

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5787869

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
SAM MANDEGARAN	05/15/2017
RECEIVING PARTY DATA	
Name:	QORVO US, INC.
Street Address:	7628 THORNDIKE ROAD
City:	GREENSBORO
State/Country:	NORTH CAROLINA
Postal Code:	27409
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16663542
CORRESPONDENCE DATA	
Fax Number:	(877)812-1249
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Phone:	9192382300
Email:	cciaburri@wt-ip.com
Correspondent Name:	QORVO AND WITHROW + TERRANOVA
Address Line 1:	106 PINEDALE SPRINGS WAY
Address Line 4:	CARY, NORTH CAROLINA 27511
ATTORNEY DOCKET NUMBER:	2867-2426US4
NAME OF SUBMITTER:	CHRISTINA M. CIABURRI
SIGNATURE:	/Christina M. Ciaburri/
DATE SIGNED:	10/25/2019
Total Attachments: 8	
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ASSIGNMENT

WHEREAS, Sam Mandegar, residing at Pasadena, CA (hereinafter "Assignor") has invented certain new and useful inventions and improvements (hereinafter "Invention") described in the United States patent application entitled Hybrid-Coupler-Based Radio Frequency Multiplexers for which Assignor is making or has made application for LETTERS PATENT OF THE UNITED STATES, which application has been duly executed by Assignor concurrently herewith; or filed on May 23, 2017 as Application No. 15/528,876;

WHEREAS, Abtum Inc., having a place of business at 5151 California Avenue, Suite 150, Irvine, CA 92617, (hereinafter called "the Assignee"), is desirous of acquiring the entire right, title and interest in and to the Invention within the United States of America and its territorial possessions and all foreign countries, and in and to any United States or foreign LETTERS PATENT that may be granted therefor;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, Assignor has assigned, sold and transferred, and does assign, sell and transfer to the Assignee, its successors and assigns, the entire right, title and interest in and to the Invention within the United States of America and its territorial possessions and all foreign countries, and in and to any LETTERS PATENT of the United States and foreign countries, including utility models, inventor's certificates and like government grants that may be granted for any and all portions thereof, and in and to the patent application identified above and applications for patent filed for the Invention in all foreign countries and all provisional, divisional, reissue, continuation, continuation-in-part applications and extensions of any of the applications for patent or LETTERS PATENT identified herein, including all applications claiming the priority of said applications for patent or LETTERS PATENT identified herein, and the right to apply for LETTERS PATENT in foreign countries with full benefit of such priorities as may now or hereafter be granted to Assignor by local laws or by treaty, including any international convention, for the protection of industrial property, together with the right to extend the protection of the United States LETTERS PATENT to the various territorial possessions now owned or which may be hereafter acquired by the United States of America. Assignee will hold all rights for its own use and benefit and for the use and benefit of its successors or assigns to the full end of the term for which the LETTERS PATENT may be granted, as fully and entirely as the same would have been held and enjoyed by Assignor if this assignment and sale had not been made. Assignor requests and authorizes the Commissioner of the U.S. Patent and Trademark Office, and foreign counterpart officials of foreign patent offices, to issue respective LETTERS PATENT in the United States and foreign countries when granted, in accordance with this assignment.

Assignor further covenants and agrees with the Assignee that Assignor has a full and unencumbered title to the Invention, which title Assignor warrants to the Assignee. Assignor further agrees that Assignor will, without demanding any further consideration therefor, at the request and expense of the Assignee, do all lawful and just acts, including the execution and acknowledgment of instruments, that may be or become necessary for obtaining, sustaining, extending, reissuing or reexamining United States and foreign LETTERS PATENT or the like for the Invention, and for maintaining and perfecting the Assignee's right to the Invention and LETTERS PATENT particularly in cases of interference conflict, opposition and litigation.

I further authorize and direct the ASSIGNEE and its attorney to insert above, the application number and filing date of said application now identified as Attorney Docket No. 60093US02, as soon as the same shall have been made known to them by the United States Patent and Trademark Office.

IN TESTIMONY WHEREOF, I have signed this Assignment on the date specified below.

 5/15/2017
 _____ Date
 Sam Mandegar

INTELLECTUAL PROPERTY ASSIGNMENT AGREEMENT

THIS INTELLECTUAL PROPERTY ASSIGNMENT AGREEMENT (this "IP Assignment Agreement"), is executed as of December 17, 2018 ("Closing Date"), by and between ABTUM INC., a Delaware corporation ("Assignor"), and QORVO US, INC., a Delaware corporation ("Assignee"). Capitalized terms used but not otherwise defined herein shall have the respective meanings set forth in that certain Asset Purchase Agreement dated the date hereof (the "Asset Purchase Agreement").

RECITALS

A. Pursuant to Section 1.1 of the Asset Purchase Agreement, Assignor has agreed to sell, convey, transfer, assign and deliver to Assignee, and Assignee has agreed to purchase from Assignor, all right, title and interest in and to the Purchased Assets, including, without limitation, the Intellectual Property;

B. Simultaneously with the execution of this IP Assignment Agreement, Assignee and Assignor are also entering into a Bill of Sale and Assignment Agreement, pursuant to which Assignor is selling, assigning, conveying, transferring and delivering to Assignee all right, title and interest in and to certain contracts and the other Purchased Assets, all as described therein; and

C. Pursuant to Section 2.5(g) of the Asset Purchase Agreement, the parties hereto have agreed to enter into this IP Assignment Agreement to be effective as of the Closing Date.

NOW, THEREFORE, in consideration of the foregoing and the representations, warranties and agreements herein set forth, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto, intending to be legally bound, hereby agree as follows:

Section 1 Assignment of Intellectual Property. Upon the terms set forth in the Asset Purchase Agreement, Assignor hereby sells, conveys, transfers, assigns and delivers to Assignee, and Assignee hereby purchases from Assignor, free and clear of all Liens, all of Assignor's right, title and interest in and to all of the Intellectual Property, including without limitation, all goodwill associated therewith, and all sales, advertising, promotional and marketing information and materials, all websites and domain names, and the Registered IP set forth on Schedule A attached hereto, together with any pending applications or registrations therefor, any and all income, royalties, or payments due or payable to Assignor as of the Closing Date or thereafter, including, without limitation, the right to sue for any and all past, present and future infringements of such Intellectual Property, and to receive any and all damages awarded as a result of any such claim, and all other rights and interests therein and thereto (collectively, the "Assigned IP"). In order to enable the use by Assignee of the website names and addresses set forth on Schedule A hereto ("Domain Names"), Assignor shall provide Assignee, on the Closing Date, with any account information with any individual or entity with whom the Domain Names are registered, if any, including any user names and passwords of Assignor relating thereto.

Section 2 Further Assurances.

a. Assignor hereby covenants and agrees that it shall, at any time after the Closing Date or from time to time thereafter at the reasonable request of Assignee, (i) execute and deliver such further instruments of sale, conveyance, transfer, assignment and delivery to Assignee as shall be reasonably necessary or appropriate to vest in Assignee title to the Assigned IP, to otherwise establish the record of Assignee's title thereto, or to more effectively consummate the assignments contemplated hereby, and (ii) assist Assignee, at Assignee's request and at Assignee's sole cost and expense, in exercising any rights with respect thereto.

b. Assignor authorizes and requests the Commissioner of Patents and Trademarks of the United States of America, the United States Copyright Office, and the applicable officials of any other agencies or authorities, governmental or otherwise, and within the United States or in any applicable non-U.S. jurisdiction, to issue or transfer all of the Assigned IP to Assignee, as assignee of the entire right, title, and interest therein or otherwise as Assignee may direct.

c. As and to the extent that any governmental or quasi-governmental office or agency pertaining to the filing, registration, application or processing of intellectual property, including, without limitation, the United States Patent and Trademark Office, the United States Copyright Office, or the offices in which any of the Assigned IP listed in Schedule A is or was registered, applied for, pending or recorded, requests that additional forms or documents be presented or executed by Assignor or its agents, affiliates or attorneys, Assignor shall execute such documents and deliver them to Assignee or its agents, attorneys or designees, as applicable.

Section 3 Amendment and Waiver. This IP Assignment Agreement may be amended, supplemented or modified, and any provision hereof may be waived, only pursuant to a written instrument making specific reference hereto signed by both Assignor and Assignee.

Section 4 Successors and Assigns. The terms and provisions of this IP Assignment Agreement shall be binding upon, and inure to the benefit of, Assignor and Assignee, and each of their respective successors and assigns.

Section 5 Third Party Beneficiaries. Nothing in this IP Assignment Agreement is intended to or shall confer upon any person other than the parties hereto and their respective successors and assigns, any rights, benefits, or remedies of any nature whatsoever under or by reason of this IP Assignment Agreement or any transaction contemplated by this IP Assignment Agreement.

Section 6 Choice of Law. This IP Assignment Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without giving effect to any choice or conflict of law provision or rule (whether of the State of Delaware or any other jurisdiction) that would cause the application of the laws of any jurisdiction other than the State of Delaware.

Section 7 Terms of the Asset Purchase Agreement. The terms of the Asset Purchase Agreement, including, but not limited to, Assignor's representations, warranties, covenants, agreements and indemnities relating to the Intellectual Property, are incorporated

herein by reference. Assignor and Assignee acknowledge and agree that the representations, warranties, covenants, agreements and indemnities contained in the Asset Purchase Agreement shall not be superseded hereby, but shall remain in full force and effect to the extent provided therein. For the avoidance of doubt, no additional representations or warranties are being made in this IP Assignment Agreement. In the event of any conflict or inconsistency between the terms of the Asset Purchase Agreement and the terms hereof, the terms and provisions of the Asset Purchase Agreement shall govern.

Section 8 Counterparts. This IP Assignment Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Copies (facsimile, electronic or original) of signatures to this IP Assignment Agreement shall be deemed to be originals and shall be binding to the same extent as original signatures.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto have caused this IP Assignment Agreement to be duly executed and delivered as of the date first set forth above.

ASSIGNOR:

ABTUM INC.

By: *Behnam Analui*
Name: Behnam Analui
Title: Chief Executive Officer

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

County of ORANGE

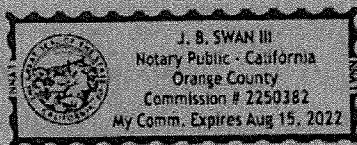
State of CALIFORNIA

I certify that the following person(s) personally appeared before me this day, each acknowledging to me that he or she signed the foregoing document:

BEHNAME ANALUI
Name(s) of principal(s)

Date: DEC. 17, 2018

(Official Seal)



J.B. Swan III
Official Signature of Notary

J.B. Swan III, Notary Public, Notary Public
Notary's printed or typed name

My commission expires: 08/15/2022

[Signature Page to IP Assignment Agreement]

PATENT

REEL: 050824 FRAME: 0068

ASSIGNEE:

QORVO US, INC.

By: *J. C. Howland*
Name: Jeffrey C. Howland
Title: Vice President

County of Guilford

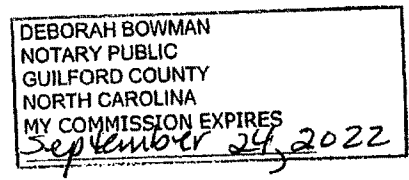
State of North Carolina

I certify that the following person(s) personally appeared before me this day, each acknowledging to me that he or she signed the foregoing document:

Jeffrey C. Howland
Name(s) of principal(s)

Date: December 17, 2018

(Official Seal)



Deborah Bowman
Official Signature of Notary

Deborah Bowman, Notary Public
Notary's printed or typed name

My commission expires: September 24, 2022

SCHEDULE A

REGISTERED IP & DOMAIN NAMES

Registered IP:

Patent Number	Owner	Inventors	Country	Status	Title
US 9866201	Abtum	Behnam Analui; Hossein Hashemi	United States	Granted	ALL-ACOUSTIC DUPLEXERS USING DIRECTIONAL COUPLERS
Application 15/220181	Abtum	Behnam Analui; Hossein Hashemi	United States	Pending	ENHANCING ISOLATION IN RADIO FREQUENCY MULTIPLEXERS
US 9762416	Abtum	Sam Mandegaran	United States	Granted	A REFLECTION COEFFICIENT READER
US 9912326	Abtum	Sam Mandegaran	United States	Granted	METHOD FOR TUNING FEED-FORWARD CANCELLER
US 9755668	Abtum	Sam Mandegaran; Hossein Hashemi	United States	Granted	A RADIO FREQUENCY COMPLEX REFLECTION COEFFICIENT READER
US 10038458	Abtum	Sam Mandegaran	United States	Granted	REFLECTION-BASED RADIO FREQUENCY MULTIPLEXERS
Application 15/528876	Abtum	Sam Mandegaran	United States	Pending	HYBRID COUPLER BASED RADIO FREQUENCY MULTIPLEXERS
Application 10-2018-7013327	Abtum	Sam Mandegaran	South Korea	Pending	HYBRID COUPLER BASED RADIO FREQUENCY MULTIPLEXERS
Application 201680059896.8	Abtum	Sam Mandegaran	China P.R.	Pending	HYBRID COUPLER BASED RADIO FREQUENCY MULTIPLEXERS
Application 105132721	Abtum	Sam Mandegaran	Taiwan	Pending	HYBRID COUPLER BASED RADIO FREQUENCY MULTIPLEXERS
Application 15/711692	Abtum	Sam Mandegaran	United States	Pending	ENHANCING ISOLATION IN HYBRID-BASED RADIO FREQUENCY DUPLEXERS AND MULTIPLEXERS
PCT/US2017/052699	Abtum	Sam Mandegaran	PCT	Pending	ENHANCING ISOLATION IN HYBRID-BASED RADIO FREQUENCY DUPLEXERS AND MULTIPLEXERS

Domain Names:

- <https://www.linkedin.com/company/abtum>
- abtum-inc.com
- abtuminc.com
- abtumtech.com
- abtumsemi.com
- abtum-tech.com
- abtum-semi.com