	MP0872
US	MP0872	11/493,473	7/26/2006	7,747,222	6/29/2010	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
US	MP0872C1	12/825,775	6/29/2010	8,346,174	1/1/2013	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
US	MP0872C1C1	13/730,420	12/28/2012	8,781,401	7/15/2014	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
CN	MP0872CN	200610162087.8	12/8/2006	ZL200610162087.8	6/20/2012	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
EP	MP0872EP	EP06024208.8	11/22/2006	1795908	7/3/2019	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
DE	MP0872EPDE	EP06024208.8	11/22/2006	6.02006E+11	7/3/2019	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
FR	MP0872EPFR	EP06024208.8	11/22/2006	1795908	7/3/2019	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
GB	MP0872EPGB	EP06024208.8	11/22/2006	1795908	7/3/2019	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
HK	MP0872HK	71132342	12/8/2006	N/A	N/A	*Published*	*Detection and Estimation of Radio Frequency Variations*	MP0872

JP	MP0872JP	2006332097	12/8/2006	5052111	8/3/2012	*Issued*	*Detection Estimation of Radio Frequency Variations*	MP0872
SG	MP0872SG	2006079768	11/20/2006	N/A	N/A	*Published*	*Detection Estimation of Radio Frequency Variations*	MP0872
SG	MP0872SG01	2009038399	11/20/2006	153131	4/29/2011	*Issued*	*Detection and Estimation of Radio Frequency Variations*	MP0872
TW	MP0872TW	95146001	12/8/2006	I422196	1/1/2014	*Issued*	*A System for Detection and Estimation of Radio Frequency Variations*	MP0872
US	MP0896PR	60/757,605	1/10/2006	N/A	N/A	*Expired*	*Sub-Carrier and Channel Matrix Element Ordering For Receiver Feedback*	MP0896
US	MP0896	11/526,319	9/25/2006	8,155,597	4/10/2012	*Issued*	*Transmission Scheduling For Receiver Feedback*	MP0896
US	MP0896C1	13/442,301	4/9/2012	8,442,450	5/14/2013	*Issued*	*Sub-Carrier and Channel Matrix Element Ordering For Receiver Feedback*	MP0896
US	MP0896C2	13/892,811	5/13/2013	8,838,041	9/16/2014	*Issued*	*Sub-Carrier and Channel Matrix Element Order For Receiver Feedback*	MP0896
US	MP0926PR	60/387,234	1/10/2006	N/A	N/A	*Expired*	*Multimode Modulator Employing A Phase Lock Loop For Wireless Communications*	MP0926
US	MP0926	10/386,352	3/10/2003	6,924,711	8/2/2005	*Issued*	*Multimode Modulator Employing A Phase Lock Loop For Wireless Communications*	MP0926
TW	MP0926TW	92112467	5/7/2003	I327011	7/1/2010	*Issued*	*Multimode Modulator Employing A Phase Lock Loop For Wireless Communications*	MP0926

WO	MP0926WO	PCT/US2003/017338	5/30/2003	N/A	N/A	*Published*	*Multimode Modulator Employing A Phase Lock Loop For Wireless Communications*	MP0926
US	MP0933PR	60/621,392	10/22/2004	N/A	N/A	*Expired*	*Encoding and Error Correction System For Enhanced Performance*	MP0933
US	MP0933	11/256,218	10/21/2005	7,712,005	5/4/2010	*Expired*	*Encoding and Error Correction System For Enhanced Performance Of Legacy Communications Networks*	MP0933
US	MP0933C1	12/772,588	5/3/2010	8,122,326	2/21/2012	*Issued*	*Encoding and Error Correction System For Enhanced Performance Of Legacy Communications Networks*	MP0933
WO	MP0933WO	PCT/US2005/038044	10/21/2005	N/A	N/A	*Expired*	*Encoding and Error Correction System For Enhanced Performance Of Legacy Communications Networks*	MP0933
CN	MP0933WOCN	200580044338	10/21/2005	ZL200580044338.6	5/12/2010	*Issued*	*Encoding and Error Correction System For Enhanced Performance Of Legacy Communications Networks*	MP0933
HK	MP0933WOHK	81068624	6/20/2008	N/A	N/A	*Pending*	*Encoding and Error Correction System For Enhanced Performance Of Legacy Communications Networks*	MP0933
US	MP10203	15/963,016	4/25/2018	N/A	N/A	*Pending*	*Low Power Wakeup in a Wireless Network*	MP10203
WO	MP10203WO	PCT/US2018/029375	4/25/2018	N/A	N/A	*Published*	*Low Power Wakeup in a Wireless Network*	MP10203
US	MP10224PR	62/469,345	3/9/2017	N/A	N/A	*Expired*	*60GHz WLAN Segmentation and Reassembly*	MP10224

US	MP10224	15/916,940	3/9/2018	N/A	N/A	*Pending*	*Systems and Methods for Segmentation and Reassembly of Data Frames in 802.11 Wireless Local Area Networks*	MP10224
WO	MP10224WO	PCT/US2018/021824	3/9/2018	N/A	N/A	*Published*	*Systems and Methods for Segmentation and Reassembly of Data Frames in 802.11 Wireless Local Area Networks*	MP10224
US	MP10287PR	62/542,614	8/8/2017	N/A	N/A	*Expired*	*Ranging with Near Far STAs*	MP10287
US	MP10287	16/054,484	8/3/2018	N/A	N/A	*Pending*	*Multi-User Null Data Packet (NDP) Ranging*	MP10287
WO	MP10287WO	PCT/US2018/045182	8/3/2018	N/A	N/A	*Published*	*Multi-User Null Data Packet (NDP) Ranging*	MP10287
US	MP10316PR	16/132,154	9/14/2018	N/A	N/A	*Expired*	*Media Access Control for Duplex Transmissions in Wireless Local Area Networks*	MP10316/ MP10325
US	MP10316	16/132,154	9/14/2018	N/A	N/A	*Pending*	*Media Access Control for Duplex Transmissions in Wireless Local Area Networks*	MP10316/ MP10325
CN	MP10316CN	201811116552.3	9/25/2018	N/A	N/A	*Pending*	*Duplex Mac Consideration*	MP10316/ MP10325
US	MP10327PR	62/561,972	9/22/2017	N/A	N/A	*Expired*	*High Efficiency Physical Layer Protocol Data Unit with Midamble Transmission and Reception in 802.11ax*	MP10316/ MP10325
US	MP10327	16/135,852	9/19/2018	N/A	N/A	*Pending*	*Determining Number of Midambles in a Packet*	MP10327/ MP10372
WO	MP10327WO	PCT/US2018/51738	9/19/2018	N/A	N/A	*Published*	*Determining Number of Midambles in a Packet*	MP10316/ MP10325

US	MP1033PR	60/783,300	3/17/2006	N/A	N/A	*Expired*	*Preamble Sequence Detection For IEEE 802.16e*	MP1033/ MP1060/ MP1143/ MP1331
US	MP1033	11/648,735	12/29/2006	8,031,784	10/4/2011	*Issued*	*Preamble Detection With Unknown Channel*	MP1033/ MP1060/ MP1143/ MP1331
US	MP1033C1	11/717,405	3/13/2007	8,175,197	5/8/2012	*Issued*	*Preamble Detection With Unknown Channel*	MP1033/ MP1060/ MP1143/ MP1331
US	MP1033C1C1	13/460,109	4/30/2012	8,442,166	5/14/2013	*Issued*	*Preamble Detection With Unknown Channel*	MP1033/ MP1060/ MP1143/ MP1331
WO	MP1033WO	PCT/US2007/006739	3/16/2007	N/A	N/A	*Published*	*Preamble Detection With Unknown Channel*	MP1033/ MP1060/ MP1143/ MP1331
US	MP10342	16/171,934	10/26/2018	N/A	N/A	*Pending*	*Method and Apparatus for Concurrent Coexistence of a Plurality of Radio Access Technologies in Wireless Communication*	MP10342
US	MP10346PR	62/574,631	10/19/2017	N/A	N/A	*Expired*	*Wake-Up Radio Dual Frame Format Design*	MP10346
US	MP10346	16/155,701	10/9/2018	N/A	N/A	*Pending*	*Wakeup Radio (WUR) Packet Multi-Format Design*	MP10346
WO	MP10346WO	PCT/US2018/055045	10/9/2018	N/A	N/A	*Published*	*Wake-Up Radio Dual Frame Format Design*	MP10346
US	MP10367PR	62/596,637	12/8/2017	N/A	N/A	*Expired*	*MAC Support of WiFi Channel Aggregation*	MP10367
US	MP10367	16/179,634	11/2/2018	N/A	N/A	*Pending*	*WIFI Operation with Channel Aggregation*	MP10367

US	MP10367-2	16/179,647	11/2/2018	N/A	N/A	*Pending*	*WIFI Operation with Channel Aggregation*	MP10367
WO	MP10367WO	PCT/US2018/059022	11/2/2018	N/A	N/A	*Published*	*WIFI Operation with Channel Aggregation*	MP10367
WO	MP10367WO2	PCT/US2018/059027	11/2/2018	N/A	N/A	*Published*	*MAC Support of WiFi Channel Aggregation*	MP10367
US	MP10389PR	62/623,419	1/29/2018	N/A	N/A	*Expired*	*Clear Channel Assessment (CCA) and Error Recovery of Null Data Packet (NDP) Ranging*	MP10389
US	MP10389PR2	62/723,946	8/28/2018	N/A	N/A	*Expired*	*Clear Channel Assessment (CCA) and Error Recovery of Null Data Packet (NDP) Ranging*	MP10389
US	MP10389	16/179,477	11/2/2018	N/A	N/A	*Pending*	*Error Recovery in Null Data packet (NDP) Ranging*	MP10389
WO	MP10389WO	PCT/US2018/058931	11/2/2018	N/A	N/A	*Published*	*Error Recovery in Null Data packet (NDP) Ranging*	MP10389
US	MP10399PR	62/656,287	4/11/2018	N/A	N/A	*Expired*	*Method for Zero Forcing based on Back-Substitution*	MP10399
US	MP10399	16/381,713	4/11/2019	N/A	N/A	*Pending*	*Receiver Having Equalization with Iterative Parallel Processing and Noise De-Whitening Mitigation*	MP10399
WO	MP10399WO	PCT/US2019/027000	4/11/2019	N/A	N/A	*Pending*	*Receiver Having Equalization with Iterative Parallel Processing and Noise De-Whitening Mitigation*	MP10399
US	MP10445PR	62/630,120	2/13/2018	N/A	N/A	*Expired*	*Multi-Antenna Receiver with Interference Cancellation*	MP10445

US	MP10445	16/163,167	10/17/2018	N/A	N/A	*Pending*	*Apparatus and Methods for Interference Cancellation in Multi-Antenna Receivers*	MP10445
DE	MP10445DE	102018220130.7	11/23/2018	N/A	N/A	*Published*	*Multi-Antenna Receiver with Interference Cancellation*	MP10445
US	MP10478PR	62/651,554	4/2/2018	N/A	N/A	*Expired*	*Basic Service Set (BSS) Color in Null Data Packet (NDP) Ranging*	MP10478
US	MP10478	16/051,186	7/31/2018	N/A	N/A	*Pending*	*Basic Service Set (BSS) Color in Null Data Packet (NDP) Ranging*	MP10478
WO	MP10478WO	PCT/US2018/044684	7/31/2018	N/A	N/A	*Pending*	*Basic Service Set (BSS) Color in Null Data Packet (NDP) Ranging*	MP10478
US	MP10480PR	62/650,179	3/29/2018	N/A	N/A	*Expired*	*Rate Adaptation*	MP10480
US	MP10480	16/049,739	7/30/2018	N/A	N/A	*Pending*	*Rate Adaptation in Wireless Local Area Networks (WLANS)*	MP10480
WO	MP10480WO	PCT/US2018/044403	7/30/2018	N/A	N/A	*Pending*	*Rate Adaptation in Wireless Local Area Networks (WLANS)*	MP10480
US	MP10489PR	62/677,949	5/30/2018	N/A	N/A	*Expired*	*Smart Distributed Multiple Input Multiple Output (MIMO)*	MP10489
US	MP10489PR2	62/694,800	7/6/2018	N/A	N/A	*Expired*	*Smart Distributed Multiple Input Multiple Output (MIMO)*	MP10489
US	MP10489PR3	62/730,407	9/12/2018	N/A	N/A	*Expired*	*Smart Distributed Multiple Input Multiple Output (MIMO)*	MP10489

US	MP10489PR4	62/774,782	12/3/2018	N/A	N/A	*Pending*	*Smart Distributed Multiple Input Multiple Output (MIMO)*	MP10489
US	MP10489PR5	62/783,144	12/20/2018	N/A	N/A	*Pending*	*Smart Distributed Multiple Input Multiple Output (MIMO)*	MP10489
US	MP10489	16/424,532	5/29/2019	N/A	N/A	*Pending*	*Distributed MIMO Based on Access Point Collaboration*	MP10489
US	MP10489D1	16/510,992	7/15/2019	N/A	N/A	*Pending*	*Distributed MIMO Based on Access Point Collaboration*	MP10489
WO	MP10489WO	PCT/IB2019/054429	5/29/2019	N/A	N/A	*Pending*	*Distributed MIMO Based on Access Point Collaboration*	MP10489
US	MP10490PR	62/662,072	4/24/2018	N/A	N/A	*Expired*	*Fast Rate Adaptation Method for Wireless Local Area Network (WLAN) Communications*	MP10490
US	MP10490	16/386,331	4/17/2019	N/A	N/A	*Pending*	*Fast Rate Adaptation for WLAN Devices*	MP10490
CN	MP10490CN	201910336060.3	4/24/2019	N/A	N/A	*Pending*	*Fast Rate Adaptation for WLAN Devices*	MP10490
DE	MP10490DE	102019205805.1	4/24/2019	N/A	N/A	*Pending*	*Fast Rate Adaptation for WLAN Devices*	MP10490
US	MP11026PR	62/712,079	7/30/2018	N/A	N/A	*Expired*	*Frame Transmission in Punctured/Aggregated WiFi Channels*	MP11026
US	MP11026	16/526,716	7/30/2019	N/A	N/A	*Pending*	*Media Access Control for Punctured/Aggregated Communication Channels in WLAN*	MP11026

US	MP11026C1	16/526,937	7/30/2019	N/A	N/A	*Pending*	*Media Access Control for Punctured/Aggregated Communication Channels in WLAN*	MP11026
WO	MP11026WO	PCT/US2019/44229	7/30/2019	N/A	N/A	*Pending*	*Media Access Control for Punctured/Aggregated Communication Channels in WLAN*	MP11026
WO	MP11026WO2	PCT/US2019/44219	7/30/2019	N/A	N/A	*Pending*	*Media Access Control for Punctured/Aggregated Communication Channels in WLAN*	MP11026
US	MP11088PR	62/772,451	11/28/2018	N/A	N/A	*Pending*	*MM-wave Plastic Waveguide Channel Dispersion and Multiple In-Line Connectors Channel Compensation Using OFDM Modulation*	MP11088
US	MP11088	16/527,109	7/31/2019	N/A	N/A	*Pending*	*Dispersion Compensation in MM-Wave Communication Over Plastic Waveguide Using OFDM*	MP11088
US	MP1206PR	60/820,419	7/26/2006	N/A	N/A	*Expired*	*Symbol-Level Combining For MIMO Systems With Harq And/Or Repetition Coding*	MP1206/ MP2026
US	MP1206PR2	60/822,294	8/14/2006	N/A	N/A	*Expired*	*Optimal ML Receiver For MIMO Systems With HARQ And/Or Repetition Coding*	MP1206/ MP2026
US	MP1206PR3	60/822,821	8/18/2006	N/A	N/A	*Expired*	*Low-Complexity Architecture For MIMO MRC Combining*	MP1206/ MP2026

US	MP1206	11/781,208	7/20/2007	8,027,402	9/27/2011	*Issued*	*Symbol-Level Combining for Multiple Input Multiple Output (MIMO) Systems with Hybrid Automatic Repeat Request (HARQ) and/or Repetition Coding*	MP1206/ MP2026
US	MP1206C1	13/236,410	9/19/2011	8,279,966	10/2/2012	*Issued*	*Symbol-Level Combining for Multiple Input Multiple Output (MIMO) Systems with Hybrid Automatic Repeat Request (HARQ) and/or Repetition Coding*	MP1206/ MP2026
CN	MP1206CN	200780035909.9	7/24/2007	ZL200780035909.9	8/14/2013	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
EP	MP1206EP	EP20070836245	7/24/2007	2050218	12/27/2017	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
EP	MP1206EPD1	12007307.7	7/24/2007	EP2560313	9/3/2014	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
DE	MP1206EPDE	EP20070836245	7/24/2007	2050218	12/27/2017	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
FR	MP1206EPFR	EP20070836245	7/24/2007	2050218	12/27/2017	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
GB	MP1206EPGB	EP20070836245	7/24/2007	2050218	12/27/2017	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
TW	MP1206TW	96127316	7/26/2007	I466505	12/21/2014	*Expired*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
TW	MP1206TWD1	103134192	7/26/2007	I524704	3/1/2016	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026

DE	MP1206UADE	12007307.7	7/24/2007	60 2007 038 472.9	9/3/2014	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
FR	MP1206UAFR	12007307.7	7/24/2007	2560313	9/3/2014	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
GB	MP1206UAGB	12007307.7	7/24/2007	2560313	9/3/2014	*Issued*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
WO	MP1206WO	PCT/US2007/016728	7/24/2007	N/A	N/A	*Expired*	*Symbol-Level Combining for MIMO Systems with HARQ and/or Repetition Coding*	MP1206/ MP2026
US	MP1229PR	60/821,771	8/8/2006	N/A	N/A	*Expired*	*WiFi Simple Config Design*	MP1229/ MP1381/ MP1382
US	MP1229PR2	60/825,986	9/18/2006	N/A	N/A	*Expired*	*Adhoc Simple Config*	MP1229/ MP1381/ MP1382
US	MP1229	11/800,166	5/4/2007	8,619,623	12/31/2013	*Issued*	*Ad-Hoc Simple Configuration*	MP1229/ MP1381/ MP1382
US	MP1229C1	14/143,541	12/30/2013	9,019,866	4/28/2015	*Issued*	*Ad-Hoc Simple Configuration*	MP1229/ MP1381/ MP1382
CN	MP1229CN	200780037626.8	8/7/2007	ZL200780037626.8	12/3/2014	*Issued*	*Ad-Hoc Simple Configuration*	MP1229/ MP1381/ MP1382
EP	MP1229EP	EP07836581.4	8/7/2007	N/A	N/A	*Allowed*	*Ad-Hoc Simple Configuration*	MP1229/ MP1381/ MP1382
JP	MP1229JP	2009-523819	8/7/2007	JP4944958	3/9/2012	*Issued*	*Ad-Hoc Simple Configuration*	MP1229/ MP1381/ MP1382

TW	MP1229TW	96129265	8/8/2007	I470972	1/21/2015	*Issued*	*Ad-Hoc Simple Configuration*	MP1229/ MP1381/ MP1382
WO	MP1229WO	PCT/US2007/017529	8/7/2007	N/A	N/A	*Expired*	*Ad-Hoc Simple Configuration*	MP1229/ MP1381/ MP1382
US	MP1230PR	60/821,772	8/8/2006	N/A	N/A	*Expired*	*Optimal Linear Equalizer For MIMO Systems With HARQ And/Or Repetition Coding*	MP1230
US	MP1230	11/834,466	8/6/2007	8,411,778	4/2/2013	*Issued*	*Optimal Linear Equalizer for MIMO Systems with HARQ and/or Repetition Coding*	MP1230
US	MP1230C1	13/776,117	2/25/2013	8,718,177	5/6/2014	*Issued*	*Optimal Linear Equalizer for MIMO Systems with HARQ and/or Repetition Coding*	MP1230
WO	MP1230WO	PCT/US2007/017861	8/8/2007	N/A	N/A	*Expired*	*Optimal Linear Equalizer for MIMO Systems with HARQ and/or Repetition Coding*	MP1230
US	MP1232PR	60/821,777	8/8/2006	N/A	N/A	*Expired*	*Maximal Ratio Combining of Equalized Symbols for MIMO Systems with HARQ and/or Repetition Coding*	MP1232
US	MP1232	11/834,599	8/6/2007	8,718,166	5/6/2014	*Issued*	*Maximal Ratio Combining of Equalized Symbols for MIMO Systems with HARQ and/or Repetition Coding*	MP1232
US	MP1232C1	14/261,204	4/24/2014	9,020,062	4/28/2015	*Issued*	*Maximal Ratio Combining of Equalized Symbols for MIMO Systems with HARQ and/or Repetition Coding*	MP1232
WO	MP1232WO	PCT/US2007/017862	8/8/2007	N/A	N/A	*Expired*	*Maximal Ratio Combining of Equalized Symbols for MIMO Systems with HARQ and/or Repetition Coding*	MP1232

US	MP1264PR	60/822,827	8/18/2006	N/A	N/A	*Expired*	*Low-Complexity Scalable Architecture For Concatenation-Assisted Symbol-Level Combining*	MP1264
US	MP1264	11/839,004	8/15/2007	8,019,023	9/13/2011	*Issued*	*Low-Complexity Scalable Architecture for Concatenation-Assisted Symbol-Level Combining*	MP1264
TW	MP1264TW	96130640	8/17/2007	N/A	N/A	*Published*	*Low-Complexity Scalable Architecture for Concatenation-Assisted Symbol-Level Combining*	MP1264
WO	MP1264WO	PCT/US2007/018339	8/16/2007	N/A	N/A	*Expired*	*Low-Complexity Scalable Architecture for Concatenation-Assisted Symbol-Level Combining*	MP1264
US	MP1314PR	60/825,443	9/13/2006	N/A	N/A	*Expired*	*Decoding Method For Alamouti Scheme With Hybrid ARQ And/Or Repetition Coding*	MP1314/ MP1805
US	MP1314PR2	60/949,160	7/11/2007	N/A	N/A	*Expired*	*Decoding Method For Alamouti Scheme With Hybrid ARQ And/Or Repetition Coding*	MP1314/ MP1805
US	MP1314	11/854,219	9/12/2007	8,014,470	9/6/2011	*Issued*	*Decoding Method for Alamouti Scheme with HARQ and/or Repetition Coding*	MP1314/ MP1805
US	MP1381PR	60/829,614	10/16/2006	N/A	N/A	*Expired*	*Automatic Ad-Hoc Network Creation And Coalescing Using WPS*	MP1229/ MP1381/ MP1382
US	MP1381	11/867,661	10/4/2007	8,732,315	5/20/2014	*Issued*	*Automatic Ad-Hoc Network Creation And Coalescing Using WiFi Protected Setup*	MP1229/ MP1381/ MP1382
US	MP1381C1	14/281,317	5/19/2014	9,444,874	9/13/2016	*Issued*	*Automatic Ad-Hoc Network Creation And Coalescing Using WPS*	MP1229/ MP1381/ MP1382
TW	MP1381TW	96138538	10/15/2007	I439099	5/21/2014	*Issued*	*Automatic Ad-Hoc Network Creation And Coalescing Using WPS*	MP1229/ MP1381/ MP1382

US	MP1927PR	60/917,433	5/11/2007	N/A	N/A	*Expired*	*BICM Decoding In The Presence Of Co-Channel Interference*	MP1927/ MP2039/ MP2137
US	MP1927	12/119,264	5/12/2008	8,135,098	3/13/2012	*Issued*	*BICM Decoding in the Presence of Co-Channel Interference BICM*	MP1927/ MP2039/ MP2137
US	MP1927C1	13/402,381	2/22/2012	8,654,902	2/18/2014	*Issued*	*BICM Decoding in the Presence of Co-Channel Interference BICM*	MP1927/ MP2039/ MP2137
US	MP1927C1C1	14/104,543	12/12/2013	8,873,684	10/28/2014	*Issued*	*BICM Decoding in the Presence of Co-Channel Interference BICM*	MP1927/ MP2039/ MP2137
WO	MP1927WO	PCT/US2008/006092	5/12/2008	N/A	N/A	*Expired*	*BICM Decoding in the Presence of Co-Channel Interference BICM*	MP1927/ MP2039/ MP2137
US	MP2026	11/781,200	7/20/2007	8,090,063	1/3/2012	*Issued*	*Symbol-Level Combining for Multiple Input Multiple Output (MIMO) Systems with Hybrid Automatic Repeat Request (HARQ) and/or Repetition Coding*	MP1206/ MP2026
US	MP2039PR	60/950,425	7/18/2007	N/A	N/A	*Expired*	*Co-Channel Interference Cancellation With Multiple Receive Antennas For BICM*	MP1927/ MP2039/ MP2137
US	MP2039	12/171,790	7/11/2008	8,243,860	8/14/2012	*Issued*	*Co-Channel Interference Cancellation with Multiple Receive Antennas for BICM*	MP1927/ MP2039/ MP2137
US	MP2039C1	13/570,750	8/9/2012	8,654,910	2/18/2014	*Issued*	*Co-Channel Interference Cancellation with Multiple Receive Antennas for BICM*	MP1927/ MP2039/ MP2137
US	MP2232PR	60/980,036	10/15/2007	N/A	N/A	*Expired*	*Reliability And Range Of Multiple-Antenna Wireless Communications System Through Opportunistic Beamforming*	MP2232
US	MP2232	12/251,834	10/15/2008	8,213,870	7/3/2012	*Issued*	*Beamforming Using Predefined Spatial Mapping Matrices*	MP2232

US	MP2232C1	13/539,131	6/29/2012	8,644,765	2/4/2014	*Issued*	*Beamforming Using Predefined Spatial Mapping Matrices*	MP2232
US	MP2232C1aa	14/797,740	7/13/2015	9,621,240	4/11/2017	*Issued*	*Beamforming Using Predefined Spatial Mapping Matrices*	MP2232
US	MP2232C1C1	14/171,269	2/3/2014	9,083,401	7/14/2015	*Issued*	*Beamforming Using Predefined Spatial Mapping Matrices*	MP2232
US	MP2232C1Za	15/457,392	3/13/2017	10,200,096	2/5/2019	*Issued*	*Beamforming Using Predefined Spatial Mapping Matrices*	MP2232
WO	MP2232WO	PCT/US2008/011805	10/15/2008	N/A	N/A	*Expired*	*Beamforming Using Predefined Spatial Mapping Matrices*	MP2232
US	MP2284PR	61/051,725	5/9/2008	N/A	N/A	*Expired*	*Location Aware Hotspot Access*	MP2284
US	MP2284	12/437,312	5/7/2009	8,598,984	12/3/2013	*Issued*	*Systems and Methods for Providing Location-Aware Wi-Fi Access for a Portable Device*	MP2284
US	MP2284C1	14/094,698	12/2/2013	9,374,775	6/21/2016	*Issued*	*Systems and Methods for Providing Location-Aware Wi-Fi Access for a Portable Device*	MP2284
WO	MP2284WO	PCT/US2009/043204	5/7/2009	N/A	N/A	*Expired*	*Systems and Methods for Providing Location-Aware Wi-Fi Access for a Portable Device*	MP2284
CN	MP2284WOCN	200980115562.8	5/7/2009	ZL200980115562.8	6/17/2015	*Issued*	*Systems and Methods for Providing Location-Aware Wi-Fi Access for a Portable Device*	MP2284
EP	MP2284WOEP	09743704.0	5/7/2009	2283693	7/11/2018	*Issued*	*Systems and Methods for Providing Location-Aware WI-FI Access for a Portable Device*	MP2284

DE	MP2284WOEPDE	09743704.0	5/7/2009	2283693	7/11/2018	*Issued*	*Systems and Methods for Providing Location-Aware WI-FI Access for a Portable Device*	MP2284
FR	MP2284WOEPFR	09743704.0	5/7/2009	2283693	7/11/2018	*Issued*	*Systems and Methods for Providing Location-Aware WI-FI Access for a Portable Device*	MP2284
GB	MP2284WOEPGB	09743704.0	5/7/2009	2283693	7/11/2018	*Issued*	*Systems and Methods for Providing Location-Aware WI-FI Access for a Portable Device*	MP2284
JP	MP2284WOJP	2011-508685	5/7/2009	5517079	4/11/2014	*Issued*	*Systems and Methods for Providing Location-Aware WI-FI Access for a Portable Device*	MP2284
US	MP2465PR	61/060,583	6/11/2008	N/A	N/A	*Expired*	*Mixed Mode Security for Mesh Networks*	MP2465
US	MP2465	12/482,817	6/11/2009	9,232,389	1/5/2016	*Issued*	*Mixed Mode Security for Mesh Networks*	MP2465
WO	MP2465WO	PCT/US2009/047077	6/11/2009	N/A	N/A	*Expired*	*Mixed Mode Security for Mesh Networks*	MP2465
US	MP2493PR	61/060,587	6/11/2008	N/A	N/A	*Expired*	*Optimizations For Dense Mesh*	MP2493
US	MP2493	12/477,751	6/3/2009	8,787,330	7/22/2014	*Issued*	*Dense Mesh Network Communications*	MP2493
WO	MP2493WO	PCT/IB2009/005851	6/3/2009	N/A	N/A	*Expired*	*Dense Mesh Network Communications*	MP2493
US	MP2558PR	61/046,934	4/22/2008	N/A	N/A	*Expired*	*Data Symbol Mapping For MIMO HARQ*	MP2558

US	MP2558	12/410,044	3/24/2009	8,279,963	10/2/2012	*Issued*	*Data Symbol Mapping For Multiple-Input Multiple-Output Hybrid Automatic Repeat Request*	MP2558
WO	MP2558WO	PCT/US2009/041081	4/20/2009	N/A	N/A	*Expired*	*Data Symbol Mapping For Multiple-Input Multiple-Output Hybrid Automatic Repeat Request*	MP2558
US	MP2588PR	61/051,941	5/9/2008	N/A	N/A	*Expired*	*Symbol-Level Combining Receiver For Incremental Redundancy HARQ With MIMO*	MP2588
US	MP2588	12/463,017	5/8/2009	8,750,418	6/10/2014	*Issued*	*Symbol Vector-Level Combining Transmitter for Incremental Redundancy HARQ with MIMO*	MP2588
US	MP2588C1	14/283,802	5/21/2014	9,100,065	8/4/2015	*Issued*	*Symbol Vector-Level Combining Transmitter for Incremental Redundancy HARQ with MIMO*	MP2588
US	MP2588D1	12/463,025	5/8/2009	8,271,861	9/18/2012	*Issued*	*Symbol Vector-Level Combining Transmitter for Incremental Redundancy HARQ with MIMO*	MP2588
US	MP2588D1C1	13/605,099	9/6/2012	8,516,353	8/20/2013	*Issued*	*Symbol Vector-Level Combining Transmitter for Incremental Redundancy HARQ with MIMO*	MP2588
WO	MP2588WO	PCT/US2009/002881	5/8/2009	N/A	N/A	*Expired*	*Symbol Vector-Level Combining Transmitter for Incremental Redundancy HARQ with MIMO*	MP2588
US	MP2598PR	61/053,526	5/15/2008	N/A	N/A	*Expired*	*Preamble Format To 60GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2598PR2	61/078,925	7/8/2008	N/A	N/A	*Expired*	*PHY Preamble Format For 60GHz Wideband Wireless Communication Systems*	MP2598/ MP2693

US	MP2598	12/419,460	4/7/2009	8,385,390	2/26/2013	*Issued*	*PHY Preamble Format For Wireless Communication System*	MP2598/ MP2693
US	MP2598C1	13/751,388	1/28/2013	9,313,754	4/12/2016	*Issued*	*PHY Preamble Format For Wireless Communication System*	MP2598/ MP2693
US	MP2598-US-CON-CON	15/090,064	4/4/2016	N/A	N/A	*Pending*	*PHY Preamble Format for Wireless Communication System*	MP2598/ MP2693
WO	MP2598WO	PCT/US2009/039724	4/7/2009	N/A	N/A	*Expired*	*PHY Preamble Format for Wireless Communication System*	MP2598/ MP2693
CN	MP2598WOCN	200980123723.8	4/7/2009	ZL200980123723.8	4/16/2014	*Issued*	*PHY Preamble Format for Wireless Communication System*	MP2598/ MP2693
DE	MP2598WODE	09747075.1	4/7/2009	EP2277270	6/11/2014	*Issued*	*PHY Preamble Format for Wireless Communication System*	MP2598/ MP2693
EP	MP2598WOEP	EP09747075.1	4/7/2009	EP2277270	6/11/2014	*Issued*	*PHY Preamble Format for Wireless Communication System*	MP2598/ MP2693
FR	MP2598WOFR	09747075.1	4/7/2009	2277270	6/11/2014	*Issued*	*PHY Preamble Format for Wireless Communication System*	MP2598/ MP2693
GB	MP2598WOGB	09747075.1	4/7/2009	EP2277270	6/11/2014	*Issued*	*PHY Preamble Format for Wireless Communication System*	MP2598/ MP2693
JP	MP2598WOJP	2011-509515	4/7/2009	5453704	1/17/2014	*Issued*	*PHY Preamble Format for Wireless Communication System*	MP2598/ MP2693
US	MP2611PR	61/118,727	12/1/2008	N/A	N/A	*Expired*	*Portable AP Enhancements*	MP2611

US	MP2611	12/435,871	5/5/2009	9,055,531	6/9/2015	*Issued*	*Portable AP Enhancements*	MP2611
WO	MP2611WO	PCT/US2009/042884	5/5/2009	N/A	N/A	*Expired*	*Access Point Enhancements*	MP2611
CN	MP2611WOCN	200980116723.5	5/5/2009	N/A	N/A	*Abandoned*	*Access Point Enhancements*	MP2611
EP	MP2611WOEP	09830754.9	5/5/2009	2277286	11/23/2016	*Issued*	*Access Point Enhancements*	MP2611
DE	MP2611WOEPDE	09830754.9	5/5/2009	2277286	11/23/2016	*Issued*	*Access Point Enhancements*	MP2611
FR	MP2611WOEPFR	09830754.9	5/5/2009	2277286	11/23/2016	*Issued*	*Access Point Enhancements*	MP2611
GB	MP2611WOEPGB	09830754.9	5/5/2009	2277286	11/23/2016	*Issued*	*Access Point Enhancements*	MP2611
US	MP2693PR	61/080,514	7/14/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2693PR2	61/084,133	7/28/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2693PR3	61/084,776	7/30/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2693PR4	61/085,763	8/1/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693

US	MP2693PR5	61/090,058	8/19/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2693PR6	61/091,885	8/26/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2693PR7	61/098,128	9/18/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2693PR8	61/098,970	9/22/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2693PR9	61/100,112	9/25/2008	N/A	N/A	*Expired*	*Shortened PHY Preamble Format For 60 GHz Wideband Wireless Communication Systems*	MP2598/ MP2693
US	MP2693	12/466,984	5/15/2009	8,331,419	12/11/2012	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
US	MP2693D1	12/466,997	5/15/2009	8,175,118	5/8/2012	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
US	MP2693D1C1	13/465,743	5/7/2012	8,929,397	1/6/2015	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
US	MP2693D2	12/467,010	5/15/2009	8,175,119	5/8/2012	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
US	MP2693D2D1	13/456,941	4/26/2012	8,885,669	11/11/2014	*Issued*	*Method and Apparatus for Processing a Preamble of a Packet*	MP2598/ MP2693
US	MP2693D3	12/467,022	5/15/2009	8,385,440	2/26/2013	*Issued*	*Apparatus for Generating Spreading Sequences and Determining Correlation*	MP2598/ MP2693

US	MP2693D3D1	13/771,596	2/20/2013	8,989,287	3/24/2015	*Issued*	*Apparatus for Generating Spreading Sequences and Determining Correlation*	MP2598/ MP2693
EP	MP2693EPD1	EP12008566.7	5/15/2009	EP2573992	4/16/2014	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
DE	MP2693EPD1DE	12008566.7	5/15/2009	2573992	4/16/2014	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
FR	MP2693EPD1FR	12008566.7	5/15/2009	2573992	4/16/2014	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
GB	MP2693EPD1GB	12008566.7	5/15/2009	2573992	4/16/2014	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
CN	MP2693WCD1	201410049626.1	5/15/2009	ZL201410049626.1	4/26/2017	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
JP	MP2693WJD1	2014-078383	4/7/2014	5813816	10/2/2015	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
WO	MP2693WO	PCT/US2009/044160	5/15/2009	N/A	N/A	*Expired*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
CN	MP2693WOCN	200980116743.2	5/15/2009	ZL200980116743.2	3/12/2014	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
EP	MP2693WOEP	EP09747686.5	5/15/2009	EP2281357	12/26/2012	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
DE	MP2693WOEPDE	9747686.5	5/15/2009	6020090	12/26/2012	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693

FR	MP2693WOEPFR	9747686.5	5/15/2009	2281357	12/26/2012	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
GB	MP2693WOEPGB	9747686.5	5/15/2009	2281357	12/26/2012	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
JP	MP2693WOJP	2011-509752	5/15/2009	5610233	9/12/2014	*Issued*	*Efficient Physical Layer Preamble Format*	MP2598/ MP2693
US	MP2926PR	61/100,948	9/29/2008	N/A	N/A	*Expired*	*Control PHY Preamble Format For 60GHz Wideband Wireless Communication Systems*	MP2926
US	MP2926PR2	61/101,833	10/1/2008	N/A	N/A	*Expired*	*Control PHY Preamble Format For 60GHz Wideband Wireless Communication Systems*	MP2926
US	MP2926PR3	61/108,079	10/24/2008	N/A	N/A	*Expired*	*Control PHY Preamble Format For 60GHz Wideband Wireless Communication Systems*	MP2926
US	MP2926PR4	61/110,357	10/31/2008	N/A	N/A	*Expired*	*Control PHY For 60GHz Wideband Wireless Communication Systems*	MP2926
US	MP2926PR5	61/120,973	12/9/2008	N/A	N/A	*Expired*	*Control PHY Preamble Format For 60GHz Wideband Wireless Communication Systems*	MP2926
US	MP2926PR6	61/121,392	12/10/2008	N/A	N/A	*Expired*	*Control PHY For 60GHz Wideband Wireless Communication Systems*	MP2926
US	MP2926PR7	61/153,102	2/17/2009	N/A	N/A	*Expired*	*Control PHY For 60GHz Wideband Wireless Communication Systems*	MP2926

US	MP2926PR8	61/156,651	3/2/2009	N/A	N/A	*Expired*	*Next Generation mmWave Specification*	MP2926
US	MP2926PR9	61/171,343	4/21/2009	N/A	N/A	*Expired*	*Control PHY For 60GHz Wideband Wireless Communication Systems*	MP2926
US	MP2926PR10	61/174,382	4/30/2009	N/A	N/A	*Expired*	*Control PHY For 60GHz Wideband Wireless Communication Systems*	MP2926
US	MP2926	12/569,547	9/29/2009	8,165,185	4/24/2012	*Issued*	*Physical Layer Data Unit Format*	MP2926
US	MP2926C1	13/448,847	4/17/2012	8,599,900	12/3/2013	*Issued*	*Physical Layer Data Unit Format*	MP2926
US	MP2926C2	13/453,609	4/23/2012	8,774,251	7/8/2014	*Issued*	*Physical Layer Data Unit Format*	MP2926
US	MP2926C2C1	14/324,977	7/7/2014	9,525,759	12/20/2016	*Issued*	*Physical Layer Data Unit Format*	MP2926
CN	MP2926WCN1	2014103485305	9/29/2009	ZL2014103485305	9/22/2017	*Issued*	*Physical Layer Data Unit Format*	MP2926
JP	MP2926WJD1	2014-005784	1/16/2014	5669052	12/26/2014	*Issued*	*Physical Layer Data Unit Format*	MP2926
WO	MP2926WO	PCT/US2009/058795	9/29/2009	N/A	N/A	*Expired*	*Physical Layer Data Unit Format*	MP2926
CN	MP2926WOCN	200980138268.9	9/29/2009	ZL200980138268.9	8/20/2014	*Issued*	*Physical Layer Data Unit Format*	MP2926

EP	MP2926WOEP	EP09793116.6	9/29/2009	2359511	8/15/2018	*Issued*	*Physical Layer Data Unit Format*	MP2926
JP	MP2926WOJP	2011-529353	9/29/2009	5462267	1/24/2014	*Issued*	*Physical Layer Data Unit Format*	MP2926
DE	MP2926WUDE	EP09793116.6	9/29/2009	602009053914.0	8/15/2018	*Issued*	*Physical Layer Data Unit Format*	MP2926
FR	MP2926WUFR	EP09793116.6	9/29/2009	2359511	8/15/2018	*Issued*	*Physical Layer Data Unit Format*	MP2926
GB	MP2926WUGB	EP09793116.6	9/29/2009	2359511	8/15/2018	*Issued*	*Physical Layer Data Unit Format*	MP2926
US	MP3287PR	61/219,924	6/24/2009	N/A	N/A	*Expired*	*Wireless Multiband Security*	MP3287/ MP3362
US	MP3287PR2	61/243,422	9/17/2009	N/A	N/A	*Expired*	*Wireless Multiband Security*	MP3287/ MP3362
US	MP3287PR3	61/255,035	10/26/2009	N/A	N/A	*Expired*	*Wireless Multiband Security*	MP3287/ MP3362
US	MP3287PR4	61/259,582	11/9/2009	N/A	N/A	*Expired*	*Wireless Multiband Security*	MP3287/ MP3362
US	MP3287PR5	61/264,200	11/24/2009	N/A	N/A	*Expired*	*Wireless Multiband Security*	MP3287/ MP3362
US	MP3287PR6	61/290,127	12/24/2009	N/A	N/A	*Expired*	*Wireless Multiband Security*	MP3287/ MP3362

US	MP3287PR7	61/294,705	1/13/2010	N/A	N/A	*Expired*	*Wireless Multiband Security*	MP3287/ MP3362
US	MP3287	12/784,050	5/20/2010	8,812,833	8/19/2014	*Issued*	*Wireless Multiband Security*	MP3287/ MP3362
US	MP3287C1	14/459,827	8/14/2014	9,462,472	10/4/2016	*Issued*	*System And Method For Establishing Security In Network Devices Capable Of Operating In Multiple Frequency Bands*	MP3287/ MP3362
US	MP3287C1C1	15/277,557	9/27/2016	9,992,680	6/5/2018	*Issued*	*System And Method For Establishing Security In Network Devices Capable of Operating In Multiple Frequency Bands*	MP3287/ MP3362
WO	MP3287WO	PCT/US2010/039641	6/23/2010	N/A	N/A	*Expired*	*Wireless Multiband Security*	MP3287/ MP3362
CN	MP3287WOCN	201080028451.6	6/23/2010	ZL201080028451.6	8/12/2015	*Issued*	*Wireless Multiband Security*	MP3287/ MP3362
EP	MP3287WOEP	EP10729013.2	6/23/2010	EP2446698	11/30/2016	*Issued*	*Wireless Multiband Security*	MP3287/ MP3362
DE	MP3287WOEPDE	10729013.2	6/23/2010	6020100384330	11/30/2016	*Issued*	*Wireless Multiband Security*	MP3287/ MP3362
FR	MP3287WOEPFR	10729013.2	6/23/2010	2446698	11/30/2016	*Issued*	*Wireless Multiband Security*	MP3287/ MP3362
GB	MP3287WOEPGB	10729013.2	6/23/2010	2446698	11/30/2016	*Issued*	*Wireless Multiband Security*	MP3287/ MP3362
JP	MP3287WOJP	2012-517682	6/23/2010	5780558	7/24/2015	*Issued*	*Wireless Multiband Security*	MP3287/ MP3362

KR	MP3287WOKR	1020127001843	6/23/2010	101659988	9/20/2016	*Issued*	*Wireless Multiband Security*	MP3287/ MP3362
US	MP3362PR	61/239,295	9/2/2009	N/A	N/A	*Expired*	*AES-GCM Support In Next Generation WLAN System*	MP3287/ MP3362
US	MP3362PR2	61/243,272	9/17/2009	N/A	N/A	*Expired*	*AES-GCM Support In Next Generation WLAN System*	MP3287/ MP3362
US	MP3362PR3	61/244,787	9/22/2009	N/A	N/A	*Expired*	*AES-GCM Support In Next Generation WLAN System*	MP3287/ MP3362
US	MP3362	12/858,950	8/18/2010	8,560,848	10/15/2013	*Issued*	*Galois/Counter Mode Encryption In A Wireless Network*	MP3287/ MP3362
US	MP3362C1	14/053,109	10/14/2013	9,071,416	6/30/2015	*Issued*	*Galois/Counter Mode Encryption In A Wireless Network*	MP3287/ MP3362
WO	MP3362WO	PCT/US2010/046595	8/25/2010	N/A	N/A	*Expired*	*GALOIS/Counter Mode Encryption In A Wireless Network*	MP3287/ MP3362
CN	MP3362WOCN	201080045802.4	8/25/2010	ZL201080045802.4	1/7/2015	*Issued*	*GALOIS/Counter Mode Encryption In A Wireless Network*	MP3287/ MP3362
EP	MP3362WOEP	EP10751744.3	8/25/2010	N/A	N/A	*Expired*	*Galois/Counter Mode Encryption in a Wireless Network*	MP3287/ MP3362
JP	MP3362WOJP	2012-527912	8/25/2010	5725306	4/10/2015	*Issued*	*GALOIS/Counter Mode Encryption In A Wireless Network*	MP3287/ MP3362
KR	MP3362WOKR	1020127007125	8/25/2010	101699915	1/19/2017	*Issued*	*GALOIS/Counter Mode Encryption In A Wireless Network*	MP3287/ MP3362

US	MP3381PR	61/243,848	9/18/2009	N/A	N/A	*Expired*	*Short Packet For Use in Beamforming*	MP3381
US	MP3381	12/876,758	9/7/2010	9,219,576	12/22/2015	*Issued*	*Short Packet For Use in Beamforming*	MP3381
US	MP3381C1	14/977,027	12/21/2015	9,608,771	3/28/2017	*Issued*	*Short Packet For Use in Beamforming*	MP3381
WO	MP3381WO	PCT/US2010/047990	9/7/2010	N/A	N/A	*Expired*	*Short Packet For Use in Beamforming*	MP3381
US	MP3423PR	61/257,768	11/3/2009	N/A	N/A	*Expired*	*Receiving Filtering by Using Preamble*	MP3423
US	MP3423PR2	61/354,013	6/11/2010	N/A	N/A	*Expired*	*VHT Power Saving Enhancements*	MP3423
US	MP3423	12/938,260	11/2/2010	9,480,018	10/25/2016	*Issued*	*PHY Data Unit Format for MIMO*	MP3423
US	MP3423C1	15/332,662	10/24/2016	N/A	N/A	*Pending*	*Power Saving in a Communication Device*	MP3423
WO	MP3423WO	PCT/US2010/055118	11/2/2010	N/A	N/A	*Expired*	*Power Saving in a Communication Device*	MP3423
CN	MP3423WOCN	201080047912.4	11/2/2010	ZL201080047912.4	6/1/2016	*Issued*	*Power Saving in a Communication Device*	MP3423
EP	MP3423WOEP	EP10778776.4	11/2/2010	2497304	6/20/2018	*Issued*	*Power Saving in a Communication Device*	MP3423

DE	MP3423WOEPDE	EP10778776.4	11/2/2010	2497304	6/20/2018	*Issued*	*Power Saving in a Communication Device*	MP3423
FR	MP3423WOEPFR	EP10778776.4	11/2/2010	2497304	6/20/2018	*Issued*	*Power Saving in a Communication Device*	MP3423
GB	MP3423WOEPGB	EP10778776.4	11/2/2010	2497304	6/20/2018	*Issued*	*Power Saving in a Communication Device*	MP3423
JP	MP3423WOJP	2012-537191	11/2/2010	5718350	3/27/2015	*Issued*	*Power Saving in a Communication Device*	MP3423
KR	MP3423WOKR	10-2012-7009312	11/2/2010	10-1679007	11/23/2016	*Issued*	*Power Saving in a Communication Device*	MP3423
US	MP3789PR	61/372,378	8/10/2010	N/A	N/A	*Expired*	*Sub-Band V Feedback for 802.11ac Beamforming and Downlink-Multiuser MIMO*	MP3789
US	MP3789	13/205,257	8/8/2011	9,252,991	2/2/2016	*Issued*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789
US	MP3789C1	15/008,618	1/28/2016	9,806,784	10/31/2017	*Issued*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789
US	MP3789C1C1	15/789,542	10/20/2017	10,389,425	8/20/2019	*Issued*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789
US	MP3789C1C1C1	16/544,434	8/19/2019	N/A	N/A	*Pending*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789
WO	MP3789WO	PCT/US2011/046934	8/8/2011	N/A	N/A	*Expired*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789

CN	MP3789WOCN	201180038983.2	8/8/2011	ZL201180038983.2	6/8/2016	*Issued*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789
EP	MP3789WOEP	11752371.2	8/8/2011	N/A	N/A	*Allowed*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789
JP	MP3789WOJP	2013-524148	8/8/2011	6002974	9/16/2016	*Issued*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789
KR	MP3789WOKR	10-2013-7005438	8/8/2011	101829851	3/29/2018	*Issued*	*Sub-Band Feedback for Beamforming on Downlink Multiple User MIMO Configurations*	MP3789
US	MP3793PR	61/382,415	9/13/2010	N/A	N/A	*Expired*	*Reduced Coverage Low Interference AP Profile*	MP3793
US	MP3793	13/218,737	8/26/2011	8,811,206	8/19/2014	*Issued*	*Access Point Controller for Adjusting a Wireless Access Point*	MP3793
WO	MP3793WO	PCT/US2011/049307	8/26/2011	N/A	N/A	*Expired*	*Access Point Controller for Adjusting a Wireless Access Point*	MP3793
CN	MP3793WOCN	201180043963.4	8/26/2011	ZL201180043963.4	11/16/2016	*Issued*	*Adjusting Transmission Rate and Range of a Wireless Access Point*	MP3793
EP	MP3793WOEP	EP11802786.1	8/26/2011	EP2617253	11/22/2017	*Issued*	*Adjusting Transmission Rate and Range of a Wireless Access Point*	MP3793
JP	MP3793WOJP	2013-527697	8/26/2011	6023056	10/14/2016	*Issued*	*Adjusting Transmission Rate and Range of a Wireless Access Point*	MP3793
KR	MP3793WOKR	10-2013-7006364	8/26/2011	101942038	1/25/2019	*Issued*	*Access Point Controller for Adjusting a Wireless Access Point*	MP3793

DE	MP3793WUDE	EP11802786.1	8/26/2011	602011043627.9	11/22/2017	*Issued*	*Adjusting Transmission Rate and Range of a Wireless Access Point*	MP3793
FR	MP3793WUFR	EP11802786.1	8/26/2011	2617253	11/22/2017	*Issued*	*Adjusting Transmission Rate and Range of a Wireless Access Point*	MP3793
GB	MP3793WUGB	EP11802786.1	8/26/2011	2617253	11/22/2017	*Issued*	*Adjusting Transmission Rate and Range of a Wireless Access Point*	MP3793
US	MP3837PR	61/389,664	10/4/2010	N/A	N/A	*Expired*	*Chinese 125MHz Band Support*	MP3837
US	MP3837PR2	61/392,614	10/13/2010	N/A	N/A	*Expired*	*Chinese 125MHz Band Support*	MP3837
US	MP3837	13/246,351	9/27/2011	8,787,338	7/22/2014	*Issued*	*Determining a Communication Channel from a Plurality of Possible Channel Bandwidths*	MP3837
US	MP3837C1	13/246,469	9/27/2011	8,670,399	3/11/2014	*Issued*	*Determining a Communication Channel from a Plurality of Possible Channel Bandwidths*	MP3837
WO	MP3837WO	PCT/US2011/053437	9/27/2011	N/A	N/A	*Expired*	*Determining a Communication Channel from a Plurality of Possible Channel Bandwidths*	MP3837
US	MP3845PR	61/390,971	10/7/2010	N/A	N/A	*Expired*	*Avoiding MCS Exclusions in 11ac*	MP3845
US	MP3845	13/246,577	9/27/2011	8,873,652	10/28/2014	*Issued*	*Parsing and Encoding Methods in a Communication System*	MP3845
US	MP3845I1PR	61/678,531	8/1/2012	N/A	N/A	*Expired*	*Avoiding MCS Exclusions in 11ac*	MP3845

US	MP3845I1	13/957,309	8/1/2013	9,264,287	2/16/2016	*Issued*	*Encoding Parameters for a Wireless Communication System*	MP3845
US	MP3845I1C1	15/043,237	2/12/2016	9,936,053	4/3/2018	*Issued*	*Encoding Parameters for a Wireless Communication System*	MP3845
US	MP3845I1C1C1	15/943,170	4/2/2018	N/A	N/A	*Pending*	*Encoding Parameters for a Wireless Communication System*	MP3845
WO	MP3845WO	PCT/US2013/053277	8/1/2013	N/A	N/A	*Published*	*Encoding Parameters for a Wireless Communication System*	MP3845
CN	MP3845FWCN	201380049474.9	8/1/2013	ZL201380049474.9	1/18/2019	*Issued*	*Encoding Parameters for a Wireless Communication System*	MP3845
EP	MP3845FWEP	13750214.2	8/1/2013	N/A	N/A	*Published*	*Encoding Parameters for a Wireless Communication System*	MP3845
JP	MP3845FWJP	2015-525603	1/30/2015	6340650	5/25/2018	*Issued*	*Encoding Parameters for a Wireless Communication System*	MP3845
KR	MP3845FWKR	10-2015-7004999	8/1/2013	N/A	N/A	*Published*	*Encoding Parameters for a Wireless Communication System*	MP3845
US	MP3849PR	61/392,610	10/13/2010	N/A	N/A	*Expired*	*120 Mhz Operation*	MP3849
US	MP3849PR2	61/430,391	1/6/2011	N/A	N/A	*Expired*	*120 Mhz Operation*	MP3849
US	MP3849PR3	61/431,763	1/11/2011	N/A	N/A	*Expired*	*120 Mhz Operation*	MP3849

WO	MP3849WO	PCT/US2011/055988	10/12/2011	N/A	N/A	*Expired*	*Method and Apparatus for Generating an OFDM Symbol*	MP3849
CN	MP3849WOCN	201180056537.4	10/12/2011	ZL201180056537.4	4/26/2017	*Issued*	*Method and Apparatus for Generating an OFDM Symbol*	MP3849
EP	MP3849WOEP	11773955.7	10/12/2011	2628285	3/7/2018	*Issued*	*Method and Apparatus for Generating an OFDM Symbol*	MP3849
JP	MP3849WOJP	2013-533978	10/12/2011	5822215	10/16/2015	*Issued*	*Method and Apparatus for Generating an OFDM Symbol*	MP3849
KR	MP3849WOKR	10-2013-7012	10/12/2011	N/A	N/A	*Abandoned*	*Method and Apparatus for Generating an OFDM Symbol*	MP3849
DE	MP3849WUDE	11773955.7	10/12/2011	602011046314.4	3/7/2018	*Issued*	*Method and Apparatus for Generating an OFDM Symbol*	MP3849
FR	MP3849WUFR	11773955.7	10/12/2011	2628285	3/7/2018	*Issued*	*Method and Apparatus for Generating an OFDM Symbol*	MP3849
GB	MP3849WUGB	11773955.7	10/12/2011	2628285	3/7/2018	*Issued*	*Method and Apparatus for Generating an OFDM Symbol*	MP3849
US	MP3987PR	61/430,428	1/6/2011	N/A	N/A	*Expired*	*160 MHz CSD in 802.11ac*	MP3987
US	MP3987	13/335,789	12/22/2011	8,625,561	1/7/2014	*Issued*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
US	MP3987C1	14/147,363	1/3/2014	9,397,802	7/19/2016	*Issued*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987

WO	MP3987WO	PCT/US2011/066964	12/22/2011	N/A	N/A	*Published*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
CN	MP3987WOCN	201180064422.X	12/22/2011	ZL201180064422.X	6/22/2016	*Issued*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
EP	MP3987WOEP	11811616.9	12/22/2011	2661850	10/3/2018	*Issued*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
DE	MP3987WOEPDE	11811616.9	12/22/2011	2661850	10/3/2018	*Issued*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
FR	MP3987WOEPFR	11811616.9	12/22/2011	2661850	10/3/2018	*Issued*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
GB	MP3987WOEPGB	11811616.9	12/22/2011	2661850	10/3/2018	*Issued*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
JP	MP3987WOJP	2013-548430	12/22/2011	5901077	3/18/2016	*Issued*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
KR	MP3987WOKR	10-2013-7020145	12/22/2011	N/A	N/A	*Pending*	*Cyclic Shift Delay Techniques for WLAN Multi-Radio Devices*	MP3987
US	MP4038PR	61/440,814	2/8/2011	N/A	N/A	*Expired*	*IEEE 802.11af*	MP4038/ MP4075
US	MP4038	13/369,102	2/8/2012	8,867,481	10/21/2014	*Issued*	*WLAN Channel Allocation*	MP4038/ MP4075
US	MP4038PR	61/440,814	2/8/2011	N/A	N/A	*Expired*	*IEEE 802.11af*	MP4038/ MP4075

US	MP4038PR2	61/443,185	2/15/2011	N/A	N/A	*Expired*	*IEEE 802.11af*	MP4038/ MP4075
US	MP4038C1	13/402,869	2/22/2012	9,025,540	5/5/2015	*Issued*	*WLAN Channel Allocation*	MP4038/ MP4075
WO	MP4038WO	PCT/US2012/024351	2/8/2012	N/A	N/A	*Expired*	*WLAN Channel Allocation*	MP4038/ MP4075
CN	MP4038WOCN	201280015283.6	2/8/2012	ZL201280015283.6	7/14/2017	*Issued*	*WLAN Channel Allocation In Unused TV Frequency*	MP4038/ MP4075
EP	MP4038WOEP	12704359.4	2/8/2012	2674002	6/6/2018	*Issued*	*WLAN Channel Allocation*	MP4038/ MP4075
JP	MP4038WOJP	2013-552740	2/8/2012	6029113	10/28/2016	*Issued*	*WLAN Channel Allocation*	MP4038/ MP4075
KR	MP4038WOKR	10-2013-7023739	2/8/2012	10-1967413	4/3/2019	*Issued*	*WLAN Channel Allocation In Unused TV Frequency*	MP4038/ MP4075
DE	MP4038WUDE	12704359.4	2/8/2012	2674002	6/6/2018	*Issued*	*WLAN Channel Allocation*	MP4038/ MP4075
FR	MP4038WUFR	12704359.4	2/8/2012	2674002	6/6/2018	*Issued*	*WLAN Channel Allocation*	MP4038/ MP4075
GB	MP4038WUGB	12704359.4	2/8/2012	2674002	6/6/2018	*Issued*	*WLAN Channel Allocation*	MP4038/ MP4075
US	MP4075PR	61/452,475	3/14/2011	N/A	N/A	*Expired*	*Wireless Location Assignment*	MP4038/ MP4075

US	MP4075	13/418,934	3/13/2012	8,971,942	3/3/2015	*Issued*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
WO	MP4075WO	PCT/US2012/028918	3/13/2012	N/A	N/A	*Expired*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
CN	MP4075WOCN	201280013366.1	3/13/2012	ZL201280013366.1	5/10/2017	*Issued*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
EP	MP4075WOEP	12710429.7	3/13/2012	EP2687058	3/4/2015	*Issued*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
JP	MP4075WOJP	2013-558113	3/13/2012	6278306	2/14/2018	*Issued*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
KR	MP4075WOKR	1020137026897	3/13/2012	101509629	4/1/2015	*Issued*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
DE	MP4075WUDE	12710429.7	3/13/2012	2687058	3/4/2015	*Issued*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
FR	MP4075WUFR	12710429.7	3/13/2012	2687058	3/4/2015	*Issued*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
GB	MP4075WUGB	12710429.7	3/13/2012	2687058	3/4/2015	*Issued*	*Assisted Location-Based Wireless Spectrum Allocation*	MP4038/ MP4075
US	MP4076PR	61/486,705	5/16/2011	N/A	N/A	*Expired*	*Methods To Reuse The WCDMA Band1 TX For TDSCDMA Band1/2*	MP4076
US	MP4076	13/446,485	4/13/2012	8,625,472	1/7/2014	*Issued*	*Systems and Methods for Processing Time-Division Signals and Frequency-Division Signals*	MP4076

US	MP4076C1	14/100,864	12/9/2013	9,184,903	11/10/2015	*Issued*	*Systems and Methods for Processing Time-Division Signals and Frequency-Division Signals*	MP4076
WO	MP4076WO	PCT/US2012/033532	4/13/2012	N/A	N/A	*Expired*	*Systems and Methods for Processing Time-Division Signals and Frequency-Division Signals*	MP4076
CN	MP4076WOCN	201280023862.5	4/13/2012	ZL201280023862.5	3/15/2017	*Issued*	*Systems and Methods for Processing Time-Division Signals and Frequency-Division Signals*	MP4076
EP	MP4076WOEP	12721600	4/13/2012	N/A	N/A	*Published*	*Systems and Methods for Processing Time-Division Signals and Frequency-Division Signals*	MP4076
KR	MP4076WOKR	10-2013-7033239	4/13/2012	10-1769568	8/11/2017	*Issued*	*Systems and Methods for Processing Time-Division Signals and Frequency-Division Signals*	MP4076
US	MP4114PR	61/481,079	4/29/2011	N/A	N/A	*Expired*	*WLAN/BT Coexistence Schemes for IBSS*	MP4114/ MP4548
US	MP4114	13/458,227	4/27/2012	9,026,162	5/5/2015	*Issued*	*Multi-Technology Coexistence For IBSS Networks*	MP4114/ MP4548
US	MP4114C1	14/702,000	5/1/2015	9,485,767	11/1/2016	*Issued*	*Method And Apparatus For Facilitating The Coexistence Of Wireless Communications Of Different Wireless Communication Technologies*	MP4114/ MP4548
WO	MP4114WO	PCT/US2012/035597	4/27/2012	N/A	N/A	*Expired*	*Multi-Technology Coexistence For IBSS Networks*	MP4114/ MP4548
CN	MP4114WOCN	201280020850.7	4/27/2012	ZL201280020850.7	5/10/2017	*Issued*	*Multi-Technology Coexistence For IBSS Networks*	MP4114/ MP4548
EP	MP4114WOEP	12719234.2	4/27/2012	N/A	N/A	*Allowed*	*Multi-Technology Coexistence For IBSS Networks*	MP4114/ MP4548

JP	MP4114WOJP	2014-508139	4/27/2012	5943068	6/3/2016	*Issued*	*Multi-Technology Coexistence For IBSS Networks*	MP4114/ MP4548
KR	MP4114WOKR	1020137030268	4/27/2012	N/A	N/A	*Allowed*	*Multi-Technology Coexistence For IBSS Networks*	MP4114/ MP4548
US	MP4170PR	61/494,362	6/7/2011	N/A	N/A	*Expired*	*Remove Service Field in 11ah and 11af*	MP4170
US	MP4170	13/491,527	6/7/2012	8,989,392	3/24/2015	*Issued*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
US	MP4170PR	61/494,362	6/7/2011	N/A	N/A	*Expired*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
US	MP4170C1	14/665,898	3/23/2015	9,736,724	8/15/2017	*Issued*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
WO	MP4170WO	PCT/US2012/041422	6/7/2012	N/A	N/A	*Expired*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
CN	MP4170WOCN	201280036053.8	6/7/2012	ZL201280036053.8	1/16/2018	*Issued*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
EP	MP4170WOEP	12730296.6	6/7/2012	2719220	4/27/2016	*Issued*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
DE	MP4170WOEPDE	12730296.6	6/7/2012	2719220	4/27/2016	*Issued*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
FR	MP4170WOEPFR	12730296.6	6/7/2012	2719220	4/27/2016	*Issued*	*Physical Layer Frame Format for Long Range WLAN*	MP4170

GB	MP4170WOEPGB	12730296.6	6/7/2012	2719220	4/27/2016	*Issued*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
JP	MP4170WOJP	2014-514853	6/7/2012	5967632	7/15/2016	*Issued*	*Physical Layer Frame Format for Long Range WLAN*	MP4170
US	MP4182PR	61/497,274	6/15/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR2	61/513,452	7/29/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR3	61/514,164	8/2/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR4	61/523,014	8/12/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR5	61/523,799	8/15/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR6	61/524,231	8/16/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR7	61/531,548	9/6/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR8	61/534,641	9/14/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR9	61/537,169	9/21/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182

US	MP4182PR10	61/550,321	10/21/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182PR11	61/552,631	10/28/2011	N/A	N/A	*Expired*	*11ah OFDM Low Bandwidth PHY*	MP4182
US	MP4182	13/494,505	6/12/2012	8,826,106	9/2/2014	*Issued*	*Low Bandwidth PHY for WLAN*	MP4182
US	MP4182C1	13/494,515	6/12/2012	8,891,435	11/18/2014	*Issued*	*Low Bandwidth PHY for WLAN*	MP4182
US	MP4182C2	13/494,527	6/12/2012	8,902,869	12/2/2014	*Issued*	*Low Bandwidth PHY for WLAN*	MP4182
WO	MP4182WO	PCT/US2012/042027	6/12/2012	N/A	N/A	*Expired*	*Low Bandwidth PHY for WLAN*	MP4182
CN	MP4182WOCN	201280037310.X	6/12/2012	ZL201280037310X	6/5/2018	*Issued*	*Methods and Apparatuses for Wireless Local Area Networks*	MP4182
EP	MP4182WOEP	12733258.3	6/12/2012	N/A	N/A	*Published*	*Low Bandwidth PHY for WLAN*	MP4182
EP	MP4182WED1	Not Yet Assigned	6/12/2012	N/A	N/A	*Pending*	*Low Bandwidth PHY for WLAN*	MP4182
JP	MP4182WOJP	2014-515913	6/12/2012	6143016	5/19/2017	*Issued*	*Low Bandwidth PHY for WLAN*	MP4182
KR	MP4182WOKR	2014-7001043	6/12/2012	101927495	12/11/2018	*Issued*	*Low Bandwidth PHY for WLAN*	MP4182

US	MP4251PR	61/524,996	8/18/2011	N/A	N/A	*Expired*	*Reduce SIG Field*	MP4251
US	MP4251	13/587,667	8/16/2012	9,031,049	5/12/2015	*Issued*	*Signal Field Design for WLAN*	MP4251
US	MP4251D1	13/587,681	8/16/2012	9,078,169	7/7/2015	*Issued*	*Signal Field Design for WLAN*	MP4251
WO	MP4251WO	PCT/US2012/051184	8/16/2012	N/A	N/A	*Expired*	*Signal Field Design for WLAN*	MP4251
CN	MP4251WOCN	201280051253.0	8/16/2012	ZL201280051253.0	4/24/2018	*Issued*	*Signal Field Design for WLAN*	MP4251
EP	MP4251WOEP	12753308.1	8/16/2012	2745554	10/10/2018	*Issued*	*Signal Field Design for WLAN*	MP4251
DE	MP4251WOEPDE	12753308.1	8/16/2012	602012052043.4	10/10/2018	*Issued*	*Signal Field Design for WLAN*	MP4251
FR	MP4251WOEPFR	12753308.1	8/16/2012	2745554	10/10/2018	*Issued*	*Signal Field Design for WLAN*	MP4251
GB	MP4251WOEPGB	12753308.1	8/16/2012	2745554	10/10/2018	*Issued*	*Signal Field Design for WLAN*	MP4251
JP	MP4251WOJP	2014-526218	8/16/2012	5984160	8/12/2016	*Issued*	*Signal Field Design for WLAN*	MP4251
KR	MP4251WOKR	10-2014-7007084	8/16/2012	N/A	N/A	*Allowed*	*Signal Field Design for WLAN*	MP4251

US	MP4347PR	61/554,872	11/2/2011	N/A	N/A	*Expired*	*11Ah 1Mhz/2Mhz Auto-Detection Using LTF1 Sequence*	MP4347
US	MP4347	13/661,423	10/26/2012	9,350,583	5/24/2016	*Issued*	*Method and Apparatus for Automatically Detecting a Physical Layer (PHY) Mode of a Data Unit in a Wireless Local Area Network (WLAN)*	MP4347
WO	MP4347WO	PCT/US2012/062039	10/26/2012	N/A	N/A	*Expired*	*Method and Apparatus for Automatically Detecting a Physical Layer (PHY) Mode of a Data Unit in a Wireless Local Area Network (WLAN)*	MP4347
CN	MP4347WOCN	201280053208.9	10/26/2012	ZL201280053208.9	2/23/2018	*Issued*	*Method and Apparatus for Automatically Detecting a Physical Layer (PHY) Mode of a Data Unit in a Wireless Local Area Network (WLAN)*	MP4347
EP	MP4347WOEP	EP12791602.1	10/26/2012	N/A	N/A	*Published*	*Method and Apparatus for Automatically Detecting a Physical Layer (PHY) Mode of a Data Unit in a Wireless Local Area Network (WLAN)*	MP4347
JP	MP4347WOJP	2014-539999	10/26/2012	6124362	4/14/2017	*Issued*	*Method and Apparatus for Automatically Detecting a Physical Layer (PHY) Mode of a Data Unit in a Wireless Local Area Network (WLAN)*	MP4347
KR	MP4347WOKR	2014-7012034	5/2/2014	10-1945974	1/30/2019	*Issued*	*Method and Apparatus for Automatically Detecting a Physical Layer (PHY) Mode of a Data Unit in a Wireless Local Area Network (WLAN)*	MP4347
US	MP4402PR	61/560,733	11/16/2011	N/A	N/A	*Expired*	*Frequency Domain 32FFT Duplication*	MP4402

US	MP4402	13/679,221	11/16/2012	8,953,579	2/10/2015	*Issued*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
WO	MP4402WO	PCT/US2012/065507	11/16/2012	N/A	N/A	*Expired*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
CN	MP4402WOCN	201280056359.X	11/16/2012	ZL201280056359.X	10/24/2017	*Issued*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
EP	MP4402WOEP	EP12799388.9	11/16/2012	2781038	4/25/2018	*Issued*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
JP	MP4402WOJP	2014-542491	11/16/2012	6083683	2/3/2017	*Issued*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
KR	MP4402WOKR	2014-7012037	11/16/2012	N/A	N/A	*Published*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
DE	MP4402WUDE	EP12799388.9	11/16/2012	2781038	4/25/2018	*Issued*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
FR	MP4402WUFR	EP12799388.9	11/16/2012	2781038	4/25/2018	*Issued*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
GB	MP4402WUGB	EP12799388.9	11/16/2012	2781038	4/25/2018	*Issued*	*Frequency Duplication Mode for Use in Wireless Local Area Networks (WLANs)*	MP4402
US	MP4509PR	61/585,550	1/11/2012	N/A	N/A	*Expired*	*Padding/Tail Bits Flow For 11Ah*	MP4509
US	MP4509PR2	61/592,519	1/30/2012	N/A	N/A	*Expired*	*Padding/Tail Bits Flow For 11Ah*	MP4509

US	MP4509PR3	61/625,490	4/17/2012	N/A	N/A	*Expired*	*Padding/Tail Bits Flow For 11Ah*	MP4509
US	MP4509	13/739,657	1/11/2013	8,988,979	3/24/2015	*Issued*	*Information BIT Padding Schemes for WLAN*	MP4509
WO	MP4509WO	PCT/US2013/021213	1/11/2013	N/A	N/A	*Expired*	*Information BIT Padding Schemes for WLAN*	MP4509
CN	MP4509WOCN	201380009957.6	1/11/2013	ZL201380009957.6	5/24/2017	*Issued*	*Information BIT Padding Schemes for WLAN*	MP4509
EP	MP4509WOEP	EP13720531.6	1/11/2013	EP2803160	1/6/2016	*Issued*	*Information BIT Padding Schemes for WLAN*	MP4509
DE	MP4509WOEPDE	13720531.6	1/11/2013	2803160	1/6/2016	*Issued*	*Information BIT Padding Schemes for WLAN*	MP4509
FR	MP4509WOEPFR	13720531.6	1/11/2013	2803160	1/6/2016	*Issued*	*Information BIT Padding Schemes for WLAN*	MP4509
GB	MP4509WOEPGB	13720531.6	1/11/2013	2803160	1/6/2016	*Issued*	*Information BIT Padding Schemes for WLAN*	MP4509
JP	MP4509WOJP	2014-551691	1/11/2013	6025076	10/21/2016	*Issued*	*Information BIT Padding Schemes for WLAN*	MP4509
KR	MP4509WOKR	10-2014-7021837	1/11/2013	N/A	N/A	*Allowed*	*Information BIT Padding Schemes for WLAN*	MP4509
US	MP4515PR	61/586,565	1/13/2012	N/A	N/A	*Expired*	*Single User Beamforming Format in 11ah*	MP4515

US	MP4515PR2	61/587,386	1/17/2012	N/A	N/A	*Expired*	*Single User Beamforming Format in 11ah*	MP4515
US	MP4515PR3	61/591,718	1/27/2012	N/A	N/A	*Expired*	*Single User Beamforming Format in 11ah*	MP4515
US	MP4515PR4	61/610,725	3/14/2012	N/A	N/A	*Expired*	*Transmit Beamforming with MU-MIMO*	MP4515
US	MP4515PR5	61/674,724	7/23/2012	N/A	N/A	*Expired*	*Single User Beamforming Format in 11ah*	MP4515
US	MP4515	13/741,094	1/14/2013	9,246,738	1/26/2016	*Issued*	*Single User and Multi-User Data Unit Formats in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
US	MP4515D1	13/741,077	1/14/2013	9,203,683	12/1/2015	*Issued*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
US	MP4515D1C1	14/954,373	11/30/2015	9,667,462	5/30/2017	*Issued*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
WO	MP4515WO	PCT/US2013/021454	1/14/2013	N/A	N/A	*Expired*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
CN	MP4515WOCN	201380010106.3	1/14/2013	ZL201380010106.3	12/29/2017	*Issued*	*Method and Apparatus for Generating Data Units for Transmission Via a Communication Channel Below 1 GHz*	MP4515
EP	MP4515WOEP	EP13722047.1	1/14/2013	2803175	6/5/2019	*Issued*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515

EP	MP4515WEPD1	19169589.9	1/14/2013	N/A	N/A	*Pending*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
DE	MP4515WOEPDE	EP13722047.1	1/14/2013	602013056186.9	6/5/2019	*Issued*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
FR	MP4515WOEPFR	EP13722047.1	1/14/2013	2803175	6/5/2019	*Issued*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
GB	MP4515WOEPGB	EP13722047.1	1/14/2013	2803175	6/5/2019	*Issued*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
JP	MP4515WOJP	2014-551693	1/14/2013	6189330	8/10/2017	*Issued*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
KR	MP4515WOKR	10-2014-7021838	1/14/2013	N/A	N/A	*Published*	*Data Unit Format for Single User Beamforming in Long-Range Wireless Local Area Networks (WLANS)*	MP4515
US	MP4530PR	61/592,121	1/30/2012	N/A	N/A	*Expired*	*Efficient Wireless Discovery*	MP4530
US	MP4530	13/752,902	1/29/2013	9,161,201	10/13/2015	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
US	MP4530C1	14/682,808	4/9/2015	9,232,385	1/5/2016	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
WO	MP4530WO	PCT/US2013/023620	1/29/2013	N/A	N/A	*Expired*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530

CN	MP4530WOCN	201380006449.2	1/29/2013	ZL201380006449.2	4/13/2018	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
EP	MP4530WOEP	EP13703284.3	1/29/2013	2810491	7/18/2018	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
DE	MP4530WOEPDE	EP13703284.3	1/29/2013	2810491	7/18/2018	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
FR	MP4530WOEPFR	EP13703284.3	1/29/2013	2810491	7/18/2018	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
GB	MP4530WOEPGB	EP13703284.3	1/29/2013	2810491	7/18/2018	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
JP	MP4530WOJP	2014-554940	1/29/2013	6443745	12/26/2018	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
KR	MP4530WOKR	10-2014-7021629	1/29/2013	10-2001645	7/12/2019	*Issued*	*Method and Apparatus for Discovering a Wireless Device in a Wireless Network*	MP4530
US	MP4548PR	61/596,126	2/7/2012	N/A	N/A	*Expired*	*Simultaneous BSS Network Radio Function*	MP4114/ MP4548
US	MP4548	13/761,949	2/7/2013	9,215,708	12/15/2015	*Issued*	*Method and Apparatus for Multi-Network Communication*	MP4114/ MP4548
WO	MP4548WO	PCT/US2013/025144	2/7/2013	N/A	N/A	*Expired*	*Method and Apparatus for Multi-Network Communication*	MP4114/ MP4548
US	MP4556PR	61/599,166	2/15/2012	N/A	N/A	*Expired*	*1Mhz Transmission In Wider BW*	MP4556

US	MP4556	13/768,876	2/15/2013	8,942,311	1/27/2015	*Issued*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
US	MP4556C1	14/605,858	1/26/2015	9,591,490	3/7/2017	*Issued*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
WO	MP4556WO	PCT/US2013/026438	2/15/2013	N/A	N/A	*Expired*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
CN	MP4556WOCN	201380009956.1	2/15/2013	ZL201380009956.1	12/29/2017	*Issued*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
EP	MP4556WOEP	EP13708286.3	2/15/2013	2815531	4/18/2018	*Issued*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
JP	MP4556WOJP	2014-557829	2/15/2013	6083684	2/3/2017	*Issued*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
KR	MP4556WOKR	10-2014-7023769	2/15/2013	N/A	N/A	*Published*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
DE	MP4556WUDE	EP13708286.3	2/15/2013	2815531	4/18/2018	*Issued*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
FR	MP4556WUFR	EP13708286.3	2/15/2013	2815531	4/18/2018	*Issued*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
GB	MP4556WUGB	EP13708286.3	2/15/2013	2815531	4/18/2018	*Issued*	*Low Bandwidth PHY Transmission in a Wider Bandwidth*	MP4556
US	MP4751PR	61/639,245	4/27/2012	N/A	N/A	*Expired*	*Multi-Channel Scanning*	MP4751

US	MP4751PR2	61/792,405	3/15/2013	N/A	N/A	*Expired*	*Multi-Channel Scanning*	MP4751
US	MP4751	13/858,662	4/8/2013	9,198,120	11/24/2015	*Issued*	*Method And Apparatus For Scanning Multiple Channels In A Wireless Network*	MP4751
WO	MP4751WO	PCT/US2013/036315	4/12/2013	N/A	N/A	*Expired*	*Method And Apparatus For Scanning Multiple Channels In A Wireless Network*	MP4751
CN	MP4751WOCN	201380022076.8	4/12/2013	ZL201380022076.8	7/31/2018	*Issued*	*Method And Apparatus For Scanning Multiple Channels In A Wireless Network*	MP4751
US	MP4774PR	61/647,114	5/15/2012	N/A	N/A	*Expired*	*Simple Compressed Beamforming Feedback Single Stream*	MP4774
US	MP4774PR2	61/678,523	8/1/2012	N/A	N/A	*Expired*	*Simple Compressed Beamforming Feedback Single Stream*	MP4774
US	MP4774	13/890,852	5/9/2013	8,982,980	3/17/2015	*Issued*	*Full and Partial Compressed Feedback Formats for WLAN*	MP4774
WO	MP4774WO	PCT/US2013/040365	5/9/2013	N/A	N/A	*Expired*	*Full and Partial Compressed Feedback Formats for WLAN*	MP4774
CN	MP4774WOCN	201380025579.0	5/9/2013	ZL201380025579.0	2/23/2018	*Issued*	*Full and Partial Compressed Feedback Formats for WLAN*	MP4774
US	MP4845PR	61/666,156	6/29/2012	N/A	N/A	*Expired*	*802.11Ah Full Beacon Design*	MP4845
US	MP4845PR2	61/680,628	8/7/2012	N/A	N/A	*Expired*	*802.11Ah Full Beacon Design*	MP4845

US	MP4845PR3	61/700,148	9/12/2012	N/A	N/A	*Expired*	*802.11ah Full Beacon Design*	MP4845
US	MP4845	13/931,280	6/28/2013	9,596,648	3/14/2017	*Issued*	*Unified Beacon Format*	MP4845
US	MP4845D1	13/931,380	6/28/2013	9,226,227	12/29/2015	*Issued*	*Group-Based Beacons*	MP4845
US	MP4845D2	13/931,399	6/28/2013	9,386,516	7/5/2016	*Issued*	*Using Duration Field in Beacon to Reserve Channel Time Subsequent to Beacon*	MP4845
WO	MP4845WO	PCT/US2013/048638	6/28/2013	N/A	N/A	*Expired*	*Unified Beacon Format*	MP4845
US	MP4878PR	61/679,353	8/3/2012	N/A	N/A	*Expired*	*11ah Sig Field Overloading Bits*	MP4878
US	MP4878	13/957,236	8/1/2013	9,246,729	1/26/2016	*Issued*	*Multi-Mode Indication in Subfield in a Signal Field of a Wireless Local Area Network Data Unit*	MP4878
US	MP4878C1	15/005,314	1/25/2016	N/A	N/A	*Abandoned*	*Multi-Mode Indication in Subfield in a Signal Field of a Wireless Local Area Network Data Unit*	MP4878
WO	MP4878WO	PCT/US2013/053275	8/1/2013	N/A	N/A	*Expired*	*Multi-Mode Indication in Subfield in a Signal Field of a Wireless Local Area Network Data Unit*	MP4878
US	MP5106PR	61/807,149	4/1/2013	N/A	N/A	*Expired*	*Puncture Of Interfering UL Subframes To Facilitate IDC*	MP5106
US	MP5106	14/242,674	4/1/2014	9,590,792	3/7/2017	*Issued*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106

US	MP5106C1	15/448,528	3/2/2017	10,212,721	2/19/2019	*Issued*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106
WO	MP5106WO	PCT/IB2014/000471	4/1/2014	N/A	N/A	*Expired*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106
CN	MP5106WOCN	201480019749.9	4/1/2014	N/A	N/A	*Allowed*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106
EP	MP5106WOEP	EP14724501.3	4/1/2014	2982204	6/5/2019	*Issued*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106
DE	MP5106WOEPDE	EP14724501.3	4/1/2014	602014047832.8	6/5/2019	*Issued*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106
FR	MP5106WOEPFR	EP14724501.3	4/1/2014	2982204	6/5/2019	*Issued*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106
GB	MP5106WOEPGB	EP14724501.3	4/1/2014	2982204	6/5/2019	*Issued*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106
JP	MP5106WOJP	2016-504770	4/1/2014	6395006	9/26/2018	*Issued*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106
KR	MP5106WOKR	10-2015-7030536	4/1/2014	N/A	N/A	*Published*	*Termination of Wireless Communication Uplink Periods to Facilitate Reception of Other Wireless Communications*	MP5106

US	MP5122PR	61/810,602	4/10/2013	N/A	N/A	*Expired*	*Interference Mitigation By Txbf*	MP5122
US	MP5122	14/249,760	4/10/2014	9,325,540	4/26/2016	*Issued*	*Method and Apparatus for Mitigating Interference in a Wireless Network Through use of Transmit Beamforming*	MP5122
US	MP5122I1	14/338,914	7/23/2014	10,320,459	6/11/2019	*Issued*	*Method and Apparatus for Mitigating Interference in a Wireless Network Through use of Transmit Beamforming*	MP5122
WO	MP5122WO	PCT/US2014/047809	7/23/2014	N/A	N/A	*Expired*	*Method and Apparatus for Mitigating Interference in a Wireless Network Through use of Transmit Beamforming*	MP5122
WO	MP5122I1WO						*Method and Apparatus for Mitigating Interference in a Wireless Network Through use of Transmit Beamforming*	MP5122
US	MP5122I1	14/338,914	7/23/2014	10,320,459	6/11/2019	*Issued*	*Method and Apparatus for Mitigating Interference in a Wireless Network Through use of Transmit Beamforming*	MP5122
US	MP5274PR	61/819,292	5/3/2013	N/A	N/A	*Expired*	*Beam Change And Smoothing In Mixed Mode WLAN Systems*	MP5274
US	MP5274	14/269,277	5/5/2014	9,313,691	4/12/2016	*Issued*	*Beam Change And Smoothing In Mixed Mode WLAN Systems*	MP5274
US	MP5274C1	15/077,109	3/22/2016	9,930,571	3/27/2018	*Issued*	*Systems And Methods For Providing WLAN Data Packet Having Dual Configurations*	MP5274

WO	MP5274WO	PCT/US2014/036766	5/5/2014	N/A	N/A	*Expired*	*Beam Change And Smoothing In Mixed Mode WLAN Systems*	MP5274
CN	MP5274WOCN	201480024862.6	5/5/2014	ZL201480024862.6	2/15/2019	*Issued*	*Device, System and Method for Beam Changing and Smoothing in Mixed Mode WLAN Systems*	MP5274
EP	MP5274WOEP	14730297.0	5/5/2014	N/A	N/A	*Published*	*Beam Change And Smoothing Recommendation In Mixed Mode WLAN Systems*	MP5274
JP	MP5274WOJP	2016-512104	5/5/2014	6332771	5/30/2018	*Issued*	*Beam Change And Smoothing Recommendation In Mixed Mode WLAN Systems*	MP5274
KR	MP5274WOKR	1020157033247	5/5/2014	N/A	N/A	*Published*	*Beam Change And Smoothing Recommendation In Mixed Mode WLAN Systems*	MP5274
US	MP5361PR	61/837,997	6/21/2013	N/A	N/A	*Expired*	*Methods For Determining Indicators Used In CSI Feedback In Wireless Systems*	MP5361
US	MP5361	14/310,281	6/20/2014	9,130,630	9/8/2015	*Issued*	*Methods and Systems for Determining Indicators Used in Channel State Information (CSI) Feedback in Wireless Systems*	MP5361
WO	MP5361WO	PCT/US2014/043459	6/20/2014	N/A	N/A	*Expired*	*Methods and Systems for Determining Indicators Used in Channel State Information (CSI) Feedback in Wireless Systems*	MP5361
US	MP5524PR	61/902,413	11/11/2013	N/A	N/A	*Expired*	*OFDMA MAC Consideration*	MP5524
US	MP5524PR2	61/947,922	3/4/2014	N/A	N/A	*Expired*	*OFDMA MAC Consideration*	MP5524

US	MP5524	14/538,573	11/11/2014	10,257,806	4/9/2019	*Issued*	*Medium Access Control for Multi-Channel OFDM in a Wireless Local Area Network*	MP5524
US	MP5524C1	16/370,610	3/29/2019	N/A	N/A	*Pending*	*Medium Access Control for Multi-Channel OFDM in a Wireless Local Area Network*	MP5524
WO	MP5524WO	PCT/US2014/065049	11/11/2014	N/A	N/A	*Expired*	*Medium Access Control for Multi-Channel OFDM in a Wireless Local Area Network*	MP5524
US	MP5543PR	61/909,598	11/27/2013	N/A	N/A	*Expired*	*UL MU MIMO Beamforming*	MP5543
US	MP5543	14/554,497	11/26/2014	9,166,660	10/20/2015	*Issued*	*Uplink Multi-User Multiple Input Multiple Output Beamforming*	MP5543
US	MP5543D1	14/755,722	6/30/2015	9,407,347	8/2/2016	*Issued*	*Uplink Multi-User Multiple Input Multiple Output Beamforming*	MP5543
US	MP5543D1C1	15/225,225	8/1/2016	9,699,748	7/4/2017	*Issued*	*Uplink Multi-User Multiple Input Multiple Output Beamforming*	MP5543
WO	MP5543WO	PCT/US2014/067596	11/26/2014	N/A	N/A	*Expired*	*Uplink Multi-User Multiple Input Multiple Output Beamforming*	MP5543
US	MP5544PR	61/909,700	11/27/2013	N/A	N/A	*Expired*	*OFDMA For WLAN: Sounding And Tone-Block Allocation*	MP5544
US	MP5544PR2	61/938,441	2/11/2014	N/A	N/A	*Expired*	*OFDMA For WLAN: Sounding And Tone-Block Allocation*	MP5544
US	MP5544	14/555,183	11/26/2014	9,473,341	10/18/2016	*Issued*	*Sounding and Tone Block Allocation for Orthogonal Frequency Multiple Access (OFDMA) in Wireless Local Area Networks*	MP5544

US	MP5544C1	15/295,685	10/17/2016	10,075,318	9/11/2018	*Issued*	*Sounding and Tone Block Allocation for Orthogonal Frequency Multiple Access (OFDMA) in Wireless Local Area Networks*	MP5544
US	MP5544C1C1	16/126,678	9/10/2018	N/A	N/A	*Allowed*	*Sounding and Tone Block Allocation for Orthogonal Frequency Multiple Access (OFDMA) in Wireless Local Area Networks*	MP5544
US	MP5544D1	15/137,901	4/25/2016	10,103,923	10/16/2018	*Issued*	*Sounding and Tone Block Allocation for Orthogonal Frequency Multiple Access (OFDMA) in Wireless Local Area Networks*	MP5544
WO	MP5544WO	PCT/US2014/67728	11/26/2014	N/A	N/A	*Expired*	*Sounding and Tone Block Allocation for Orthogonal Frequency Multiple Access (OFDMA) in Wireless Local Area Networks*	MP5544
US	MP5827PR	61/980,417	4/16/2014	N/A	N/A	*Expired*	*L-SIG Length Field Design For HEW*	MP5827
US	MP5827PR2	62/012,930	6/16/2014	N/A	N/A	*Expired*	*L-SIG Length Field Design For HEW*	MP5827
US	MP5827PR3	62/114,232	2/10/2015	N/A	N/A	*Expired*	*L-SIG Length Field Design For HEW*	MP5827
US	MP5827PR4	62/138,148	3/25/2015	N/A	N/A	*Expired*	*L-SIG Length Field Design For HEW*	MP5827
US	MP5827	14/688,884	4/16/2015	10,044,476	8/7/2018	*Issued*	*Signal Field Length Indication in a High Efficiency Wireless Local Area Network (WLAN)*	MP5827
US	MP5827C1	16/055,743	8/6/2018	N/A	N/A	*Pending*	*Signal Field Length Indication in a High Efficiency Wireless Local Area Network (WLAN)*	MP5827

US	MP5827D1	14/688,859	4/16/2015	10,142,067	11/27/2018	*Issued*	*Determining a Number of Orthogonal Frequency Division Multiplexing (OFDM) Symbols in a Packet*	MP5827
WO	MP5827WO	PCT/US2015/026160	4/16/2015	N/A	N/A	*Expired*	*Signal Field Length Indication in a High Efficiency Wireless Local Area Network (WLAN)*	MP5827
CN	MP5827WOCN	201580029948.2	4/16/2015	ZL 201580029948.2	8/13/2019	*Issued*	*Signal Field Length Indication in a High Efficiency Wireless Local Area Network (WLAN)*	MP5827
EP	MP5827WOEP	15720160.9	4/16/2015	N/A	N/A	*Published*	*Signal Field Length Indication in a High Efficiency Wireless Local Area Network (WLAN)*	MP5827
US	MP5842PR	61/986,650	4/30/2014	N/A	N/A	*Expired*	*HEW NDP Frame Design*	MP5842
US	MP5842PR2	62/141,173	3/31/2015	N/A	N/A	*Expired*	*HEW NDP Frame Design*	MP5842
US	MP5842	14/697,128	4/27/2015	9,749,975	8/29/2017	*Issued*	*Systems And Methods For Implementing Protected Access Based On A Null Data Packet In A Wireless Network*	MP5842
WO	MP5842WO	PCT/US2015/028013	4/28/2015	N/A	N/A	*Published*	*Systems And Methods For Implementing Protected Access Based On A Null Data Packet In A Wireless Network*	MP5842
US	MP5853PR	61/987,751	5/2/2014	N/A	N/A	*Expired*	*Sync Of OFDMA, UL MU MIMO*	MP5853
US	MP5853	14/702,480	5/1/2015	9,629,127	4/18/2017	*Issued*	*Multiple User Allocation Signaling in a Wireless Communication Network*	MP5853
WO	MP5853WO	PCT/US2015/028920	5/1/2015	N/A	N/A	*Expired*	*Multiple User Allocation Signaling in a Wireless Communication Network*	MP5853

CN	MP5853WOCN	201580033447.1	5/1/2015	N/A	N/A	*Published*	*Multiple User Allocation Signaling in a Wireless Communication Network*	MP5853
EP	MP5853WOEP	15725444.2	5/1/2015	N/A	N/A	*Published*	*Multiple User Allocation Signaling in a Wireless Communication Network*	MP5853
JP	MP5853WOJP	2016-565142	5/1/2015	6430535	11/9/2018	*Issued*	*Multiple User Allocation Signaling in a Wireless Communication Network*	MP5853
KR	MP5853WOKR	10-2016-7033664	5/1/2015	N/A	N/A	*Pending*	*Multiple User Allocation Signaling in a Wireless Communication Network*	MP5853
US	MP5859I1PR	62/171,534	6/5/2015	N/A	N/A	*Expired*	*OFDMA Contiguous Resource Allocation Signaling for WiFi*	MP5859
US	MP5859IPR2	62/183,849	6/24/2015	N/A	N/A	*Expired*	*OFDMA Contiguous Resource Allocation Signaling for WiFi*	MP5859
US	MP5859IPR3	62/246,311	10/26/2015	N/A	N/A	*Expired*	*OFDMA Contiguous Resource Allocation Signaling for WiFi*	MP5859
US	MP5859I1	15/173,152	6/3/2016	10,164,695	12/25/2018	*Issued*	*Tone Block and Spatial Stream Allocation*	MP5859
WO	MP5859I1WO	PCT/US2016/35827	6/3/2016	N/A	N/A	*Published*	*Tone Block and Spatial Stream Allocation*	MP5859
CN	MP5859IWCN	201680043816.X	6/3/2016	N/A	N/A	*Pending*	*Tone Block and Spatial Stream Allocation*	MP5859
EP	MP5859I1WOEP	16730952.5	6/3/2016	N/A	N/A	*Pending*	*Tone Block and Spatial Stream Allocation*	MP5859

US	MP5877PR	62/006,522	6/2/2014	N/A	N/A	*Expired*	*High Efficiency OFDM PHY For WLAN 802.11Ax*	MP5877
US	MP5877PR2	62/027,425	7/22/2014	N/A	N/A	*Expired*	*High Efficiency OFDM PHY For WLAN 802.11Ax*	MP5877
US	MP5877	14/728,802	6/2/2015	9,832,059	11/28/2017	*Issued*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
US	MP5877C1	15/793,664	10/25/2017	10,257,006	4/9/2019	*Issued*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
US	MP5877C1C1	16/370,588	3/29/2019	10,411,937	9/10/2019	*Issued*	*Generating Packets Having Orthogonal Frequency Division Multiplexing (OFDM) Symbols*	MP5877
US	MP5877C1C1C1	16/564,927	9/9/2019	N/A	N/A	*Pending*	*Generating Packets Having Orthogonal Frequency Division Multiplexing (OFDM) Symbols*	MP5877
WO	MP5877WO	PCT/US2015/033818	6/2/2015	N/A	N/A	*Expired*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
CN	MP5877WOCN	201580041076.1	6/2/2015	N/A	N/A	*Published*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
EP	MP5877WOEP	15748332.2	6/2/2015	3149879	5/23/2018	*Issued*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877

JP	MP5877WOJP	2016-570884	6/2/2015	6457557	12/28/2018	*Issued*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
JP	MP5877WJD1	2018-238533	12/1/2016	N/A	N/A	*Pending*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
KR	MP5877WOKR	10-2016-7035527	6/2/2015	N/A	N/A	*Pending*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
DE	MP5877WUDE	15748332.2	6/2/2015	602015011469.8	5/23/2018	*Issued*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
FR	MP5877WUFR	15748332.2	6/2/2015	3149879	5/23/2018	*Issued*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
GB	MP5877WUGB	15748332.2	6/2/2015	3149879	5/23/2018	*Issued*	*High Efficiency Orthogonal Frequency Division Multiplexing (OFDM) Physical Layer (PHY)*	MP5877
US	MP5899PR	62/011,332	6/12/2014	N/A	N/A	*Expired*	*Bandwidth/AC Selection and Acknowledge Indication OFDMA, UL MU, MIMO*	MP5899
US	MP5899PR2	62/044,838	9/2/2014	N/A	N/A	*Expired*	*Bandwidth/AC Selection and Acknowledge Indication OFDMA, UL MU, MIMO*	MP5899
US	MP5899PR3	62/112,959	2/6/2015	N/A	N/A	*Expired*	*Bandwidth/AC Selection and Acknowledge Indication OFDMA, UL MU, MIMO*	MP5899
US	MP5899	14/738,521	6/12/2015	9,912,388	3/6/2018	*Issued*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899

US	MP5899C1	15/337,579	10/28/2016	N/A	N/A	*Pending*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
US	MP5899C2	15/911,584	3/5/2018	N/A	N/A	*Pending*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
WO	MP5899WO	PCT/US2015/035649	6/12/2015	N/A	N/A	*Expired*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
CN	MP5899WOCN	201580043492.5	6/12/2015	N/A	N/A	*Published*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
EP	MP5899WOEP	15731795.9	6/12/2015	3155751	3/20/2019	*Issued*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
DE	MP5899WOEPDE	15731795.9	6/12/2015	602015026748.6	3/20/2019	*Issued*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
FR	MP5899WOEPFR	15731795.9	6/12/2015	3155751	3/20/2019	*Issued*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
GB	MP5899WOEPGB	15731795.9	6/12/2015	3155751	3/20/2019	*Issued*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
JP	MP5899WOJP	2016-572661	6/12/2015	N/A	N/A	*Published*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
KR	MP5899WOKR	10-2017-7000617	6/12/2015	N/A	N/A	*Pending*	*Sub-Channel Allocation in Orthogonal Frequency Division Multiplex WLAN*	MP5899
US	MP5900PR	62/010,787	6/11/2014	N/A	N/A	*Expired*	*Compressed OFDM Symbol For Padding*	MP5900/ MP6379

US	MP5900PR2	62/027,525	7/22/2014	N/A	N/A	*Expired*	*Compressed OFDM Symbol For Padding and Preamble*	MP5900/ MP6379
US	MP5900PR3	62/034,502	8/7/2014	N/A	N/A	*Expired*	*Compressed OFDM Symbol For Padding and Preamble*	MP5900/ MP6379
US	MP5900PR4	62/041,858	8/26/2014	N/A	N/A	*Expired*	*Compressed OFDM Symbol For Padding and Preamble*	MP5900/ MP6379
US	MP5900PR5	62/051,089	9/16/2014	N/A	N/A	*Expired*	*Compressed OFDM Symbol For Padding and Preamble*	MP5900/ MP6379
US	MP5900PR6	62/087,083	12/3/2014	N/A	N/A	*Expired*	*Compressed OFDM Symbol For Padding and Preamble*	MP5900/ MP6379
US	MP5900PR7	62/094,825	12/19/2014	N/A	N/A	*Expired*	*Compressed OFDM Symbol For Padding and Preamble*	MP5900/ MP6379
US	MP5900PR8	62/148,456	4/16/2015	N/A	N/A	*Expired*	*Compressed OFDM Symbols For Padding And Preamble- V6*	MP5900/ MP6379
US	MP5900PR9	62/168,652	5/29/2015	N/A	N/A	*Expired*	*Compressed OFDM Symbol For Padding and Preamble*	MP5900/ MP6379
US	MP5900	14/737,316	6/11/2015	9,397,873	7/19/2016	*Issued*	*Compressed Orthogonal Frequency Division Multiplexing (OFDM) Symbols in a Wireless Communication System*	MP5900/ MP6379

US	MP5900C1	15/212,927	7/18/2016	9,768,996	9/19/2017	*Issued*	*Compressed Orthogonal Frequency Division Multiplexing (OFDM) Symbols in a Wireless Communication System*	MP5900/ MP6379
US	MP5900C1C1	15/706,971	9/18/2017	10,116,477	10/30/2018	*Issued*	*Padding for Orthogonal Frequency Division Multiplexing (OFDM) Symbols in a Wireless Communication System*	MP5900/ MP6379
US	MP5900C1C1C1	16/170,919	10/25/2018	N/A	N/A	*Pending*	*Padding for Orthogonal Frequency Division Multiplexing (OFDM) Symbols in a Wireless Communication System*	MP5900/ MP6379
PCT	MP5900WO	PCT/US2015/035401	6/11/2015	N/A	N/A	*Expired*	*Compressed Orthogonal Frequency Division Multiplexing (OFDM) Symbols in a Wireless Communication System*	MP5900/ MP6379
CN	MP5900WOCN	201580042728.3	6/11/2015	N/A	N/A	*Pending*	*Compressed OFDM Symbols in a Wireless Communication System*	MP5900/ MP6379
EP	MP5900WOEP	15731211.7	6/11/2015	3155778	2/20/2019	*Issued*	*Compressed OFDM Symbols in a Wireless Communication System*	MP5900/ MP6379
DE	MP5900WOEPDE	15731211.7	6/11/2015	602015024871.6	2/20/2019	*Issued*	*Compressed OFDM Symbols in a Wireless Communication System*	MP5900/ MP6379
FR	MP5900WOEPFR	15731211.7	6/11/2015	3155778	2/20/2019	*Issued*	*Compressed OFDM Symbols in a Wireless Communication System*	MP5900/ MP6379

GB	MP5900WOEPGB	15731211.7	6/11/2015	3155778	2/20/2019	*Issued*	*Compressed OFDM Symbols in a Wireless Communication System*	MP5900/ MP6379
JP	MP5900WOJP	2016-571725	6/11/2015	N/A	N/A	*Pending*	*Compressed OFDM Symbols in a Wireless Communication System*	MP5900/ MP6379
KR	MP5900WOKR	10-2017-7000223	6/11/2015	N/A	N/A	*Pending*	*Compressed Orthogonal Frequency Division Multiplexing (OFDM) Symbols in a Wireless Communication System*	MP5900/ MP6379
US	MP5900C1	15/212,927	7/18/2016	9,768,996	9/19/2017	*Issued*	*Compressed Orthogonal Frequency Division Multiplexing (OFDM) Symbols in a Wireless Communication System*	MP5900/ MP6379
US	MP5909PR	62/024,822	7/15/2014	N/A	N/A	*Expired*	*Channel Frame Structures For High Efficiency Wireless LAN (HEW)*	MP5909
US	MP5909	14/795,233	7/9/2015	10,009,922	6/26/2018	*Issued*	*Channel Frame Structures For High Efficiency Wireless LAN (HEW)*	MP5909
WO	MP5909WO	PCT/US2015/040110	7/13/2015	N/A	N/A	*Expired*	*Group Acknowledgement for Multiple user Communication in a Wireless Local Area Network*	MP5909
US	MP5945PR	62/028,559	7/24/2014	N/A	N/A	*Expired*	*Group Acknowledge Design for UL MU MIMO/OFDMA*	MP5945
US	MP5945PR2	62/115,371	2/12/2015	N/A	N/A	*Expired*	*Group Acknowledge Design for UL MU MIMO/OFDMA*	MP5945

US	MP5945PR3	62/165,789	5/22/2015	N/A	N/A	*Expired*	*Group Acknowledge Design for UL MU MIMO/OFDMA*	MP5945
US	MP5945	14/808,932	7/24/2015	9,729,214	8/8/2017	*Issued*	*Group Acknowledgement for Multiple User Communication in a Wireless Local Area Network*	MP5945
US	MP5945C1	15/670,536	8/7/2017	N/A	N/A	*Pending*	*Group Acknowledgement for Multiple User Communication in a Wireless Local Area Network*	MP5945
US	MP5992PR	62/078,169	11/11/2014	N/A	N/A	*Expired*	*MU Acknowledge*	MP5992
US	MP5992PR2	62/148,659	4/16/2015	N/A	N/A	*Expired*	*Acknowledge For DL MU MIMO/OFDMA*	MP5992
US	MP5992PR3	62/156,047	5/1/2015	N/A	N/A	*Expired*	*Acknowledge For DL MU MIMO/OFDMA*	MP5992
US	MP5992PR4	62/204,169	8/12/2015	N/A	N/A	*Expired*	*Acknowledge For DL MU MIMO/OFDMA*	MP5992
US	MP5992	14/938,680	11/11/2015	9,992,774	6/5/2018	*Issued*	*Acknowledgement for Multiple user Communication in a WLAN*	MP5992
US	MP5992C1	15/337,668	10/28/2016	10,098,119	10/9/2018	*Issued*	*Acknowledgement for Multiple user Communication in a WLAN*	MP5992
US	MP5992C2	15/997,033	6/4/2018	N/A	N/A	*Pending*	*Acknowledgement for Multiple user Communication in a WLAN*	MP5992
US	MP5992C1C1C1	16/154,582	10/8/2018	N/A	N/A	*Pending*	*Acknowledgement for Multiple user Communication in a WLAN*	MP5992

WO	MP5992WO	PCT/US2015/060211	11/11/2015	N/A	N/A	*Expired*	*Acknowledgement for Multiple user Communication in a WLAN*	MP5992
EP	MP5992WOEP	15798632.4	11/11/2015	N/A	N/A	*Pending*	*Acknowledgment for Multiple User Communication in a WLAN*	MP5992
US	MP5996PR	62/101,100	1/8/2015	N/A	N/A	*Expired*	*Downlink Signaling for High Efficiency WiFi*	MP5996
US	MP5996PR2	62/148,666	4/16/2015	N/A	N/A	*Expired*	*Downlink Signaling for High Efficiency WiFi*	MP5996
US	MP5996PR3	62/184,420	6/25/2015	N/A	N/A	*Expired*	*Downlink Signaling for High Efficiency WiFi*	MP5996
US	MP5996PR4	62/191,663	7/13/2015	N/A	N/A	*Expired*	*Downlink Signaling for High Efficiency WiFi*	MP5996
US	MP5996PR5	62/199,060	7/30/2015	N/A	N/A	*Expired*	*Downlink Signaling for High Efficiency WiFi*	MP5996
US	MP5996PR6	62/222,509	9/23/2015	N/A	N/A	*Expired*	*Downlink Signaling for High Efficiency WiFi*	MP5996
US	MP5996	14/991,564	1/8/2016	9,768,921	9/19/2017	*Issued*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996
US	MP5996C1	15/702,812	9/13/2017	10,014,992	7/3/2018	*Issued*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996
US	MP5996C1C1	16/025,229	7/2/2018	10,263,738	4/16/2019	*Issued*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996

US	MP5996C1C1C1	16/384,418	4/15/2019	N/A	N/A	*Pending*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996
WO	MP5996WO	PCT/US2016/012704	1/8/2016	N/A	N/A	*Expired*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996
CN	MP5996WOCN	201680014474.9	1/8/2016	N/A	N/A	*Pending*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996
EP	MP5996WOEP	16713133.3	1/8/2016	N/A	N/A	*Pending*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996
JP	MP5996WOJP	2017-535994	1/8/2016	6459015	1/11/2019	*Issued*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996
KR	MP5996WOKR	10-2017-7021697	1/8/2016	N/A	N/A	*Pending*	*Downlink Signaling in a High Efficiency Wireless Local Area Network (WLAN)*	MP5996
US	MP6017PR	62/054,098	9/23/2014	N/A	N/A	*Expired*	*Short Training Field for High Efficiency WiFi*	MP6017
US	MP6017PR2	62/115,787	2/13/2015	N/A	N/A	*Expired*	*Short Training Field for High Efficiency WiFi*	MP6017
US	MP6017PR3	62/141,180	3/31/2015	N/A	N/A	*Expired*	*Short Training Field for High Efficiency WiFi*	MP6017
US	MP6017PR4	62/218,322	9/14/2015	N/A	N/A	*Expired*	*Short Training Field for High Efficiency WiFi*	MP6017
US	MP6017	14/863,208	9/23/2015	9,794,044	10/17/2017	*Issued*	*Short Training Field for WiFi*	MP6017

US	MP6017C1	15/335,149	10/26/2016	10,038,540	7/31/2018	*Issued*	*Short Training Field for WiFi*	MP6017
US	MP6017C1C1	15/883,806	1/30/2018	10419187	9/17/2019	*Issued*	*Short Training Field for WiFi*	MP6017
US	MP6017C3	16/048,445	7/30/2018	N/A	N/A	*Pending*	*Short Training Field for WiFi*	MP6017
PCT	MP6017WO	PCT/US2015/051765	9/23/2015	N/A	N/A	*Expired*	*Short Training Field for WiFi*	MP6017
EP	MP6017WOEP	15775353.4	9/23/2015	N/A	N/A	*Pending*	*Short Training Field for WIFI*	MP6017
US	MP6023PR	62/058,887	10/2/2014	N/A	N/A	*Expired*	*On the Tone Plan of OFDM/OFDMA Based Systems*	MP6023
US	MP6023	14/823,257	8/11/2015	10,164,729	12/25/2018	*Issued*	*System And Method Of Tone Mapping During Single User And Multiple User Operating Modes Including Transmissions Respectively of OFDM Symbols And OFDMA Symbols In A WLAN*	MP6023
WO	MP6023WO	PCT/US2015/048117	9/2/2015	N/A	N/A	*Expired*	*System And Method Of Tone Mapping During Single User And Multiple User Operating Modes Including Transmissions Respectively of OFDM Symbols And OFDMA Symbols In A WLAN*	MP6023
CN	MP6023WOCN	201580053848.3	9/2/2015	N/A	N/A	*Pending*	*System and Method of Tone Mapping in Single User and Multiple User Operating Modes*	MP6023

EP	MP6023WOEP	15763749.7	9/2/2015	3202074	12/12/2018	*Issued*	*System and Method of Tone Mapping in Single User and Multiple User Operating Modes*	MP6023
DE	MP6023WOEPDE	15763749.7	9/2/2015	602015021418.8	12/12/2018	*Issued*	*System and Method of Tone Mapping in Single User and Multiple User Operating Modes*	MP6023
FR	MP6023WOEPFR	15763749.7	9/2/2015	3202074	12/12/2018	*Issued*	*System and Method of Tone Mapping in Single User and Multiple User Operating Modes*	MP6023
GB	MP6023WOEPGB	15763749.7	9/2/2015	3202074	12/12/2018	*Issued*	*System and Method of Tone Mapping in Single User and Multiple User Operating Modes*	MP6023
JP	MP6023WOJP	2017-516734	9/2/2015	N.A	N/A	*Pending*	*System And Method Of Tone Mapping During Single User And Multiple User Operating Modes Including Transmissions Respectively Of OFDM Symbols And OFDMA Symbols In A WLAN*	MP6023
US	MP6071PR	62/115,051	2/11/2015	N/A	N/A	*Expired*	*Interference Measurement Tones for OFDMA-WiFi*	MP6071
US	MP6071	15/004,840	1/22/2016	9,992,001	6/5/2018	*Issued*	*Interference Measurement Pilot Tones*	MP6071
WO	MP6071WO	PCT/IB2016/050345	1/22/2016	N/A	N/A	*Expired*	*Interference Measurement Pilot Tones*	MP6071
US	MP6127PR	62/086,584	12/2/2014	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127

US	MP6127PR2	62/092,053	12/15/2014	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127
US	MP6127PR3	62/102,554	1/12/2015	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127
US	MP6127PR4	62/105,459	1/20/2015	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127
US	MP6127PR5	62/112,524	2/5/2015	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127
US	MP6127PR6	62/112,976	2/6/2015	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127
US	MP6127PR7	62/156,059	5/1/2015	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127
US	MP6127PR8	62/191,658	7/13/2015	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127
US	MP6127PR9	62/222,566	9/23/2015	N/A	N/A	*Expired*	*Signal Field Structure for High Efficiency WiFi*	MP6127
US	MP6127	14/956,947	12/2/2015	10,027,449	7/17/2018	*Issued*	*Signal Fields in a High Efficiency Wireless Local Area Network (WLAN)*	MP6127
US	MP6127C1	16/036,666	7/16/2018	N/A	N/A	*Pending*	*Signal Fields in a High Efficiency Wireless Local Area Network (WLAN) Data Unit*	MP6127
US	MP6128PR	62/088,257	12/5/2014	N/A	N/A	*Expired*	*Sync Design*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558

US	MP6128PR2	62/112,528	2/5/2015	N/A	N/A	*Expired*	*Sync Design*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6128PR3	62/112,894	2/6/2015	N/A	N/A	*Expired*	*Sync Design*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6128PR4	62/204,164	8/12/2015	N/A	N/A	*Expired*	*Sync (Trigger Frame) Design*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6128PR5	62/244,283	10/21/2015	N/A	N/A	*Expired*	*OFDMA Beamforming Feedback*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6128PR6	62/255,822	11/16/2015	N/A	N/A	*Expired*	*DL OFDMA With Broadcast RU*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6128	14/961,380	12/7/2015	10,334,571	6/25/2019	*Allowed*	*Trigger Frame Format for Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6128C1	16/449,029	6/21/2019	N/A	N/A	*Pending*	*Trigger Frame Format for Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
WO	MP6128WO	PCT/US2015/064307	12/7/2015	N/A	N/A	*Expired*	*Trigger Frame Format for Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
CN	MP6128WOCN	201580075093.7	12/7/2015	N/A	N/A	*Pending*	*Trigger Frame Format for Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
EP	MP6128WOEP	15816629.8	12/7/2015	N/A	N/A	*Pending*	*Trigger Frame Format for Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558

US	MP6128I1	15/144,543	5/2/2016	10,390,328	8/20/2019	*Issued*	*Beamforming Training in Orthogonal Frequency Division Multiple Access (OFDMA) Communication Systems*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6128I1C1	16/544,312	8/19/2019	N/A	N/A	*Pending*	*Beamforming Training in Orthogonal Frequency Division Multiple Access (OFDMA) Communication Systems*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
CN	MP6128IWCN	201680035079.9	5/2/2016	N/A	N/A	*Pending*	*Beamforming Training in Orthogonal Frequency Division Multiple Access (OFDMA) Communication Systems*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
EP	MP6128IWEP	16730540.8	5/2/2016	N/A	N/A	*Pending*	*Beamforming Training in Orthogonal Frequency Division Multiple Access (OFDMA) Communication Systems*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6144PR	62/145,407	4/9/2015	N/A	N/A	*Expired*	*Random Access Signals For Wifi*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6144	15/096,098	4/11/2016	10,201,017	2/5/2019	*Issued*	*Contention-Based Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6144C1	15/337,749	10/28/2016	N/A	N/A	*Pending*	*Contention-Based Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
WO	MP6144WO	PCT/US2016/026962	4/11/2016	N/A	N/A	*Expired*	*Contention-Based Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
CN	MP6144WOCN	201680033858.5	4/11/2016	N/A	N/A	*Pending*	*Contention-Based Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558

EP	MP6144WOEP	16718129.6	4/11/2016	N/A	N/A	*Pending*	*Contention-Based Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6356PR	62/156,097	5/1/2015	N/A	N/A	*Expired*	*TXOP Sharing And Extension*	MP6356
US	MP6356PR2	62/323,261	4/15/2016	N/A	N/A	*Expired*	*TXOP Sharing And Extension*	MP6356
US	MP6356	15/144,577	5/2/2016	10,383,091	8/13/2019	*Issued*	*Transmission Opportunity Ownership Transfer and Extension in a Wireless Local Area Network (WLAN)*	MP6356
WO	MP6356WO	PCT/US2016/030440	5/2/2016	N/A	N/A	*Expired*	*Transmission Opportunity Ownership Transfer and Extension in a Wireless Local Area Network (WLAN)*	MP6356
CN	MP6356WOCN	201680036633.5	5/2/2016	N/A	N/A	*Pending*	*Transmission Opportunity Ownership Transfer and Extension in a Wireless Local Area Network (WLAN)*	MP6356
EP	MP6356WOEP	16730541.6	5/2/2016	N/A	N/A	*Pending*	*Transmission Opportunity Ownership Transfer and Extension in a Wireless Local Area Network (WLAN)*	MP6356
US	MP6357PR	62/166,856	5/27/2015	N/A	N/A	*Expired*	*Individual OFDMA Resource Allocation Signaling For Wifi*	MP6357
US	MP6357	15/167,643	5/27/2016	10,079,628	9/18/2018	*Issued*	*Signaling Resource Allocations in Multi-User Data Units*	MP6357
PCT	MP6357WO	PCT/US2016/034827	5/27/2016	N/A	N/A	*Expired*	*Signaling Resource Allocations in Multi-User Data Units*	MP6357

CN	MP6357WOCN	20166839566	5/27/2016	N/A	N/A	*Pending*	*Signaling Resource Allocations in Multi-User Data Units*	MP6357
EP	MP6357WOEP	16730937.6	5/27/2016	N/A	N/A	*Pending*	*Signaling Resource Allocations in Multi-User Data Units*	MP6357
US	MP6379	14/737,273	6/11/2015	9,954,703	4/24/2018	*Issued*	*Compressed Preamble for a Wireless Communication System*	MP5900/ MP6379
US	MP6379C1	15/960,128	4/23/2018	N/A	N/A	*Pending*	*Compressed Preamble for a Wireless Communication System*	MP5900/ MP6379
WO	MP6379WO	PCT/US2015/035403	6/11/2015	N/A	N/A	*Expired*	*Compressed Preamble for a Wireless Communication System*	MP5900/ MP6379
CN	MP6379WOCN	201580042730.0	6/11/2015	N/A	N/A	*Pending*	*Compressed Preamble for a Wireless Communication System*	MP5900/ MP6379
EP	MP6379WOEP	15731212.5	6/11/2015	N/A	N/A	*Pending*	*Compressed Preamble for a Wireless Communication System*	MP5900/ MP6379
JP	MP6379WOJP	2016-572629	6/11/2015	N/A	N/A	*Pending*	*Compressed Preamble for a Wireless Communication System*	MP5900/ MP6379
KR	MP6379WOKR	10-2017-7000616	6/11/2015	N/A	N/A	*Pending*	*Compressed Preamble for a Wireless Communication System*	MP5900/ MP6379
US	MP6383PR	62/173,230	6/9/2015	N/A	N/A	*Expired*	*Uplink Multi-User (UL-MU) Channel Access*	MP6383
US	MP6383PR2	62/305,608	3/9/2016	N/A	N/A	*Expired*	*Uplink Multi-User (UL-MU) Channel Access*	MP6383

US	MP6383	15/178,307	6/9/2016	10,285,202	5/7/2019	*Issued*	*Channel Access for Simultaneous Uplink Transmissions by Multiple Communication Devices*	MP6383
US	MP6383C1	16/404,119	5/6/2019	N/A	N/A	*Pending*	*Channel Access for Simultaneous Uplink Transmissions by Multiple Communication Devices*	MP6383
PCT	MP6383WO	PCT/US2016/036746	6/9/2016	N/A	N/A	*Expired*	*Channel Access for Simultaneous Uplink Transmissions by Multiple Communication Devices*	MP6383
CN	MP6383WOCN	2016800472230	6/9/2016	N/A	N/A	*Pending*	*Channel Access for Simultaneous Uplink Transmissions by Multiple Communication Devices*	MP6383
EP	MP6383WOEP	16732114.0	6/9/2016	N/A	N/A	*Pending*	*Channel Access for Simultaneous Uplink Transmissions by Multiple Communication Devices*	MP6383
US	MP6395PR	62/174,158	6/11/2015	N/A	N/A	*Expired*	*Padding with Signal Extensions*	MP6395
US	MP6395	15/179,150	6/10/2016	10,230,490	3/12/2019	*Issued*	*Systems, Apparatuses and Methods for a Signal Extension Padding Scheme*	MP6395
US	MP6395C1	16/295,499	3/7/2019	N/A	N/A	*Pending*	*Systems, Apparatuses and Methods for a Signal Extension Padding Scheme*	MP6395
WO	MP6395WO	PCT/US2016/036955	6/10/2016	N/A	N/A	*Expired*	*Systems, Apparatuses and Methods for a Signal Extension Padding Scheme*	MP6395
CN	MP6395WOCN	201680033714.X	6/10/2016	N/A	N/A	*Pending*	*Systems, Apparatuses and Methods for a Signal Extension Padding Scheme*	MP6395
EP	MP6395WOEP	16732835.0	6/10/2016	N/A	N/A	*Pending*	*Systems, Apparatuses and Methods for a Signal Extension Padding Scheme*	MP6395

KR	MP6395WOKR	10-2017-7036402	6/10/2016	N/A	N/A	*Pending*	*Systems, Apparatuses and Methods for a Signal Extension Padding Scheme*	MP6395
US	MP6399PR	62/183,838	6/24/2015	N/A	N/A	*Expired*	*OFDMA TWT*	MP6399
US	MP6399PR2	62/259,212	11/24/2015	N/A	N/A	*Expired*	*OFDMA TWT*	MP6399
US	MP6399	15/191,441	6/23/2016	10,187,905	1/22/2019	*Issued*	*Target Wake Time (TWT) Scheduling for Orthogonal Frequency-Division Multiple Access (OFDMA) Channelization*	MP6399
WO	MP6399WO	PCT/IB2016/053760	6/24/2016	N/A	N/A	*Pending*	*Target Wake Time (TWT) Scheduling for Orthogonal Fequency-Division Multiple Access (OFDMA) Channelization*	MP6399
CN	MP6399WOCN	201680030233.3	6/24/2016	N/A	N/A	*Pending*	*Target Wake Time (TWT) Scheduling for Orthogonal Fequency-Division Multiple Access (OFDMA) Channelization*	MP6399
EP	MP6399WOEP	16741992.8	6/24/2016	N/A	N/A	*Pending*	*Target Wake Time (TWT) Scheduling for Orthogonal Fequency-Division Multiple Access (OFDMA) Channelization*	MP6399
US	MP6421PR	62/184,362	6/25/2015	N/A	N/A	*Expired*	*OFDMA LTF Design for WLAN*	MP6421
US	MP6421	15/174,263	6/6/2016	10,230,556	3/12/2019	*Issued*	*Systems and Methods for Implementing an OFDMA LTF Design for Wireless Network Communication*	MP6421
US	MP6421C1	16/291,649	3/4/2019	N/A	N/A	*Pending*	*Systems and Methods for Implementing an OFDMA LTF Design for Wireless Network Communication*	MP6421

PCT	MP6421WO	PCT/US2016/036382	6/8/2016	N/A	N/A	*Expired*	*Systems and Methods for Implementing an OFDMA LTF Design for Wireless Network Communication*	MP6421
CN	MP6421WOCN	201680033219.9	6/8/2016	N/A	N/A	*Pending*	*Systems and Methods for Implementing an OFDMA LTF Design for Wireless Network Communication*	MP6421
EP	MP6421WOEP	16730972.3	6/8/2016	N/A	N/A	*Pending*	*Systems and Methods for Implementing an OFDMA LTF Design for Wireless Network Communication*	MP6421
KR	MP6421WOKR	10-2017-7035810	6/8/2016	N/A	N/A	*Pending*	*Systems and Methods for Implementing an OFDMA LTF Design for Wireless Network Communication*	MP6421
US	MP6452PR	62/205,132	8/14/2015	N/A	N/A	*Expired*	*11Ay PHY Frame Format*	MP6452
US	MP6452	15/236,242	8/12/2016	10,079,709	9/18/2018	*Issued*	*Physical Layer Data Unit Format for a Wireless Communication Network*	MP6452
PCT	MP6452WO	PCT/US2016/046893	8/12/2016	N/A	N/A	*Expired*	*Physical Layer Data Unit Format for a Wireless Communication Network*	MP6452
US	MP6476PR	62/216,550	9/10/2015	N/A	N/A	*Expired*	*11Ax 1X Preamble*	MP6476
US	MP6476PR2	62/246,316	10/26/2015	N/A	N/A	*Expired*	*11Ax 1X Preamble*	MP6476
US	MP6476	15/262,485	9/12/2016	10,075,874	9/11/2018	*Issued*	*Systems and Methods for Transmitting a Preamble within a Wireless Local Area Network (WLAN)*	MP6476
US	MP6476C1	16/126,344	9/10/2018	N/A	N/A	*Pending*	*Systems and Methods for Transmitting a Preamble within a Wireless Local Area Network (WLAN)*	MP6476

WO	MP6476WO	PCT/US2016/051280	9/12/2016	N/A	N/A	*Expired*	*Systems and Methods for Transmitting a Preamble within a Wireless Local Area Network (WLAN)*	MP6476
CN	MP6476WOCN	CN2016851734	9/12/2016	N/A	N/A	*Pending*	*Systems and Methods for Transmitting a Preamble within a Wireless Local Area Network (WLAN)*	MP6476
EP	MP6476WOEP	16771042.5	9/12/2016	N/A	N/A	*Pending*	*Systems and Methods for Transmitting a Preamble within a Wireless Local Area Network (WLAN)*	MP6476
US	MP6485PR	62/243,769	10/20/2015	N/A	N/A	*Expired*	*Acknowledgement of OFDMA A-MPDU With Multiple TCs*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6485PR3	62/297,236	2/19/2016	N/A	N/A	*Expired*	*Acknowledgement of OFDMA A-MPDU With Multiple TCs*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6485PR4	62/304,570	3/7/2016	N/A	N/A	*Expired*	*Acknowledgement of OFDMA A-MPDU With Multiple TCs*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6485	15/299,325	10/20/2016	10,278,224	4/30/2019	*Issued*	*Acknowledgement Data Unit for Multiple Uplink Data Units*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6485C1	16/397,647	4/29/2019	N/A	N/A	*Pending*	*Acknowledgement Data Unit for Multiple Uplink Data Units*	MP6485/ MP6590/ MP10301/ MP10303
WO	MP6485WO	PCT/US2016/057978	10/20/2016	N/A	N/A	*Expired*	*Acknowledgement Data Unit for Multiple Uplink Data Units*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6485I1	16/044,234	7/24/2018	N/A	N/A	*Pending*	*Single Acknowledgement Policy for Aggregate MPDU*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6503PR	62/245,495	10/23/2015	N/A	N/A	*Expired*	*Low-Power-Low-Rate Frame Structure*	MP6503

US	MP6503PR2	62/369,580	8/1/2016	N/A	N/A	*Expired*	*Low-Power-Low-Rate Frame Structure*	MP6503
US	MP6503	15/332,531	10/24/2016	10,165,094	12/25/2018	*Issued*	*Structure for Low-Power-Low-Rate Data Transmission*	MP6503
US	MP6503C1	16/226,174	12/19/2018	N/A	N/A	*Pending*	*Structure for Low-Power-Low-Rate Data Transmission*	MP6503
WO	MP6503WO	PCT/US2016/058466	10/24/2016	N/A	N/A	*Expired*	*Structure for Low-Power-Low-Rate Data Transmission*	MP6503
US	MP6521PR	62/246,445	10/26/2015	N/A	N/A	*Expired*	*Dynamic CCA and Per TXOP Spatial Medium Sharing*	MP6521
US	MP6521	15/335,160	10/26/2016	10,111,185	10/23/2018	*Issued*	*Backoff Operation in Connection with Spatial Reuse*	MP6521
WO	MP6521WO	PCT/US2016/058883	10/26/2016	N/A	N/A	*Expired*	*Backoff Operation in Connection with Spatial Reuse*	MP6521
US	MP6532PR	62/259,220	11/24/2015	N/A	N/A	*Expired*	*A-MPDU With Fragment In MU PPDU*	MP6532
US	MP6532	15/360,538	11/23/2016	N/A	N/A	*Pending*	*Acknowledgement Data Unit for Data Unit Fragment*	MP6532
WO	MP6532WO	PCT/US2016/063599	11/23/2016	N/A	N/A	*Expired*	*Acknowledgement Data Unit for Data Unit Fragment*	MP6532
CN	MP6532WOCN	MP6532WOCN	11/23/2016	N/A	N/A	*Pending*	*Acknowledgement Data Unit for Data Unit Fragment*	MP6532

EP	MP6532WOEP	16816050.5	11/23/2016	N/A	N/A	*Pending*	*Acknowledgement Data Unit for Data Unit Fragment*	MP6532
US	MP6532I1	15/669,884	8/4/2017	N/A	N/A	*Pending*	*Transmitter Defragmentation for Data Unit Fragments*	MP6532
US	MP6536PR	62/263,979	12/7/2015	N/A	N/A	*Expired*	*Trigger-Based Single User UL Transmission in 802.11Ax*	MP6536
US	MP6536	15/372,146	12/7/2016	10,021,224	7/10/2018	*Issued*	*Trigger-Based Single User Uplink Transmission*	MP6536
US	MP6536C1	16/030,436	7/9/2018	10362152	9/3/2019	*Issued*	*Trigger-Based Single User Uplink Transmission*	MP6536
WO	MP6536WO	PCT/US2016/065406	12/7/2016	N/A	N/A	*Expired*	*Trigger-Based Single User Uplink Transmission*	MP6536
CN	MP6536WOCN	201680071893.6	12/7/2016	N/A	N/A	*Pending*	*Trigger-Based Single User Uplink Transmission*	MP6536
EP	MP6536WOEP	16820413.9	12/7/2016	N/A	N/A	*Pending*	*Trigger-Based Single User Uplink Transmission*	MP6536
US	MP6548PR	62/266,224	12/11/2015	N/A	N/A	*Expired*	*Puncturing for HESIGB in 11Ax*	MP6548
US	MP6548	15/375,450	12/12/2016	10,404,839	9/3/2019	*Issued*	*Signal Field Encoding in a High Efficiency Wireless Local Area Network (WLAN)*	MP6548
US	MP6548C1	16/558,270	9/2/2019	N/A	N/A	*Pending*	*Signal Field Encoding in a High Efficiency Wireless Local Area Network (WLAN) Data Unit*	MP6548

PCT	MP6548WO	PCT/US2016/066096	12/12/2016	N/A	N/A	*Expired*	*Signal Field Encoding in a High Efficiency Wireless Local Area Network (WLAN) Data Unit*	MP6548
CN	MP6548WOCN	201680071894.0	12/12/2016	N/A	N/A	*Pending*	*Signal Field Encoding in a High Efficiency Wireless Local Area Network (WLAN) Data Unit*	MP6548
EP	MP6548WOEP	16822319.6	12/12/2016	N/A	N/A	*Pending*	*Signal Field Encoding in a High Efficiency Wireless Local Area Network (WLAN) Data Unit*	MP6548
US	MP6550PR	62/267,513	12/15/2015	N/A	N/A	*Expired*	*PHY Indication of MAC Trigger*	MP6550
US	MP6550PR2	62/358,236	7/5/2016	N/A	N/A	*Expired*	*11ax Trigger Frame MAC Padding Extension*	MP6550
US	MP6550	15/380,795	12/15/2016	10,014,917	7/3/2018	*Issued*	*Triggered Uplink Transmissions in Wireless Local Area Networks*	MP6550
US	MP6550C1	16/025,273	7/2/2018	N/A	N/A	*Pending*	*Triggered Uplink Transmissions in Wireless Local Area Networks*	MP6550
WO	MP6550WO	PCT/US2016/066956	12/15/2016	N/A	N/A	*Expired*	*Triggered Uplink Transmissions in Wireless Local Area Networks*	MP6550
CN	MP6550WOCN	201680074311.X	12/15/2016	N/A	N/A	*Pending*	*Triggered Uplink Transmissions in Wireless Local Area Networks*	MP6550
EP	MP6550WOEP	16823418.5	12/15/2016	N/A	N/A	*Allowed*	*Triggered Uplink Transmissions in Wireless Local Area Networks*	MP6550
US	MP6558	14/961,635	12/7/2015	10,375,679	8/6/2019	*Issued*	*Trigger Frame Format for Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558

US	MP6558C1	16/532,051	8/5/2019	N/A	N/A	*Pending*	*Trigger Frame Format for Orthogonal Frequency Division Multiple Access (OFDMA) Communication*	MP6128/ MP6144/ MP6352/ MP6555/ MP6558
US	MP6590PR	62/298,057	2/22/2016	N/A	N/A	*Expired*	*Super BA Design*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6590PR2	62/323,400	4/15/2016	N/A	N/A	*Expired*	*Super BA Design*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6590	15/438,578	2/21/2017	10,277,376	4/30/2019	*Issued*	*Acknowledgement of Transmissions in a Wireless Local Area Network*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6590C1	16/397,722	4/29/2019	N/A	N/A	*Pending*	*Acknowledgement of Transmissions in a Wireless Local Area Network*	MP6485/ MP6590/ MP10301/ MP10303
WO	MP6590WO	PCT/US2017/18761	2/21/207	N/A	N/A	*Published*	*Acknowledgement of Transmissions in a Wireless Local Area Network*	MP6485/ MP6590/ MP10301/ MP10303
CN	MP6590WOCN	201780023577.6	2/21/2017	N/A	N/A	*Pending*	*Acknowledgement of Transmissions in a Wireless Local Area Network*	MP6485/ MP6590/ MP10301/ MP10303
EP	MP6590WOEP	17709249.1	2/21/2017	N/A	N/A	*Pending*	*Acknowledgement of Transmissions in a Wireless Local Area Network*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6590I1	16/039,248	7/18/2018	10,313,923	6/4/2019	*Issued*	*Acknowledgement of Transmissions in a Wireless Local Area Network*	MP6485/ MP6590/ MP10301/ MP10303
US	MP6590I1C1	16/430,034	6/3/2019	N/A	N/A	*Pending*	*Acknowledgement of Transmissions in a Wireless Local Area Network*	MP6485/ MP6590/ MP10301/ MP10303
WO	MP6590I1WO	PCT/US2018/42768	7/18/2018	N/A	N/A	*Published*	*Acknowledgement of Transmissions in a Wireless Local Area Network*	MP6485/ MP6590/ MP10301/ MP10303

US	MP6594PR	62/290,184	2/2/2016	N/A	N/A	*Expired*	*Adaptive EDCA Rules for Channel Access in 11ax*	MP6594
US	MP6594	15/423,371	2/2/2017	N/A	N/A	*Pending*	*Methods and Apparatus for Adaptive Channel Access*	MP6594
WO	MP6594WO	PCT/US2017/016252	2/2/2017	N/A	N/A	*Expired*	*Methods and Apparatus for Adaptive Channel Access*	MP6594
CN	MP6594WOCN	201780017232.X	2/2/2017	N/A	N/A	*Pending*	*Methods and Apparatus for Adaptive Channel Access*	MP6594
EP	MP6594WOEP	17705743.7	2/2/2017	N/A	N/A	*Pending*	*Methods and Apparatus for Adaptive Channel Access*	MP6594
US	MP6597I1PR	62/617,013	1/12/2018	N/A	N/A	*Expired*	*Multiple BSSID Support*	MP6597
US	MP6597I1	16/247,451	1/14/2019	N/A	N/A	*Pending*	*Multiple Basic Service Set Support*	MP6597
WO	MP6597I1WO	PCT/US2019/013551	1/14/2019	N/A	N/A	*Pending*	*Multiple Basic Service Set Support*	MP6597
US	MP6611PR	62/302,529	3/2/2016	N/A	N/A	*Expired*	*Enabling Multi-TID Aggregation for 60GHz WLAN*	MP6611
US	MP6611PR2	62/324,232	4/18/2016	N/A	N/A	*Expired*	*Enabling Multi-TID Aggregation for 60GHz WLAN*	MP6611
US	MP6611	15/448,303	3/2/2017	N/A	N/A	*Pending*	*Multiple Traffic Class Data Aggregation in a Wireless Local Area Network*	MP6611

WO	MP6611WO	PCT/US2017/020463	3/2/2017	N/A	N/A	*Expired*	*Multiple Traffic Class Data Aggregation in a Wireless Local Area Network*	MP6611
US	MP6612PR	62/305,030	3/8/2016	N/A	N/A	*Expired*	*Device Provisioning Protocol*	MP6612
US	MP6612	16/079,984	2/22/2017	N/A	N/A	*Pending*	*Methods and Apparatus for Secure Device Authentication*	MP6612
WO	MP6612WO	PCT/IB2017/000230	2/22/2017	N/A	N/A	*Expired*	*Methods and Apparatus for Secure Device Authentication*	MP6612
CN	MP6612WOCN	201780028372.7	2/22/2017	N/A	N/A	*Pending*	*Methods and Apparatus for Secure Device Authentication*	MP6612
EP	MP6612WOEP	177128203.4	2/22/2017	N/A	N/A	*Pending*	*Methods and Apparatus for Secure Device Authentication*	MP6612
US	MP6613PR	62/321,703	4/12/2016	N/A	N/A	*Expired*	*HE Control Field Content*	MP6613
US	MP6613PR2	62/332,972	5/6/2016	N/A	N/A	*Expired*	*HE Control Field Content-Scheduling Information for UL MU Response*	MP6613
US	MP6613	15/486,186	4/12/2017	10,305,659	5/28/2019	*Issued*	*Uplink Multi-User Transmission*	MP6613
US	MP6613C1	16/422,459	5/24/2019	N/A	N/A	*Pending*	*Communicating Subchannel Availability Information in a Wireless Local Area Network*	MP6613
WO	MP6613WO	PCT/US2017/027214	4/12/2017	N/A	N/A	*Expired*	*Uplink Multi-User Transmission*	MP6613

CN	MP6613WOCN	201780036273.3	4/12/2017	N/A	N/A	*Pending*	*Uplink Multi-User Transmission*	MP6613
EP	MP6613WOEP	17733567.6	4/12/2017	N/A	N/A	*Pending*	*Uplink Multi-User Transmission*	MP6613
US	MP6638PR	62/321,715	4/12/2016	N/A	N/A	*Expired*	*BPSK Mapping for DCM Transmission*	MP6638
US	MP6638	15/486,196	4/12/2017	N/A	N/A	*Pending*	*Dual Carrier Modulation That Mitigates PAPR*	MP6638
PCT	MP6638WO	PCT/US2017/027225	4/12/2017	N/A	N/A	*Expires*	*Dual Carrier Modulation That Mitigates PAPR*	MP6638
CN	MP6638WOCN	201780029378.6	4/12/2017	N/A	N/A	*Pending*	*Dual Carrier Modulation That Mitigates PAPR*	MP6638
EP	MP6638WOEP	17719134.3	4/12/2017	N/A	N/A	*Pending*	*Dual Carrier Modulation That Mitigates PAPR*	MP6638
US	MP6640PR	62/322,653	4/14/2016	N/A	N/A	*Expired*	*MU Minimum MPDU Start Spacing and Maximum A-MPDU Length MU*	MP6640
US	MP6640	15/487,717	4/14/2017	10,231,148	3/12/2019	*Issued*	*Signaling Data Unit Format Parameters for Multi-user Transmissions*	MP6640
WO	MP6640WO	PCT/US2017/027598	4/14/2017	N/A	N/A	*Expired*	*Signaling Data Unit Format Parameters for Multi-user Transmissions*	MP6640
CN	MP6640WOCN	201780029037.9	4/14/2017	N/A	N/A	*Pending*	*Signaling Data Unit Format Parameters for Multi-user Transmissions*	MP6640

EP	MP6640WOEP	17733572.6	4/14/2017	N/A	N/A	*Pending*	*Signaling Data Unit Format Parameters for Multi-user Transmissions*	MP6640
US	MP6641PR	62/322,702	4/14/2016	N/A	N/A	*Expired*	*Available Channel Polling for OFDMA Operation*	MP6641
US	MP6641	15/487,766	4/14/2017	N/A	N/A	*Allowed*	*Determining Channel Availability for Orthogonal Frequency Division Multiple Access Operation*	MP6641
WO	MP6641WO	PCT/US2017/027608	4/14/2017	N/A	N/A	*Expired*	*Determining Channel Availability for Orthogonal Frequency Division Multiple Access Operation*	MP6641
CN	MP6641WOCN	201780029951.3	4/14/2017	N/A	N/A	*Pending*	*Determining Channel Availability for Orthogonal Frequency Division Multiple Access Operation*	MP6641
EP	MP6641WOEP	17722910.1	4/14/2017	N/A	N/A	*Pending*	*Determining Channel Availability for Orthogonal Frequency Division Multiple Access Operation*	MP6641
US	MP6682	15/629,435	6/21/2017	10,367,614	7/30/2019	*Issued*	*Method and Apparatus for MU Resource Request*	MP6682/ MP10051
US	MP6682C1	16/524,649	7/29/2019	N/A	N/A	*Pending*	*Method and Apparatus for MU Resource Request*	MP6682/ MP10051
WO	MP6682WO	PCT/US2017/038589	6/21/2017	N/A	N/A	*Expired*	*Method and Apparatus for MU Resource Request*	MP6682/ MP10051
CN	MP6682WOCN	201780038529.4	6/21/2017	N/A	N/A	*Pending*	*Method and Apparatus for MU Resource Request*	MP6682/ MP10051
DE	MP6682WODE	201780038529.4	6/21/2017	N/A	N/A	*Pending*	*Method and Apparatus for MU Resource Request*	MP6682/ MP10051

JP	MP6682WOJP	2018-565731	6/21/2017	N/A	N/A	*Pending*	*Method and Apparatus for MU Resource Request*	MP6682/ MP10051
KR	MP6682WOKR	10-2019-7001542	6/21/2017	N/A	N/A	*Pending*	*Method and Apparatus for MU Resource Request*	MP6682/ MP10051
US	MP6683	15/628,535	6/20/2017	10,320,551	6/11/2019	*Issued*	*Channel Bonding Design and Signaling in Wireless Communications*	MP6683/ MP10084
US	MP6683C1	16/435,899	6/10/2019	N/A	N/A	*Pending*	*Channel Bonding Mode Signaling for Punctured Channels*	MP6683/ MP10084
PCT	MP6683WO	PCT/IB2017/053720	6/21/2017	N/A	N/A	*Expired*	*Channel Bonding Design and Signaling in Wireless Communications*	MP6683/ MP10084
CN	MP6683WOCN	201780051140.3	6/21/2017	N/A	N/A	*Pending*	*Channel Bonding Design and Signaling in Wireless Communications*	MP6683/ MP10084
DE	MP6683WODE	112007003070.6	6/21/2017	N/A	N/A	*Pending*	*Channel Bonding Design and Signaling in Wireless Communications*	MP6683/ MP10084
JP	MP6683WOJP	2018-566353	6/21/2017	N/A	N/A	*Pending*	*Channel Bonding Design and Signaling in Wireless Communications*	MP6683/ MP10084
KR	MP6683WOKR	10-2019-7001543	6/21/2017	N/A	N/A	*Pending*	*Channel Bonding Design and Signaling in Wireless Communications*	MP6683/ MP10084