

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7889254

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ON SEMICONDUCTOR CONNECTIVITY SOLUTIONS, INC.	04/06/2023

RECEIVING PARTY DATA

Name:	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
Street Address:	5701 N. PIMA ROAD
City:	SCOTTSDALE
State/Country:	ARIZONA
Postal Code:	85250

PROPERTY NUMBERS Total: 192

Property Type	Number
Application Number:	11607431
Application Number:	11607475
Application Number:	11607815
Application Number:	11653135
Application Number:	11800357
Application Number:	11800378
Application Number:	11860529
Application Number:	11872700
Application Number:	12061491
Application Number:	12278753
Application Number:	12288569
Application Number:	12299470
Application Number:	12527429
Application Number:	12572250
Application Number:	12599682
Application Number:	12630814
Application Number:	12653657
Application Number:	12705416
Application Number:	12753807
Application Number:	12754578

PATENT

Property Type	Number
Application Number:	12800309
Application Number:	12913200
Application Number:	12939023
Application Number:	13096885
Application Number:	13120419
Application Number:	13200639
Application Number:	13223951
Application Number:	13317275
Application Number:	13317956
Application Number:	13374131
Application Number:	13466328
Application Number:	13506457
Application Number:	13513191
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Application Number:	14099899
Application Number:	14173809
Application Number:	14187318
Application Number:	14190053
Application Number:	14198957
Application Number:	14229833
Application Number:	14324043
Application Number:	14338340
Application Number:	14462505
Application Number:	14464698
Application Number:	14530657
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Application Number:	14612293
Application Number:	14624546
Application Number:	14701495
Application Number:	14726518
Application Number:	14740536
Application Number:	14741419
Application Number:	14806610

Property Type	Number
Application Number:	14817195
Application Number:	14846719
Application Number:	14881138
Application Number:	14929331
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Application Number:	15207451
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Application Number:	15727668
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Application Number:	16429731
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Application Number:	16525230
Application Number:	16673569

Property Type	Number
Application Number:	16728820
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Application Number:	17336053
Application Number:	17807281
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Application Number:	61494823
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Application Number:	62028906
Application Number:	62032615
Application Number:	62046704
Application Number:	62062915
Application Number:	62073604
Application Number:	62113418
Application Number:	62128596
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Application Number:	62210383
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Application Number:	62266504
Application Number:	62279883

Property Type	Number
Application Number:	62305132
Application Number:	62316664
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Application Number:	62756008
Application Number:	62756049
Application Number:	62758677
Application Number:	62777743
Application Number:	62788922
Application Number:	62813010
Application Number:	62817385
Application Number:	62817993
Application Number:	62821945
Application Number:	62827735
Application Number:	62837113
Application Number:	62840371
Application Number:	62853160
Application Number:	62863191

CORRESPONDENCE DATA

Fax Number: (602)244-3169

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: 6022443676

Email: patents@onsemi.com

Correspondent Name: SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

Address Line 1: 5701 N. PIMA ROAD

Address Line 4: SCOTTSDALE, ARIZONA 85250

ATTORNEY DOCKET NUMBER:	OSCS - SCI
NAME OF SUBMITTER:	KELLY A. HALL
SIGNATURE:	/Kelly A. Hall/
DATE SIGNED:	04/06/2023

Total Attachments: 23

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INTELLECTUAL PROPERTY ASSIGNMENT AGREEMENT

This Intellectual Property Assignment Agreement ("Agreement") is entered into as of April 6, 2023 (the "Assignment Date") by and between ON Semiconductor Connectivity Solutions, Inc., a Delaware Corporation with a place of business at 1704 Automation Parkway, San Jose, CA 95131 ("Assignor") and Semiconductor Components Industries, LLC, a Delaware limited liability company, with a place of business at 5701 North Pima Road, Scottsdale, AZ 85250 ("Assignee"). Assignor and Assignee may hereinafter together be referred to as the "Parties" and individually as a "Party".

WHEREAS, on June 19, 2019, ON Semiconductor Corporation's wholly owned subsidiary Raptor Operations Sub, Inc. was merged with and into Quantenna Communications, Inc. under the name of ON Semiconductor Connectivity Solutions, Inc. and then, on June 28, 2019, ON Semiconductor Corporation contributed its interest in ON Semiconductor Connectivity Solutions, Inc. to its primary U.S. operating subsidiary, Semiconductor Components Industries, LLC.

WHEREAS, the Assignor, owns any and all "Intellectual Property" rights worldwide arising under statutory or common law or by contract and whether or not perfected, now existing or hereafter filed, issued, or acquired, including without limitation: (a) United States and foreign patents and applications including any and all past, present, and future, provisional, non-provisional, continuation, continuation-in-part, divisional, international, foreign, regional and convention applications corresponding thereto, and any and all Letters Patent of the U.S. and countries and regions foreign thereto which may grant or have granted thereto or be lodged in relation thereto, any reissue or reexamination thereof or to be obtained therefor, any renewals, or substitutes thereof, and any and all priority rights or priority claims, International Convention rights, any and all rights to collect past damages for infringement of any and all Letters Patent of the U.S. and countries and regions foreign thereto which may be published, which may grant, or have granted thereto or be lodged in relation thereto, and other benefits accruing to or to accrue to Assignor with respect to the filing of applications for patents or securing of patents in the U.S. and countries foreign thereto ("Patents"), including all rights Assignor has in and to the Patents listed in Schedule A; (b) inventions, invention disclosures, improvements, trade secrets, manufacturing processes, test and qualification processes, technical designs, compositions, formulae, models, schematics, proprietary information, know-how, technology, technical data and mask works, and all documentation relating to any of the foregoing, trade secret rights and all other rights in or to confidential business or technical information ("Trade Secrets"), including all rights Assignor has in and to the Trade Secrets listed in Schedule A ; (c) industrial design rights and any registrations and applications therefore ("Industrial Designs"), including all rights Assignor has in and to the Industrial Designs listed in Schedule A; (d) rights in databases and data collections (including knowledge databases, customer lists and customer databases) under the laws of the United States or any other jurisdiction, whether registered or unregistered, and any applications for registration thereof ("Database Rights"), including all rights Assignor has in and to the Database Rights listed in Schedule A; (e) mask works, and mask work registrations and applications therefor ("Mask Works"), including all rights Assignor has in and to the Mask Works listed in Schedule A; (f) registered and unregistered copyrights (without limitation copyright on designs, software, both source and object code, mask works, and all derivative works thereof), copyright registrations and applications therefore ("Copyrights"), including all rights Assignor has in and to the Copyrights listed in Schedule A; (g) all trademarks, service marks, trade names, brand names, logos, trade dress and other proprietary indicia of goods and services of the Assignor, whether registered, unregistered or arising by any applicable law of any jurisdiction throughout the world and all registrations and applications for registration of such trademarks, including intent-to-use trademark applications, issuances, extensions and renewals of such registrations and applications; registrations of the internet domain names, whether or not incorporating Assignor's trademarks, registered to Assignor in any generic top level domain by any authorized private registrar or governmental authority; all unregistered trademarks, service marks, and trade names licenses and similar contractual rights with respect to any of the foregoing granted by Assignor to any third party ("Trade Marks"), including all rights Assignor has in and to the Trade Marks listed in Schedule A; (h) any similar, corresponding or equivalent intellectual property rights to any of the foregoing anywhere in the world now known or in the future discovered; and

(i) including any other Intellectual Property listed in Schedule A; and (j) any and all claims and causes of action, with respect to any of the foregoing, whether accruing before, on, or after the date hereof, including all rights to and claims for damages, restitution, and injunctive and other legal and equitable relief for past, present, and future infringement, dilution, misappropriation, violation, misuse, breach, or default, with the right but no obligation to sue for such legal and equitable relief and to collect, or otherwise recover, any such damages, any and all royalties, fees, income, payments and other proceeds now or hereafter due or payable with respect to any and all of the foregoing;

WHEREAS, the Assignee desires to obtain any and all, right, title, and interest of Assignor in and to the Intellectual Property;

NOW THEREFORE, for \$10 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor, effective on the Assignment Date, agrees to irrevocably and unconditionally assign and transfer, and does hereby irrevocably and unconditionally assign and transfer to said Assignee, and said Assignee's legal representatives, successors and assigns, any and all of the entire right, title and interest Assignor has in and to the Intellectual Property.

UPON SAID CONSIDERATION, the Assignor hereby covenants and agrees with Assignee that it will not execute any writing or do any act whatsoever conflicting with these presents, and that it will, at any time upon request, without further or additional consideration, execute such additional assignments and other writings and do such additional acts as Assignee may deem reasonably necessary or desirable to perfect the Assignee's enjoyment of this grant, and render necessary assistance in making application for and obtaining original, provisionals, non-provisionals, continuations, continuations-in-part, continuing prosecutions, divisionals, renewals, reissues, reexamined or extended Letters Patent of the U.S., or of any and all foreign countries, on said Patents, and execute confirmatory assignments or acknowledgments of this assignment as necessary for full enjoyment of the Patents and for recording in foreign patent offices, and in enforcing any rights or causes in action accruing as a result of such Patents, by giving testimony in any proceedings or transactions involving such Patents, and by executing preliminary statements and other affidavits, it being understood that the foregoing covenant and agreement shall bind, and inure to the benefit of, the assigns and legal representatives of both parties.

UPON SAID CONSIDERATION, Assignor represents and warrants that Assignor has the right, title, and authority to execute this Assignment and to convey any and all right, title, and interest Assignor has in the Intellectual Property, and that Assignor has not conveyed nor will convey hereafter all or part of the Intellectual Property to a third party.

ASSIGNOR HEREBY AUTHORIZES Assignee, its successors, and assigns, or anyone it may properly designate, to apply for Letters Patent in the U.S. and any and all foreign countries and regions, in its own name if desired, and additionally to claim priority to the filing date of the patents and/or patent applications and otherwise take advantage of the provisions of any international conventions. Assignor will take any and all steps required to effectuate recordation of the assignments in any country of the world. This Assignment will be governed by the laws of the State of Arizona of the United States of America.

ASSIGNOR AND ASSIGNEE acknowledge that, from and after the Assignment Date, Assignee is the legal and beneficial owner of the Intellectual Property in any form or embodiment thereof. Assignor agrees not to do or suffer to be done any act or thing that may materially adversely affect any rights of Assignee in or to the Intellectual Property, to the fullest extent permitted under applicable law.

IF, AND TO THE EXTENT THAT, as a matter of law in any jurisdiction, ownership, title, or any rights or interest in or to any of the Intellectual Property cannot be assigned as provided in this agreement (a) Assignor irrevocably agrees to assign and transfer, and hereby assigns and transfers to Assignee all rights (including, without limitation, all economic and commercialization rights) that can be assigned to the fullest extent permissible, and (b) Assignor irrevocably agrees to grant, and hereby grants, Assignee

an unlimited, exclusive, irrevocable, worldwide, perpetual, royalty-free license to use, exploit and commercialize in any manner now known or in the future discovered and for whatever purpose, any rights to Intellectual Property that cannot be assigned as contemplated by this agreement.

ASSIGNOR agrees to execute and deliver all instruments of transfer, conveyance, and assignment as, and to the extent, necessary or convenient to evidence the transfer, conveyance and assignment by Assignor to Assignee of all of Assignor's right, title and interest in and to the Intellectual Property. Assignor and Assignee contemplate that they may enter into one or more additional instruments of transfer with respect to some of the Intellectual Property to be transferred from Assignor to Assignee to the extent necessary or convenient to comply with local legal or filing requirements (e.g. a confirmatory assignment). The signature of a Party via a scanned or digitized image of a handwritten signature (e.g. scan in PDF, JPEG, etc. formats) or an electronic signature, shall have the same force and effect as an original handwritten signature for the purposes of validity, enforceability, and admissibility. Delivery of the fully executed copy of the Agreement via e-mail or via electronic signature system shall have the same force and effect as delivery of an original hard copy. Signatures may be provided on separate pages.

IN WITNESS WHEREOF, the Assignor ON Semiconductor Connectivity Solutions, Inc. has executed this Assignment upon the date indicated below.

Pamela L. Tondreau

Name: Pamela L. Tondreau

Title: Executive Vice President and Secretary

Date: April 6, 2023

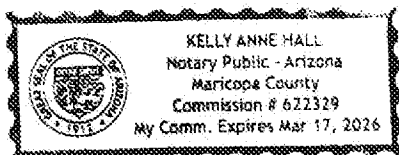
NOTARIAL ACKNOWLEDGEMENT

State of Arizona)
County of Maricopa)

On this 6 day of April, 2023, before me personally appeared Pamela L. Tondreau whose identity was proven to me on the basis of satisfactory evidence to be the person who he claims to be and acknowledged that he signed the above document.

Kelly A. Hall
Notary Public

(Notary Seal)



ACCEPTANCE OF ASSIGNMENT

IN WITNESS WHEREOF, the Assignee Semiconductor Components Industries, LLC hereby acknowledges and accepts the foregoing sale and assignment of rights by Assignor upon the date set forth below.

Pamela L. Tondreau

Name: Pamela L. Tondreau

Title: Executive Vice President, Chief Legal Officer and Secretary

Date: April 6, 2023

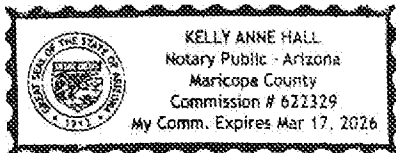
NOTARIAL ACKNOWLEDGEMENT

State of Arizona)
)
County of Maricopa)

On this 6 day of April, 2023, before me personally appeared Pamela L. Tondreau whose identity was proven to me on the basis of satisfactory evidence to be the person who he claims to be and acknowledged that he signed the above document.

Kelly Anne Hall
Notary Public

(Notary Seal)



SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
European Patent	Abandoned	2007-11-19	7845123.4			Mesh With Nodes Having Multiple Antennas
European Patent	Complete	2013-02-21	13751793.4	2020-04-01	2818015	Managing Wireless Area Networks
European Patent	Complete	2015-05-31	15855004.6	2020-09-23	EP3189609	Wireless Local Area Network With Spatial Diagnostics
European Patent	Complete	2017-06-09	17175297.5	2019-04-17	3340479	Remotely And Internally Controlled Wifi Transceiver For Wireless Home Networks
European Patent	Complete	2017-06-09	17175298.3	2019-08-07	3383091	Arbitration Of Distributed Services For Wireless Home Networks
European Patent	Complete	2015-05-31	17181478.3	2022-12-07	3255818	Wireless Local Area Network With Spatial Diagnostics
European Patent	Published	2019-05-30	19732504.6			Multi-Radio Wireless Transceiver Power Conservation

PATENT

REEL: 063280 FRAME: 0602

SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
France	Granted	2013-02-21	13751793.4	2020-04-01	2818015	Managing Wireless Area Networks
France	Granted	2015-05-31	15855004.6	2020-09-23	EP3189609	Wireless Local Area Network With Spatial Diagnostics
France	Granted	2017-06-09	17175297.5	2019-04-17	3340479	Remotely And Internally Controlled Wifi Transceiver For Wireless Home Networks
France	Granted	2017-06-09	17175298.3	2019-08-07	3383091	Arbitration Of Distributed Services For Wireless Home Networks

PATENT

REEL: 063280 FRAME: 0603

SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
Germany (Federal Republic of)	Granted	2013-02-21	13751793.4	2020-04-01	602013067452.3	Managing Wireless Area Networks
Germany (Federal Republic of)	Granted	2015-05-31	15855004.6	2020-09-23	60 2015 059 638.2	Wireless Local Area Network With Spatial Diagnostics
Germany (Federal Republic of)	Granted	2017-06-09	17175297.5	2019-04-17	602017003301.4	Remotely And Internally Controlled Wiff Transceiver For Wireless Home Networks
Germany (Federal Republic of)	Granted	2017-06-09	17175298.3	2019-08-07	602017005833.5	Arbitration Of Distributed Services For Wireless Home Networks

PATENT

REEL: 063280 FRAME: 0604

SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	TITLE
Japan	Abandoned	2007-11-19	2009537410			Mesh With Nodes Having Multiple Antennas

SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
Patent Cooperation Treaty	Complete	2007-05-04	PCT/US2007/010845			Multiple Antenna Receiver System And Method
Patent Cooperation Treaty	Complete	2007-11-19	PCT/US2007/085150			Mesh With Nodes Having Multiple Antennas
Patent Cooperation Treaty	Complete	2008-10-20	PCT/US2008/011965			Soft Decoding To Mitigate The Impact Of Bluetooth Interference On Convolutionally-Encoded Signals
Patent Cooperation Treaty	Complete	2008-05-12	PCT/US2008/063481			Multifunctional Signal Transform Engine
Patent Cooperation Treaty	Complete	2008-02-14	PCT/US2008/54020			Efficient Balun
Patent Cooperation Treaty	Complete	2009-09-23	PCT/US2009/058091			Adjustable Operational State Wireless Mimo
Patent Cooperation Treaty	Complete	2010-10-27	PCT/US2010/54328			Channel Scanning And Channel Selection In A Wireless Communication Network
Patent Cooperation Treaty	Complete	2011-01-12	PCT/US2011/00056			Quality Of Service And Rate Selection
Patent Cooperation Treaty	Complete	2013-02-21	PCT/US2013/027158			Managing Wireless Area Networks
Patent Cooperation Treaty	Complete	2014-04-28	PCT/US2014/35755			Installation And Service Of A Wireless Home Network
Patent Cooperation Treaty	Complete	2015-05-31	PCT/US2015/033443			Wireless Local Area Network With Spatial Diagnostics
Patent Cooperation Treaty	Complete	2019-05-03	PCT/US2019/030711			Beamformer Solicited Sounding
Patent Cooperation Treaty	Complete	2019-05-20	PCT/US2019/033128			Transmutable Mimo Wireless Transceiver
Patent Cooperation Treaty	Complete	2019-05-30	PCT/US2019/034742			Multi-Radio Wireless Transceiver Power Conservation

PATENT

REEL: 063280 FRAME: 0606

SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
Spain	Granted	2013-02-21	13751793.4	2020-04-01	ES2784607	Managing Wireless Area Networks
Spain	Granted	2015-05-31	15855004.6	2020-09-23	ES2819299	Wireless Local Area Network With Spatial Diagnostics
Spain	Granted	2017-06-09	17175297.5	2019-04-17	ES2725474	Remotely And Internally Controlled Wifi Transceiver For Wireless Home Networks
Spain	Granted	2017-06-09	17175298.3	2019-08-07	3383091	Arbitration Of Distributed Services For Wireless Home Networks

PATENT

REEL: 063280 FRAME: 0607

SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
Taiwan	Granted	2007-05-04	96116031	2013-10-01	1411255	Multiple Antenna Receiver System And Method
Taiwan	Granted	2008-02-15	97105437	2015-06-01	1487184	Efficient Balun
Taiwan	Abandoned	2009-04-01	98110915			Efficient Power Amplifier
Taiwan	Granted	2009-09-23	98132105	2015-04-01	1479823	Adjustable Operational State Wireless Mimo
Taiwan	Abandoned	2009-10-01	98133416			Symbol Mixing Across Multiple Parallel Channels
Taiwan	Granted	2010-04-06	99110577	2015-05-21	1485998	Adaptive Channel Selection And Interference Suppression
Taiwan	Granted	2010-04-06	099110578	2016-08-21	1547112	Adaptive Channel Selection And Interference Suppression
Taiwan	Granted	2017-05-17	106116338	2019-05-21	1660645	Remote Controlled Wifi Transceiver For Wireless Home Networks
Taiwan	Granted	2019-05-15	108116745	2023-01-01	1788566	Transmutable Mimo Wireless Transceiver
Taiwan	Allowed	2019-05-20	108117337			Multi-Radio Wireless Transceiver Power Conservation
Taiwan	Published	2019-05-03	108115452			Beamformer Solicited Sounding

PATENT

REEL: 063280 FRAME: 0608

SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Abandoned	2006-12-01	11/607431			High Fidelity Multimedia Wireless Headset
United States of America	Granted	2006-12-01	11/607475	2012-01-03	8090374	Wireless Multimedia Handset
United States of America	Abandoned	2006-12-01	11/607815			Wireless Media Server System And Method
United States of America	Abandoned	2007-01-11	11/653135	2011-11-22	8064835	Antenna Assignment System And Method
United States of America	Granted	2007-05-04	11/800357	2012-01-03	8090060	Demodulation Technique For Gfsk And Dpsk
United States of America	Granted	2007-05-04	11/800378	2012-01-03	8091012	System And Method For Decreasing Decoder Complexity
United States of America	Granted	2007-09-24	11/860529	2011-12-06	8073073	Optimized Clipping For Peak-To-Average Power Ratio Reduction
United States of America	Abandoned	2007-10-15	11/872700	2011-11-22	8063839	Tunable Antenna System
United States of America	Granted	2008-04-02	12/061491	2012-05-15	8180304	Efficient Power Amplifier
United States of America	Abandoned	2009-01-14	12/278753			Mesh With Nodes Having Multiple Antennas
United States of America	Granted	2008-10-20	12/288569	2012-02-07	8111790	Mitigating Interference In A Coded Communication System
United States of America	Granted	2007-05-04	12/299470	2013-05-21	8446998	Multiple Antenna Receiver System And Method
United States of America	Abandoned	2010-06-17	12/527429			Novel Transmit/Receive Balun Structure
United States of America	Abandoned	2009-10-01	12/572250			Symbol Mixing Across Multiple Parallel Channels
United States of America	Granted	2008-05-12	12/599682	2013-07-09	8483297	Multifunctional Signal Transform Engine
United States of America	Granted	2009-12-03	12/630814	2012-11-06	8305921	Channel Selection And Interference Suppression
United States of America	Granted	2009-12-15	12/653657	2013-03-26	8407551	Low Complexity Ldcp Decoding
United States of America	Granted	2010-02-12	12/705416	2011-10-04	8031101	Spur Cancellation

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Abandoned	2010-04-02	12/753807			Adaptive Channel Selection And Interference Suppression
United States of America	Granted	2010-04-05	12/754578	2013-01-22	8358588	Interference-Cognitive Transmission
United States of America	Granted	2010-05-11	12/800309	2012-07-17	8223802	Primary User Detection
United States of America	Granted	2010-10-27	12/913200	2013-04-30	8432826	Channel Scanning And Channel Selection In A Wireless Communication Network
United States of America	Granted	2010-11-03	12/939023	2014-01-21	8634434	Message Routing In Wireless Mesh Networks
United States of America	Granted	2011-04-28	13/096885	2013-12-03	8599780	Access Point Range Extension
United States of America	Granted	2009-09-23	13/120419	2013-12-31	8619887	Adjustable Operational State Wireless Mimo
United States of America	Granted	2011-09-26	13/200639	2014-12-02	8902769	Method And Apparatus For Oversubscription Control In A W-Fi Home Network
United States of America	Abandoned	2011-09-01	13/223951			Spur Cancellation
United States of America	Abandoned	2011-10-12	13/317275			Method And Apparatus For Intelligent Beamforming In A Wireless Home Network
United States of America	Abandoned	2011-10-31	13/317956			Method And Apparatus For Managed Retransmission In A Wireless Home Network
United States of America	Abandoned	2011-12-12	13/374131			Channel Tracking In A Wireless Home Network
United States of America	Granted	2012-05-08	13/466328	2013-06-11	8462751	
United States of America	Granted	2012-04-19	13/506457	2014-07-01	8767657	Managing Wireless Local Area Networks
United States of America	Granted	2011-01-12	13/513191	2014-06-17	8755455	Mixed-Mode Mimo Detector In A Local Area Network
United States of America	Granted	2012-10-15	13/652376	2016-02-02	9252990	Quality Of Service And Rate Selection
United States of America	Granted	2012-12-15	13/716138	2015-01-20	8937884	Mimo Sphere Decoder With Linear Startup In A Wireless Local Area Network
United States of America	Granted	2013-02-06	13/761147	2015-02-24	8964605	Interference-Cognitive Transmission
United States of America	Granted					Method And Apparatus For Integrating A Transceiver And A Half-Duplexing Split Balun

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Granted	2013-05-12	13/892291	2016-01-05	9231671	Method And Apparatus For Link Optimization In A W-Fi Home Network
United States of America	Granted	2013-05-19	13/897431	2015-07-07	9078142	Method And Apparatus To Decouple Link Adaptation And Transmit Beamforming In Wifi Systems
United States of America	Granted	2013-05-31	13/907814	2015-08-11	9107090	Method And Apparatus For Correlating Wireless Local Area Network Communication Parameters With Subscriber Structure
United States of America	Granted	2013-12-06	14/099899	2014-06-10	8750157	Installation And Service Of A Wireless Home Network
United States of America	Granted	2014-02-05	14/173809	2015-06-30	9071299	Hdtv Compatible Precoding For Multi-User Mimo In A Wireless Home Network
United States of America	Granted	2014-02-23	14/187318	2016-05-03	9331883	Wireless Home Network Supporting Concurrent Links To Legacy Devices
United States of America	Granted	2014-02-25	14/190053	2015-06-30	9071972	Asynchronous Tiered Access Control To A Wireless Home Network
United States of America	Granted	2014-03-06	14/198957	2016-05-03	9332554	Wireless Home Network Supporting Discrete Concurrent Communication Links
United States of America	Granted	2014-03-28	14/229833	2015-07-21	9088962	Wap Supporting Complementary Subnets In A Wlan
United States of America	Granted	2014-07-03	14/324043	2017-04-25	9635649	Method And Apparatus For Channel Selection In A Wireless Local Area Network
United States of America	Granted	2014-07-22	14/338340	2016-08-16	9420530	Wap With Context Sensitive Energy Management
United States of America	Granted	2014-08-18	14/462505	2016-10-04	9461724	Matrix Processing Engine For Multi-Tone Mimo Systems
United States of America	Abandoned	2014-08-20	14/464698			Cross-Network Traffic Management Of Neighboring Wlans
United States of America	Granted	2014-10-31	14/530657	2015-07-07	9078153	Wireless Local Area Network With Spatial Diagnostics
United States of America	Granted	2014-11-12	14/540013	2017-07-25	9717014	Cross-Network Traffic Management Of Neighboring Wlans
United States of America	Granted	2015-02-02	14/612293	2016-10-25	9479240	Composite Beamforming To Coordinate Concurrent Wlan Links
United States of America	Granted	2015-02-17	14/624546	2017-10-10	9788263	Wifi Client With Hybrid Communication Capabilities For Wireless Local Area Network
United States of America	Granted	2015-04-30	14/701495	2016-11-08	9490882	Composite Sounding For Mimo Beamforming In A Wireless Home Network

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Granted	2015-05-30	14/726518	2017-10-31	9807635	Wireless Local Area Network With Spatial Diagnostics
United States of America	Granted	2015-06-16	14/740536	2018-06-05	9992795	Wap Supporting Complementary Subnets In A Wlan
United States of America	Granted	2015-06-16	14/741419	2017-07-04	9698878	Unsolicited Channel Sounding In A Wireless Local Area Network
United States of America	Abandoned	2015-07-22	14/806610			Intelligent Sounding In A Wireless Local Area Network
United States of America	Granted	2015-08-03	14/817195	2017-05-30	9667301	Transceiver For Heterogeneous Wlan
United States of America	Granted	2015-09-04	14/846719	2016-10-25	9479799	Compression Using An Iterative Data Derived Basis Set
United States of America	Granted	2015-10-12	14/881138	2016-06-28	9380604	Opportunistic Concurrency Between Wireless Local Area Networks
United States of America	Granted	2015-10-31	14/929331	2018-07-03	10015683	Device Optimization Across Wireless Local Area Networks
United States of America	Granted	2016-02-18	15/047610	2019-06-11	10321341	Channel Tracking In A Wireless Home Network
United States of America	Granted	2016-03-06	15/062191	2017-05-09	9647736	Compressed Training For Massive Mu-Mimo In A Wireless Local Area Network
United States of America	Granted	2016-03-07	15/063491	2017-06-20	9686002	Mu-Mimo Sniffer For A Wireless Local Area Network
United States of America	Granted	2016-07-11	15/207451	2019-02-26	10219169	Hybrid Mu-Mimo Spatial Mapping Using Both Explicit Sounding And Crosstalk Tracking In A Wireless Local Area Network
United States of America	Granted	2016-08-25	15/247905	2017-09-05	9756450	Automated Setup Of A Station On A Wireless Home Network
United States of America	Granted	2016-09-30	15/281736	2017-08-22	9742415	Apparatus For Linearizing A Differential Charge Pump
United States of America	Granted	2016-10-11	15/290091	2017-09-05	9755712	Composite Sounding For Mimo Beamforming In A Wireless Home Network
United States of America	Granted	2016-11-07	15/345500	2017-10-17	9793965	Frequency Orthogonalized Mimo Channel Sounding And Feedback In A Wireless Home Network
United States of America	Granted	2016-12-23	15/390445	2017-08-08	9730089	Remote Controlled Wifi Transceiver For Wireless Home Networks
United States of America	Granted	2017-01-18	15/409527	2019-07-02	10342052	Client Steering For A Wireless Local Area Network

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Granted	2017-02-19	15/436852	2019-07-30	10368360	Network Event Based Security And Home Automation
United States of America	Granted	2017-03-19	15/462903	2020-02-18	10567134	Wifi Antenna Selection With Beamforming
United States of America	Granted	2017-04-01	15/476972	2017-08-22	9743333	Arbitration Of Distributed Services For Wireless Home Networks
United States of America	Granted	2017-05-31	15/610610	2019-12-24	10516498	Wifi Multi-User Cpe And Ici Mitigation
United States of America	Granted	2017-06-27	15/635170	2020-02-25	10575198	Mobile Wireless Charging Station
United States of America	Granted	2017-06-27	15/635179	2021-01-26	10903894	Mobile Wireless Repeater
United States of America	Granted	2017-07-27	15/662268	2018-01-09	9866308	Composite Wifi And Acoustic Spatial Diagnostics For Smart Home Management
United States of America	Abandoned	2017-10-09	15/727668	2019-11-05	10469140	Wap Uplink Optimization By Selection Of Mimo Antennas Spatial States
United States of America	Granted	2017-11-05	15/803828	2020-01-21	10541733	Regulated Switch Banks For Driving Transmit Power Amplifiers Of A Mimo Wireless Transceiver
United States of America	Granted	2017-11-12	15/810129	2019-06-04	10310082	Acoustic Spatial Diagnostics For Smart Home Management
United States of America	Granted	2017-11-29	15/826632	2020-02-11	10560140	Mimo Wifi Transceiver With Rolling Gain Offset Pre-Distortion Calibration
United States of America	Granted	2017-12-19	15/847151	2019-07-02	10340891	Differential Elliptic Filter With A Single Op-Amp
United States of America	Granted	2018-04-29	15/965968	2020-01-07	10531490	Wap Supporting Complementary Subnets In A Wlan
United States of America	Published	2018-05-31	15/995089			Multi-Radio Wireless Transceiver Power Conservation
United States of America	Granted	2018-05-31	15/995104	2019-05-21	10298299	Transmutable Mimo Wireless Transceiver
United States of America	Granted	2018-09-19	16/136180	2020-06-02	10673506	Adaptive Spatial Diagnostics In A Wireless Network
United States of America	Granted	2019-02-11	16/272874	2020-12-15	10868589	Hybrid Mu-Mimo Spatial Mapping Using Both Explicit Sounding And Crossstalk Tracking In A Wireless Local Area Network
United States of America	Granted	2019-04-03	16/374589	2021-02-09	10917147	Transmutable Mimo Wireless Transceiver

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Granted	2019-05-03	16/403073	2022-07-19	11394441	Beamformer Solicited Sounding
United States of America	Granted	2019-06-03	16/429731	2020-05-19	10656268	Acoustic Spatial Diagnostics For Smart Home Management
United States of America	Granted	2019-06-10	16/436694	2021-07-20	11070994	Channel Tracking In A Wireless Home Network
United States of America	Granted	2019-06-18	16/444945	2021-06-15	11039487	Client Steering For A Wireless Local Area Network
United States of America	Granted	2019-07-29	16/525230	2022-10-18	11477797	Client Steering For A Wireless Local Area Network
United States of America	Granted	2019-11-04	16/673569	2020-10-06	10797765	Network Event Based Security And Home Automation Wap Uplink Optimization By Selection Of Mimo Antennas Spatial States
United States of America	Granted	2019-12-27	16/728820	2021-06-08	11031979	Regulated Switch Banks For Driving Transmit Power Amplifiers Of A Mimo Wireless Transceiver
United States of America	Granted	2020-01-03	16/734014	2022-07-12	11387959	Mfm Antenna Selection With Beamforming
United States of America	Granted	2020-04-23	16/857052	2022-03-22	11283505	Wmf Antenna Selection With Beamforming
United States of America	Granted	2020-10-01	17/060895	2022-12-06	11522582	Adaptive Spatial Diagnostics In A Wireless Network Wap Uplink Optimization By Selection Of Mimo Antennas Spatial States
United States of America	Granted	2020-12-18	17/126462	2022-09-06	11438037	Transmutable Mimo Wireless Transceiver
United States of America	Allowed	2020-12-23	17/132023			Mobile Wireless Repeater
United States of America	Allowed	2021-06-01	17/336053			Mobile Wireless Repeater
United States of America	Published	2022-06-16	17/807281			Client Steering For A Wireless Local Area Network
United States of America	Application	2022-11-08	18/053619			Beamformer Solicited Sounding
United States of America	Application	2023-04-06	18/296703			Wap Uplink Optimization By Selection Of Mimo Antennas Spatial States
United States of America	Expired	2005-12-01	60/741672			Client Steering For A Wireless Local Area Network
United States of America	Expired	2006-01-11	60/758466			Multimedia Cell Platform
United States of America	Expired					Multimedia Cell Platform

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Expired	2006-05-04	60/797956			Multimedia Cell Platform
United States of America	Expired	2006-05-31	60/810036			Time Multiplexing Antenna Diversity System
United States of America	Expired	2006-10-17	60/852911			Integrated Multiple Tunable Antenna System
United States of America	Expired	2006-11-08	60/857992			Par Reduction
United States of America	Expired	2006-11-17	60/859614			Battery Powered Self-Routing Element Outside Plant
United States of America	Expired	2007-02-16	60/890452			Novel Transmit/Receive Balun Structure
United States of America	Expired	2007-05-10	60/917276			Multifunctional Signal Transform Engine
United States of America	Expired	2007-05-24	60/931817			Multi-Protocol System
United States of America	Expired	2007-10-19	60/981462			Soft Decoding To Mitigate The Impact Of Bluetooth Interference On Convolutionally-Encoded Signals
United States of America	Expired	2008-09-23	61/099492			Complexity Reduction For Transmit Beamforming In Ofdm
United States of America	Expired	2008-09-23	61/099496			Asymmetrical Wlan Transceiver With Generalized 8x8 Architecture Supporting 8x8 Or Dual 4x4
United States of America	Expired	2008-10-01	61/101961			Symbol Mixing Across Multiple Spatial Streams In Mimo Systems
United States of America	Expired	2008-12-15	61/122648			Low Complexity Encoder For IEEE 802.11n LDPC Codes
United States of America	Expired	2009-02-12	61/152243			Spur Cancellation
United States of America	Expired	2009-04-03	61/166690			Adaptive Channel Selection And Interference Suppression
United States of America	Expired	2009-05-11	61/215996			Radar Detection
United States of America	Expired	2009-10-27	61/255363			Channel Scanning
United States of America	Expired	2009-11-06	61/259002			Mesh Routing In Mimo Networks

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Expired	2010-01-12	61/294441			Quality Of Service And Rate Selection
United States of America	Expired	2010-04-28	61/329053			Ap Range Extension
United States of America	Expired	2010-09-24	61/386456			Bandwidth Allocation And Resource Management In Multiple Access Wireless Network
United States of America	Expired	2010-10-12	61/392394			Method And Apparatus For Intelligent Beamforming In A Wireless Home Network
United States of America	Expired	2010-10-20	61/408454			Method And Apparatus For Managaged Retransmission In A Wireless Home Network
United States of America	Expired	2010-12-10	61/421830			Channel Selection Algorithms
United States of America	Expired	2010-12-13	61/422610			Radio Receiver Architecture For Dfs
United States of America	Expired	2011-04-19	61/477008			Efficient Channel Ordering For Near Optimum Mimo Detection
United States of America	Expired	2011-06-08	61/494823			Method And Apparatus For Tone Discriminated Near-Optimum Mimo Decoding
United States of America	Expired	2011-10-13	61/546866			Efficient Maximum Likelihood Mimo Decoders
United States of America	Expired	2012-02-21	61/601533			Managing Wireless Home Networks
United States of America	Expired	2012-05-31	61/654009			Service Client Location Determination
United States of America	Expired	2013-02-05	61/761213			Method And Apparatus For Multi-User Mimo
United States of America	Expired	2013-02-25	61/769161			Method And Apparatus For Generating A Passphrase On A Wireless Local Area Network (Wlan)
United States of America	Expired	2013-02-27	61/770291			Method And Apparatus For Packet Retransmission Management In A Wireless Home Network
United States of America	Expired	2013-03-05	61/772846			Multi-User Mimo With Legacy Clients
United States of America	Expired	2013-03-06	61/773336			Method And Apparatus For Establishing Orthogonal Multi-Path Transmissions On A Wireless Network
United States of America	Expired	2013-03-15	61/801148			Open Loop Link Performance Optimization In 802.11

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Expired	2013-03-28	61/806332			Adaptive Controller Design For Multiple Radio Frequency Transceivers
United States of America	Expired	2013-04-08	61/809825			Method And Apparatus To Decouple Link Adaptation And Transmit Beamforming In Wffi Systems
United States of America	Expired	2013-07-03	61/842534			Method And Apparatus For Wireless Local Area Network (Wlan) To Maximize Utilization Of Radar Channel Without Service Interruption
United States of America	Expired	2013-07-11	61/845320			Method For Determining Optimal Position Of Wf-Fi Devices For Video Distribution
United States of America	Expired	2013-07-15	61/846598			Method For Installation And Service Of Wireless Home Network
United States of America	Expired	2013-07-22	61/857197			Power Efficient Ap Operation For Video Application
United States of America	Expired	2013-08-19	61/867564			Efficient Mairrx Processing Engine For Multi-Tone Mimo
United States of America	Expired	2013-11-12	61/903146			Method And Apparatus For Cross-Network Traffic Management Of Neighboring Wlans For Quality Of Service (Qos)
United States of America	Expired	2014-01-31	61/934147			Inter-Cell Interference Management Via Reconfigurable Beamforming In The Rf Domain
United States of America	Expired	2014-02-15	61/940424			Method And Apparatus For Smart Wireless Repeater Design
United States of America	Expired	2014-04-30	61/986365			Composite Sounding For Systems With High Number Of Transmit Antennas
United States of America	Expired	2014-04-29	61/996096			Composite Beamforming To Coordinate Concurrent Wlan Links
United States of America	Expired	2014-05-20	62/000940			Composite Sounding For Single-Antenna Client Stas
United States of America	Expired	2014-07-23	62/028032			Method And Apparatus For Overhead-Aware Feedback Collection And Storage
United States of America	Expired	2014-07-25	62/028906			Implicit An Explicit Beamforming Feedback Interplay For Mu-Mimo Systems
United States of America	Expired	2014-08-03	62/032615			Mu-Mimo Network With Wired And Air Interfaces
United States of America	Expired	2014-09-05	62/046704			Nearly Orthogonal And Condensed (Noc) Bases For Processing Array Of Numerical Data

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REEL: 063280 FRAME: 0617

SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Expired	2014-10-12	62/062915			Method And Apparatus For Network Self-Healing Based On Interference State
United States of America	Expired	2014-10-31	62/073604			Method And Apparatus For Adaptive Cloud Optimization Of Transmission Link In Wireless Local Area Networks
United States of America	Expired	2015-02-07	62/113418			Mu-Mimo Wifi Transmission Over Wired And Wireless Media Using Multiple Carrier Frequencies
United States of America	Expired	2015-03-05	62/128596			Mu-Mimo Sniffer Design
United States of America	Expired	2015-03-05	62/128651			Compressed Training Signal For Mu-Mimo
United States of America	Expired	2015-03-05	62/128668			11ax Preamble Design: Channel Training
United States of America	Expired	2015-07-09	62/190648			Mu Precoding For Changing Channels
United States of America	Expired	2015-08-26	62/210383			Cloud-Assisted Wf-Fi Device Self Install
United States of America	Expired	2015-10-17	62/243054			Distributed Control Agent For Managing A Wifi Network
United States of America	Expired	2015-12-11	62/266504			Graphical User Interface For Wlans Manager
United States of America	Expired	2016-01-18	62/279883			Cloud Client Steering
United States of America	Expired	2016-03-08	62/305132			Network Event Based Security And Home Automation
United States of America	Expired	2016-04-01	62/316664			Efficient Channel Sounding And Feedback Using Frequency Orthogonalization
United States of America	Expired	2017-02-16	62/460066			Antenna Selection With Beamforming
United States of America	Expired	2018-03-09	62/641215			Adaptive Csi Pre-Processing For Efficient Spatial Diagnostics Using Wifi
United States of America	Expired	2018-05-04	62/667405			Beamformer Solicited Sounding
United States of America	Expired	2018-11-04	62/755555			Dynamic Directionality
United States of America	Expired	2018-11-05	62/756008			Multi-Radio Bridge With Adaptive Topology Control

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SCHEDULE A PATENTS

COUNTRY	STATUS	FILING DATE	APPLN NO.	GRANT DATE	PATENT NO.	Title
United States of America	Expired	2018-11-05	62/756049			Hybrid Sector Selection And Beamforming
United States of America	Expired	2018-11-11	62/758677			Harq Framing And Dual Error Detection
United States of America	Expired	2018-12-10	62/777743			Adaptive Spatial Reuse
United States of America	Expired	2019-01-06	62/788922			Software Framework And Development Platform For W-Fi Chipsets
United States of America	Expired	2019-03-02	62/813010			Coordinated Beamforming With Active Synchronization
United States of America	Expired	2019-03-12	62/817385			Cloud Sniffer Control Platform
United States of America	Expired	2019-03-13	62/817993			Harq Framing And Dual Error Detection With Retransmission
United States of America	Expired	2019-03-21	62/821945			Predicting State Of Wireless Network For State Migration
United States of America	Expired	2019-04-01	62/827735			Co-Existence Management In Wireless Communications
United States of America	Expired	2019-04-22	62/837113			Multi-Frequency Range Voltage Controlled Oscillator System And Method
United States of America	Expired	2019-04-29	62/840371			Secure Csi With Adaptive Preamble Obfuscation
United States of America	Expired	2019-05-27	62/853160			Early Link Identification-Based Receiver Setup
United States of America	Expired	2019-06-18	62/863191			Rate Adaptation

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SCHEDULE A TRADEMARKS

COUNTRY	FILING DATE	APPLN NO.	REGISTRATION DATE	REGISTRATION NO.	MARK NAME
United States of America	2013-07-16	86012068	2014-08-12	4583010	Quantenna

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RECORDED: 04/06/2023