

# PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax** **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

27543 7590 08/12/2016  
**APPLIED OPTOELECTRONICS, INC.**  
**13115 JESS PIRTLE BLVD.**  
**SUGAR LAND, TX 77478**

**Certificate of Mailing or Transmission**  
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

|                          |                    |
|--------------------------|--------------------|
| <b>April Davis</b>       | (Depositor's name) |
| <i>April Davis</i>       | (Signature)        |
| <b>November 14, 2016</b> | (Date)             |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 14/504,500      | 10/02/2014  | Chao-Hung Tsai       | AOIT003             | 5134             |

TITLE OF INVENTION: PLUGGABLE OPTICAL TRANSCIEVER MODULE

| APPLN. TYPE    | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | UNDISCOUNTED  | \$960         | \$0                 | \$0                  | \$960            | 11/14/2016 |

| EXAMINER             | ART UNIT | CLASS-SUBCLASS |
|----------------------|----------|----------------|
| CONNELLY, MICHELLE R | 2874     | 385-092000     |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,  
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

**Grossman Tucker Perreault**  
**2 & Pfleger, PLLC**  
**3 Norman S. Kinsella**

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

**Applied Optoelectronics, Inc.**

**Sugar Land, Texas**

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number **50-1705** (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29  
☐ Applicant asserting small entity status. See 37 CFR 1.27  
☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature \_\_\_\_\_

Date **November 14, 2016**

Typed or printed name **Kevin J. Carroll**

Registration No. **36,384**

| Electronic Patent Application Fee Transmittal |          |                                     |        |                      |
|-----------------------------------------------|----------|-------------------------------------|--------|----------------------|
| Application Number:                           |          | 14504500                            |        |                      |
| Filing Date:                                  |          | 02-Oct-2014                         |        |                      |
| Title of Invention:                           |          | PLUGGABLE OPTICL TRANSCEIVER MODULE |        |                      |
| First Named Inventor/Applicant Name:          |          | Chao-Hung Tsai                      |        |                      |
| Filer:                                        |          | Kevin J. Carroll/April Davis        |        |                      |
| Attorney Docket Number:                       |          | AOIT003                             |        |                      |
| Filed as Large Entity                         |          |                                     |        |                      |
| Filing Fees for Utility under 35 USC 111(a)   |          |                                     |        |                      |
| Description                                   | Fee Code | Quantity                            | Amount | Sub-Total in USD(\$) |
| Basic Filing:                                 |          |                                     |        |                      |
| Pages:                                        |          |                                     |        |                      |
| Claims:                                       |          |                                     |        |                      |
| Miscellaneous-Filing:                         |          |                                     |        |                      |
| Petition:                                     |          |                                     |        |                      |
| Patent-Appeals-and-Interference:              |          |                                     |        |                      |
| Post-Allowance-and-Post-Issuance:             |          |                                     |        |                      |
| UTILITY APPL ISSUE FEE                        | 1501     | 1                                   | 960    | 960                  |

| Description        | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|--------------------|----------|----------|--------|----------------------|
| Extension-of-Time: |          |          |        |                      |
| Miscellaneous:     |          |          |        |                      |
| Total in USD (\$)  |          |          |        | 960                  |

## Electronic Acknowledgement Receipt

|                                             |                                     |
|---------------------------------------------|-------------------------------------|
| <b>EFS ID:</b>                              | 27498874                            |
| <b>Application Number:</b>                  | 14504500                            |
| <b>International Application Number:</b>    |                                     |
| <b>Confirmation Number:</b>                 | 5134                                |
| <b>Title of Invention:</b>                  | PLUGGABLE OPTICL TRANSCEIVER MODULE |
| <b>First Named Inventor/Applicant Name:</b> | Chao-Hung Tsai                      |
| <b>Customer Number:</b>                     | 27543                               |
| <b>Filer:</b>                               | Kevin J. Carroll/April Davis        |
| <b>Filer Authorized By:</b>                 | Kevin J. Carroll                    |
| <b>Attorney Docket Number:</b>              | AOIT003                             |
| <b>Receipt Date:</b>                        | 14-NOV-2016                         |
| <b>Filing Date:</b>                         | 02-OCT-2014                         |
| <b>Time Stamp:</b>                          | 13:49:33                            |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)         |

### Payment information:

|                                          |                             |
|------------------------------------------|-----------------------------|
| Submitted with Payment                   | yes                         |
| Payment Type                             | DA                          |
| Payment was successfully received in RAM | \$960                       |
| RAM confirmation Number                  | 111516INTEFSW00000047501705 |
| Deposit Account                          | 501705                      |
| Authorized User                          | April Davis                 |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)  
37 CFR 1.20 (Post Issuance fees)  
37 CFR 1.21 (Miscellaneous fees and charges)

### File Listing:

| Document Number | Document Description        | File Name                               | File Size(Bytes)/ Message Digest                   | Multi Part /.zip | Pages (if appl.) |
|-----------------|-----------------------------|-----------------------------------------|----------------------------------------------------|------------------|------------------|
| 1               | Issue Fee Payment (PTO-85B) | AOIT003_IssueFee_Transmittal_111416.pdf | 105605<br>a84555866c480298ebe3ed06a71ff28e264fe5e4 | no               | 1                |

### Warnings:

### Information:

|   |                      |              |                                                   |    |   |
|---|----------------------|--------------|---------------------------------------------------|----|---|
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 30652<br>a6f5d8527574130b727cae9e118f884cbc01818f | no | 2 |
|---|----------------------|--------------|---------------------------------------------------|----|---|

### Warnings:

### Information:

|                              |        |
|------------------------------|--------|
| Total Files Size (in bytes): | 136257 |
|------------------------------|--------|

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

#### **New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

#### **National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

#### **New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO. | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|------------|------------|---------------------|------------------|
| 14/504,500      | 12/20/2016 | 9523826    | AOIT003             | 5134             |

27543 7590 11/30/2016  
APPLIED OPTOELECTRONICS, INC.  
13115 JESS PIRTLE BLVD.  
SUGAR LAND, TX 77478

## ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

### **Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)** (application filed on or after May 29, 2000)

The Patent Term Adjustment is 88 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Chao-Hung Tsai, New Taipei City, TAIWAN;  
Applied Optoelectronics, Inc., New Taipei City, TAIWAN  
Chien-Te Lin, New Taipei City, TAIWAN;  
Che-Shou Yeh, New Taipei City, TAIWAN;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit [SelectUSA.gov](http://SelectUSA.gov).

**To:** kinsella@ao-inc.com,docketing@gtp.com,kcarroll@gtp.com  
**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 27543

Dec 01, 2016 03:42:55 AM

Dear PAIR Customer:

APPLIED OPTOELECTRONICS, INC.  
13115 JESS PIRTLE BLVD.  
SUGAR LAND, TX 77478  
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 27543 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

**Disclaimer:**

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

| Application | Document  | Mailroom Date | Attorney Docket No. |
|-------------|-----------|---------------|---------------------|
| 14504500    | ISSUE.NTF | 11/30/2016    | AOIT003             |

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at [EBC@uspto.gov](mailto:EBC@uspto.gov) with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4620296

|                              |                   |
|------------------------------|-------------------|
| <b>SUBMISSION TYPE:</b>      | NEW ASSIGNMENT    |
| <b>NATURE OF CONVEYANCE:</b> | SECURITY INTEREST |

**CONVEYING PARTY DATA**

| Name                          | Execution Date |
|-------------------------------|----------------|
| APPLIED OPTOELECTRONICS, INC. | 09/28/2017     |

**RECEIVING PARTY DATA**

|                          |                                  |
|--------------------------|----------------------------------|
| <b>Name:</b>             | BRANCH BANKING AND TRUST COMPANY |
| <b>Street Address:</b>   | 333 CLAY STREET                  |
| <b>Internal Address:</b> | SUITE 3800                       |
| <b>City:</b>             | HOUSTON                          |
| <b>State/Country:</b>    | TEXAS                            |
| <b>Postal Code:</b>      | 30303                            |

**PROPERTY NUMBERS Total: 109**

| Property Type  | Number  |
|----------------|---------|
| Patent Number: | 9703054 |
| Patent Number: | 9698567 |
| Patent Number: | 9696503 |
| Patent Number: | 9685757 |
| Patent Number: | 9684141 |
| Patent Number: | 9671582 |
| Patent Number: | 9614620 |
| Patent Number: | 9606145 |
| Patent Number: | 9523826 |
| Patent Number: | 9509433 |
| Patent Number: | 9502858 |
| Patent Number: | 9479280 |
| Patent Number: | 9479259 |
| Patent Number: | 9455782 |
| Patent Number: | 9448372 |
| Patent Number: | 9448367 |
| Patent Number: | 9432122 |
| Patent Number: | 9356422 |
| Patent Number: | 9343870 |

| Property Type  | Number  |
|----------------|---------|
| Patent Number: | 9341774 |
| Patent Number: | 9306671 |
| Patent Number: | 9236949 |
| Patent Number: | 9236945 |
| Patent Number: | 9225428 |
| Patent Number: | 9214790 |
| Patent Number: | 9191111 |
| Patent Number: | 9170383 |
| Patent Number: | 9160455 |
| Patent Number: | 9083468 |
| Patent Number: | 9039303 |
| Patent Number: | 9002214 |
| Patent Number: | 8995484 |
| Patent Number: | 8899846 |
| Patent Number: | 8891974 |
| Patent Number: | 8831433 |
| Patent Number: | 8818208 |
| Patent Number: | 8805191 |
| Patent Number: | 8787772 |
| Patent Number: | 8718489 |
| Patent Number: | 8670675 |
| Patent Number: | 8655183 |
| Patent Number: | 8606116 |
| Patent Number: | 8406631 |
| Patent Number: | 8358937 |
| Patent Number: | 8320773 |
| Patent Number: | 8165475 |
| Patent Number: | 8165474 |
| Patent Number: | 8126329 |
| Patent Number: | 8121493 |
| Patent Number: | 8121170 |
| Patent Number: | 8091876 |
| Patent Number: | 8079222 |
| Patent Number: | 8073340 |
| Patent Number: | 8055138 |
| Patent Number: | 8045164 |
| Patent Number: | 7978985 |
| Patent Number: | 7925170 |

| Property Type  | Number  |
|----------------|---------|
| Patent Number: | 7766686 |
| Patent Number: | 7627012 |
| Patent Number: | 7583719 |
| Patent Number: | 7573923 |
| Patent Number: | 7542503 |
| Patent Number: | 7519260 |
| Patent Number: | 7478955 |
| Patent Number: | 7468286 |
| Patent Number: | 7226218 |
| Patent Number: | 7026178 |
| Patent Number: | 7010013 |
| Patent Number: | 7010012 |
| Patent Number: | 6859481 |
| Patent Number: | 6795478 |
| Patent Number: | 6788466 |
| Patent Number: | 6782019 |
| Patent Number: | 6765948 |
| Patent Number: | 6765939 |
| Patent Number: | 6763053 |
| Patent Number: | 6763046 |
| Patent Number: | 6746777 |
| Patent Number: | 6736550 |
| Patent Number: | 6735224 |
| Patent Number: | 6724796 |
| Patent Number: | 6697413 |
| Patent Number: | 6696307 |
| Patent Number: | 6669367 |
| Patent Number: | 6652707 |
| Patent Number: | 6638773 |
| Patent Number: | 6636544 |
| Patent Number: | 6611543 |
| Patent Number: | 6608855 |
| Patent Number: | 6603184 |
| Patent Number: | 6560265 |
| Patent Number: | 6560259 |
| Patent Number: | 6549556 |
| Patent Number: | 6455908 |
| Patent Number: | 6406795 |

| Property Type       | Number   |
|---------------------|----------|
| Patent Number:      | 6263002  |
| Patent Number:      | 7290943  |
| Application Number: | 13916652 |
| Application Number: | 14295459 |
| Application Number: | 14551353 |
| Application Number: | 14590456 |
| Application Number: | 14661772 |
| Application Number: | 14665639 |
| Application Number: | 14837993 |
| Application Number: | 14838017 |
| Application Number: | 14974492 |
| Application Number: | 14983773 |
| Application Number: | 15204174 |
| Application Number: | 15241979 |

#### CORRESPONDENCE DATA

**Fax Number:** (404)522-8409

*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:** 404-681-5974

**Email:** bxha@phrd.com

**Correspondent Name:** BARBARA XHAJANKA

**Address Line 1:** 303 PEACHTREE STREET, NE

**Address Line 2:** SUITE 3600

**Address Line 4:** ATLANTA, GEORGIA 30303

**NAME OF SUBMITTER:** KELLEY C. GASS

**SIGNATURE:** /KCG/

**DATE SIGNED:** 09/29/2017

This document serves as an Oath/Declaration (37 CFR 1.63).

#### Total Attachments: 15

source=Applied Optoelectronics, Inc - Patent Security Agreement#page1.tif  
source=Applied Optoelectronics, Inc - Patent Security Agreement#page2.tif  
source=Applied Optoelectronics, Inc - Patent Security Agreement#page3.tif  
source=Applied Optoelectronics, Inc - Patent Security Agreement#page4.tif  
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source=Applied Optoelectronics, Inc - Patent Security Agreement#page15.tif

## **PATENT SECURITY AGREEMENT**

This **PATENT SECURITY AGREEMENT** (this "Agreement") is made as of this 28<sup>th</sup> day of September, 2017, between **BRANCH BANKING AND TRUST COMPANY**, a North Carolina banking corporation (together with its successors and assigns, "Lender"), and **APPLIED OPTOELECTRONICS, INC.**, a Delaware corporation ("Company").

### **Recitals:**

Company desires to obtain loans and other financial accommodations from Lender pursuant to that certain Loan Agreement dated the date hereof (as at any time amended, restated, supplemented or otherwise modified, the "Loan Agreement") by and between Company and Lender.

Lender is willing to make loans and other financial accommodations to Company from time to time pursuant to the terms of the Loan Agreement, provided that, among other things, Company executes this Agreement.

NOW, THEREFORE, for Ten Dollars (\$10.00) in hand paid and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Company hereby agrees with Lender as follows:

1. Capitalized terms used herein (including those used in the Recitals hereto), unless otherwise defined, shall have the meanings ascribed to them in the Loan Agreement. As used herein, the term "Full Payment" shall mean full and final payment of the Obligations (as defined in the Security Agreement) (hereinafter, the "Obligations") and termination of Lender's financing arrangements with Company; and the term "UCC" shall mean the Uniform Commercial Code as in effect from time to time in the State of Texas.

2. To secure the prompt payment and performance of all of the Obligations, Company hereby grants, assigns and pledges to Lender, a continuing security interest in and Lien upon all of the following property of Company, whether now existing or hereafter created or acquired (the "Patent Collateral"):

(a) the entire right, title and interest of Company in and to the patent applications and patents listed in Exhibit A attached hereto (as the same may be amended from time to time), and all re-issues, divisions, continuations, renewals, extensions and continuations-in-part thereof, including, without limitation, the right to sue for past, present and future infringements and rights corresponding thereto throughout the world (all of the foregoing being herein collectively referred to as the "Patents"); and

(b) all proceeds of the foregoing (such as, by way of example, license royalties and proceeds of infringement suits).

3. Company covenants with and warrants to Lender that:

(a) The Patents are subsisting and have not been adjudged invalid or unenforceable, in whole or in part;

(b) Company is now and shall continue to be the sole and exclusive owner of the entire and unencumbered right, title and interest in and to each of the Patents, free and clear of any Liens;

(c) Company has the unqualified right to enter into this Agreement and perform its terms; and

(d) Company has used, and will continue to use for the duration of this Agreement, proper statutory notice in connection with its use of the Patents and has made, and will continue to make all appropriate filings with the United States Patent and Trademark Office and any applicable foreign filing offices to maintain the Patents in existence, including, without limitation, filing all necessary documents with the United States Patent and Trademark Office and any applicable foreign filing offices for each Patent to maintain it without loss of protection therefor.

4. Until Full Payment of all of the Obligations, Company shall not enter into any license agreement relating to any of the Patents with any Person except non-exclusive licenses to customers, vendors, suppliers, agents or other service providers of Company in the regular and ordinary course of Company's business as presently conducted and for reasonable and customary compensation, and shall not become a party to any agreement with any Person that is inconsistent with Company's obligations under this Agreement.

5. If, before Full Payment of all of the Obligations, Company shall obtain rights to any new patentable inventions, or become entitled to the benefit of any patent application or patent for any reissue, division, continuation, renewal, extension or continuation-in-part of any Patent or any improvement on any Patent, the provisions of paragraph 2 shall automatically apply thereto and Company shall give to Lender prompt notice thereof in writing.

6. Company irrevocably authorizes and empowers Lender to modify this Agreement by amending Exhibit A to include any future patents and patent applications under paragraph 2 or paragraph 5 hereof.

7. Company hereby grants to Lender and its employees the visitation, audit, and inspection rights with respect to Company and the Patent Collateral as set forth in Section DD.06(b) of Schedule DD to the Loan Agreement.

8. At any time that an Event of Default exists, Lender shall have, in addition to all other rights and remedies given it by this Agreement and the other Loan Documents, all rights and remedies of a secured party under the UCC and all other rights and remedies under applicable law. Without limiting the generality of the foregoing, Lender may immediately, without demand of performance and without other notice (except as described in the next sentence, if required by applicable law) or demand whatsoever to Company, each of which Company hereby expressly waives, and without advertisement (except as otherwise provided by applicable law), collect directly any payments due Company in respect of the Patent Collateral, or sell at public or private sale or otherwise realize upon the whole or from time to time any of the Patent Collateral, or any interest that Company may have therein. Company hereby agrees that ten (10) days notice to Company of any public or private sale or other disposition of any of the Patent Collateral shall be reasonable notice; provided, however, that no notice shall be required hereunder if not otherwise required by applicable law. At any such sale or disposition, Lender may, to the extent permitted by applicable law, purchase the whole or any part of the Patent Collateral sold, free from any right of redemption on the part of Company, which right Company hereby waives and releases. After deducting from the proceeds of such sale or other disposition of the Patent Collateral all reasonable costs and expenses incurred by Lender in enforcing its rights hereunder (including, without limitation, all reasonable attorneys' fees), Lender shall apply the remainder of such proceeds to the payment of the Obligations, in such order or manner as may be authorized or required by the Loan Agreement. Any remainder of the proceeds after Full Payment of all of the Obligations shall be paid over to Company. If any deficiency shall arise, Company shall remain liable therefor.

9. Company hereby makes, constitutes and appoints Lender, and any officer or agent of Lender as Lender may reasonably select, as Company's true and lawful attorney-in-fact, with full power to do any or all of the following if an Event of Default with respect to Company shall exist: to endorse Company's name on all applications, documents, papers and instruments necessary for Lender to continue the maintenance of or to use the Patents, or to grant or issue any exclusive or nonexclusive license under the Patents to any other Person, or to assign, pledge, convey or otherwise transfer title in or dispose of any Patent Collateral to any other Person. Company hereby ratifies all that such attorney shall lawfully do or cause to be done by virtue hereof. This power of attorney, being coupled with an interest, shall be irrevocable until Full Payment of all of the Obligations, upon which time such power of attorney will automatically terminate (unless sooner terminated by the parties).

10. Any and all reasonable fees, costs and expenses, of whatever kind or nature, (including, without limitation, reasonable attorneys' fees and legal expenses) incurred by Lender in connection with the preparation of this Agreement and any other documents relating hereto and the consummation of this transaction, the filing or recording of any documents (including, without limitation, all taxes in connection therewith) with the United States Patent and Trademark Office or in other public offices, the payment or discharge of any taxes, counsel fees, maintenance fees or Liens, or otherwise, in protecting, maintaining and preserving any Patent Collateral or in defending or prosecuting any actions or proceedings arising out of or related to any Patent Collateral, shall be borne and paid by Company (it being the intent of Company and Lender that Company shall be responsible for the payment of all sums, fees, costs and expenses, including, without limitation, all maintenance fees payable with respect to the Patents) or, if paid by Lender in its sole discretion, shall be reimbursed by Company to Lender **on demand** by Lender and until so paid shall be added to the principal amount of the Obligations and shall bear interest at the Default Rate then applicable to the Line of Credit.

11. Company shall use its commercially reasonable efforts to detect any infringers of the Patents and shall notify Lender in writing of material infringements detected. Company shall have the duty, through counsel reasonably acceptable to Lender, to prosecute diligently any patent application for a Patent pending as of the date of this Agreement or thereafter until Full Payment of all of the Obligations, to make application on unpatented but patentable inventions (subject to Company's reasonable discretion in the ordinary course of business, or, during the existence of an Event of Default, promptly upon Lender's request), to file and prosecute opposition and cancellation proceedings, to file and prosecute lawsuits to protect each Patent and to do any and all acts that are reasonably deemed necessary or desirable by Lender to preserve and maintain all rights in patent applications for each Patent, unless in any such case Company has determined that such Patent is no longer material to the conduct of its business.. Any expenses incurred in connection with such an application or proceedings shall be borne by Company. Company shall not abandon any pending patent application or Patent, without the prior written consent of Lender, unless Company has determined that such patent application or Patent is no longer material to the conduct of its business.

12. Notwithstanding anything to the contrary contained in paragraph 11 hereof, Lender shall have the right, at any time that an Event of Default exists, but shall in no way be obligated, to bring suit in its own name to enforce the Patents and any license hereunder, or to defend any suit or counterclaim in its own name to protect any Patents or license hereunder, in either of which events Company shall at the request of Lender do any and all lawful acts (including bringing suit) and execute any and all proper documents required by Lender in aid of such enforcement or defense and Company shall promptly, upon demand, reimburse and indemnify Lender for all reasonable costs and expenses incurred by Lender in the exercise of its rights under this paragraph 12.

13. If Company fails to comply with any of its obligations hereunder and at the time of such failure or as a result thereof an Event of Default exists, then to the extent permitted by applicable law,

Lender may discharge such obligations in Company's name or in Lender's name, in Lender's sole discretion, but at Company's expense, and Company agrees to reimburse Lender in full for all reasonable expenses, including, without limitation, reasonable attorneys' fees, incurred by Lender in prosecuting, defending or maintaining the Patents or Lender's interest therein pursuant to this Agreement.

14. No course of dealing between Company and Lender, nor any failure to exercise, nor any delay in exercising, on the part of Lender, any right, power or privilege hereunder or under any of the other Loan Documents shall operate as a waiver thereof; nor shall any single or partial exercise of any right, power or privilege hereunder or thereunder preclude any other or future exercise thereof or the exercise of any other right, power or privilege.

15. All of Lender's rights and remedies with respect to the Patent Collateral, whether established by this Agreement or any of the other Loan Documents, or by any other agreements or by applicable law, shall be cumulative and may be exercised singularly or concurrently.

16. The provisions of this Agreement are severable, and if any clause or provision shall be held invalid and unenforceable, in whole or in part, in any jurisdiction, the same shall be deemed severed herefrom and shall not in any manner affect such clause or provisions in any other jurisdiction, or any other clause or provision of this Agreement in any jurisdiction.

17. This Agreement, together with the other Loan Documents, constitutes and expresses the entire understanding of the parties hereto with respect to the subject matter hereof, and supersedes all prior agreements and understandings, inducements or conditions, whether express or implied, oral or written. This Agreement is subject to modification only by writing signed by the parties, except as provided in paragraph 6 hereof.

18. The benefits and burdens of this Agreement shall inure to the benefit of and be binding upon the successors and assigns of Lender and upon the successors and permitted assigns of Company. Company shall not assign its rights or delegate its rights or assign its duties hereunder without the prior written consent of Lender.

19. Company hereby waives notice of Lender's acceptance hereof.

20. This Agreement shall be governed by and construed in accordance with the internal laws of the State of Texas.

21. To the fullest extent permitted by applicable law, Company and Lender each waives the right to trial by jury in any action, suit, proceeding or counterclaim of any kind arising out of or related to this Agreement or the Patent Collateral.

22. Upon Full Payment, Lender shall execute and deliver to Company, at Company's request and at Company's expense, all releases, termination statements, and other instruments as may be necessary or proper to release or reflect the release of Lender's security interest in the Patent Collateral, including all documentation necessary to reflect such release in the United States Patent and Trademark Office.

[Remainder of page intentionally left blank; signatures appear on following pages.]



## EXHIBIT A

### Patents

| <u>Patent Name</u>                                                                                                                      | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------|
| Aligning and directly optically coupling photodetectors to optical demultiplexer outputs in a multichannel receiver optical subassembly | 9,703,054                              | July 11, 2017                        |
| Wavelength-selectable laser device providing spatially-selectable wavelength(S)                                                         | 9,698,567                              | July 4, 2017                         |
| Multi-channel transmitter optical subassembly (TOSA) with an optical coupling receptacle providing an off-center fiber                  | 9,696,503                              | July 4, 2017                         |
| System, method and fixture for performing both optical power and wavelength measurements of light emitted from a laser diode            | 9,685,757                              | June 20, 2017                        |
| Techniques for reducing ingress of foreign matter into an optical subassembly                                                           | 9,684,141                              | June 20, 2017                        |
| Pluggable optical transceiver module                                                                                                    | 9,671,582                              | June 6, 2017                         |
| Coaxial transmitter optical subassembly (TOSA) with cuboid type to laser package and optical transceiver including same                 | 9,614,620                              | April 4, 2017                        |
| Test fixture with thermoelectric cooler and spring-operated holding pin                                                                 | 9,606,145                              | March 28, 2017                       |
| Pluggable optical transceiver module                                                                                                    | 9,523,826                              | December 20, 2016                    |

|                                                                                                                                                               |           |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|
| Aligning and directly optically coupling photodetectors to optical demultiplexer outputs in a multichannel receiver optical subassembly                       | 9,509,433 | November 29, 2016  |
| Laser array mux assembly with external reflector for providing a selected wavelength or multiplexed wavelengths                                               | 9,502,858 | November 22, 2016  |
| Extended cavity fabry-perot laser assembly capable of high speed optical modulation with narrow mode spacing and WDM optical system including same            | 9,479,280 | October 25, 2016   |
| Multi-channel optical transceiver module including thermal arrayed waveguide grating multiplexer and athermal arrayed waveguide grating demultiplexer         | 9,479,259 | October 25, 2016   |
| Monitoring a multiplexed laser array in an optical communication system                                                                                       | 9,455,782 | September 27, 2016 |
| Optical coupling element and optical module having the same                                                                                                   | 9,448,372 | September 20, 2016 |
| Multi-channel optical transceiver module including dual fiber type direct link adapter for optically coupling optical subassemblies in the transceiver module | 9,448,367 | September 20, 2016 |
| Optical networking unit (ONU) packaging                                                                                                                       | 9,432,122 | August 30, 2016    |
| Scribe etch process for semiconductor laser chip manufacturing                                                                                                | 9,356,422 | May 31, 2016       |
| Semiconductor laser diode with integrated heating region                                                                                                      | 9,343,870 | May 17, 2016       |
| Optically matched laser array coupling assembly for coupling laser array to arrayed waveguide grating                                                         | 9,341,774 | May 17, 2016       |

|                                                                                                                                                               |           |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Thermally isolated multi-channel transmitter optical subassembly and optical transceiver module including same                                                | 9,306,671 | April 5, 2016     |
| Laser transceiver with improved bit error rate                                                                                                                | 9,236,949 | January 12, 2016  |
| Thermally shielded multi-channel transmitter optical subassembly and optical transceiver module including same                                                | 9,236,945 | January 12, 2016  |
| Method and system for alignment of photodetector array to optical demultiplexer outputs                                                                       | 9,225,428 | December 29, 2015 |
| Filtered laser array assembly with external optical modulation and WDM optical system including same                                                          | 9,214,790 | December 15, 2015 |
| Reducing cross-modulation in multichannel modulated optical systems                                                                                           | 9,191,111 | November 17, 2015 |
| Multi-channel optical transceiver module including dual fiber type direct link adapter for optically coupling optical subassemblies in the transceiver module | 9,170,383 | October 27, 2015  |
| External cavity laser array system and WDM optical system including same                                                                                      | 9,160,455 | October 13, 2015  |
| Heated laser package with increased efficiency for optical transmitter systems                                                                                | 9,083,468 | July 14, 2015     |
| Compact multi-channel optical transceiver module                                                                                                              | 9,039,303 | May 26, 2015      |
| Wavelength-selectable laser device and apparatus and system including same                                                                                    | 9,002,214 | April 7, 2015     |

|                                                                                                                    |           |                   |
|--------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Temperature controlled multi-channel transmitter optical subassembly and optical transceiver module including same | 8,995,484 | March 31, 2015    |
| Receptacle diplexer                                                                                                | 8,899,846 | December 2, 2014  |
| Distortion compensation circuit including tunable phase path                                                       | 8,891,974 | November 18, 2014 |
| Temperature controlled multi-channel transmitter optical subassembly and optical transceiver module including same | 8,831,433 | September 9, 2014 |
| Laser mux assembly for providing a selected wavelength                                                             | 8,818,208 | August 26, 2014   |
| Optical transceiver including optical fiber coupling assembly to increase usable channel wavelengths               | 8,805,191 | August 12, 2014   |
| Laser package including semiconductor laser and memory device for storing laser parameters                         | 8,787,772 | July 22, 2014     |
| Distortion compensation circuit including one or more phase invertible distortion paths                            | 8,718,489 | May 6, 2014       |
| System and method for distortion compensation including configurable delay                                         | 8,670,675 | March 11, 2014    |
| Optical transceiver that maintains a bend diameter of an internal optical fiber and method of assembling same      | 8,655,183 | February 18, 2014 |
| System and method for distortion compensation in response to frequency detection                                   | 8,606,116 | December 10, 2013 |
| Network timing                                                                                                     | 8,406,631 | March 26, 2013    |

|                                                                                                          |           |                   |
|----------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Systems and methods for reducing clipping in multichannel modulated optical systems                      | 8,358,937 | January 22, 2013  |
| Reducing cross-modulation in multichannel modulated optical systems                                      | 8,320,773 | November 27, 2012 |
| Systems and methods for reducing clipping in multichannel modulated optical systems                      | 8,165,475 | April 24, 2012    |
| Reducing cross modulation in multichannel modulated optical systems with anti-clipping                   | 8,165,474 | April 24, 2012    |
| Quad-port optical module with pass-through and add/drop configuration                                    | 8,126,329 | February 28, 2012 |
| Distortion compensation circuit and method based on orders of time dependent series of distortion signal | 8,121,493 | February 21, 2012 |
| Gain-coupled distributed feedback semiconductor laser including first-order and second-order gratings    | 8,121,170 | February 21, 2012 |
| Fixture for securing optoelectronic packages for wire and/or component bonding                           | 8,091,876 | January 10, 2012  |
| Thermoelectric cooler controller                                                                         | 8,079,222 | December 20, 2011 |
| Distortion compensation circuit including one or more phase invertible distortion paths                  | 8,073,340 | December 6, 2011  |
| Photosensor operating point                                                                              | 8,055,138 | November 8, 2011  |
| Position finding system and method for use in aligning laser device with an optical fiber                | 8,045,164 | October 25, 2011  |

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|-------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Clipping correction system and method for correcting clipped signals in a receiver                          | 7,978,985 | July 12, 2011     |
| Predistortion circuit including distortion generator diodes with adjustable diode bias                      | 7,925,170 | April 12, 2011    |
| Pluggable form factor release mechanism                                                                     | 7,766,686 | August 3, 2010    |
| Distributed feedback semiconductor laser including wavelength monitoring section                            | 7,627,012 | December 1, 2009  |
| Complex-coupled distributed feedback semiconductor laser                                                    | 7,583,719 | September 1, 2009 |
| Laser drive circuit and method providing high limit clipping corresponding to low limit clipping in a laser | 7,573,923 | August 11, 2009   |
| Distributed feedback laser with improved optical field uniformity and mode stability                        | 7,542,503 | June 2, 2009      |
| Coaxial optoelectronic device separation apparatus and method                                               | 7,519,260 | April 14, 2009    |
| Modular laser package system                                                                                | 7,478,955 | January 20, 2009  |
| System and method for securing optoelectronic packages for mounting components at a mounting angle          | 7,468,286 | December 23, 2008 |
| Method and apparatus for coupling a laser to a fiber in a two-lens laser system                             | 7,226,218 | June 5, 2007      |
| Method for fabricating a VCSEL with ion-implanted current-confinement structure                             | 7,026,178 | April 11, 2006    |
| Assembly with tapered, threaded ferrule housing for improved alignment of fiber with laser                  | 7,010,013 | March 7, 2006     |

|                                                                                                                                              |           |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|
| Method and apparatus for reducing specular reflections in semiconductor lasers                                                               | 7,010,012 | March 7, 2006      |
| Optically-pumped multiple-quantum well active region with improved distribution of optical pumping power                                     | 6,859,481 | February 22, 2005  |
| VCSEL with antiguide current confinement layer                                                                                               | 6,795,478 | September 21, 2004 |
| Multiple reflectivity band reflector                                                                                                         | 6,788,466 | September 7, 2004  |
| VCSEL with heat-spreading layer                                                                                                              | 6,782,019 | August 24, 2004    |
| VCSEL assembly with edge-receiving optical devices                                                                                           | 6,765,948 | July 20, 2004      |
| Multiple reflectivity band reflector with non-uniform profile and laser system employing same for laser wavelength monitoring                | 6,765,939 | July 20, 2004      |
| Laser having multiple reflectivity band reflector                                                                                            | 6,763,053 | July 13, 2004      |
| Method and system employing multiple reflectivity band reflector for laser wavelength monitoring                                             | 6,763,046 | July 13, 2004      |
| Alternative substrates for epitaxial growth                                                                                                  | 6,746,777 | June 8, 2004       |
| Housing for passively aligning an optical fiber with a lens                                                                                  | 6,736,550 | May 18, 2004       |
| Planar lightwave circuit for conditioning tunable laser output                                                                               | 6,735,224 | May 11, 2004       |
| Modified distributed bragg reflector (DBR) for vertical cavity surface-emitting laser (VCSEL) resonant wavelength tuning sensitivity control | 6,724,796 | April 20, 2004     |

|                                                                                                              |           |                   |
|--------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Tunable vertical-cavity surface-emitting laser with tuning junction                                          | 6,697,413 | February 24, 2004 |
| Patterned phase shift layers for wavelength-selectable vertical cavity surface-emitting laser (VCSEL) arrays | 6,696,307 | February 24, 2004 |
| Optical fiber with mirror for semiconductor laser                                                            | 6,669,367 | December 30, 2003 |
| Method and apparatus for demounting workpieces from adhesive film                                            | 6,652,707 | November 25, 2003 |
| Method for fabricating single-mode DBR laser with improved yield                                             | 6,638,773 | October 28, 2003  |
| Overlapping wavelength-tunable vertical cavity surface-emitting laser (VCSEL) arrays                         | 6,636,544 | October 21, 2003  |
| Vertical-cavity surface-emitting laser with metal mirror and method of fabrication of same                   | 6,611,543 | August 26, 2003   |
| Single-mode DBR laser with improved phase-shift section                                                      | 6,608,855 | August 19, 2003   |
| Double heterostructure photodiode with graded minority-carrier blocking structures                           | 6,603,184 | August 5, 2003    |
| Method and apparatus for polarizing light in a VCSEL                                                         | 6,560,265 | May 6, 2003       |
| Spatially coherent surface-emitting, grating coupled quantum cascade laser with unstable resonance cavity    | 6,560,259 | May 6, 2003       |
| Vertical-cavity surface-emitting laser with bottom dielectric distributed bragg reflector                    | 6,549,556 | April 15, 2003    |

|                                                                                                                                                                                          |            |                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------|
| Multispectral radiation detectors using strain-compensating superlattices                                                                                                                | 6,455,908  | 6,455,908<br>September 24, 2002 |
| Compliant universal substrates for optoelectronic and electronic devices                                                                                                                 | 6,406,795  | June 18, 2002                   |
| Tunable fiber fabry-perot surface-emitting lasers                                                                                                                                        | 6,263,002  | June 17, 2001                   |
| Modular laser package system and associated methods                                                                                                                                      | 7,290,943  | November 6, 2007                |
| Tunable laser with multiple in-line section                                                                                                                                              | 13/916,652 | June 13, 2013                   |
| Monitoring nad controlling temperature across a laser array in a transmitter optical subassembly (TOSA) package                                                                          | 14/295,459 | June 4, 2014                    |
| Tunable laser with multiple in-line section including sampled gratings                                                                                                                   | 14/551,353 | November 24, 2014               |
| Two-section semiconductor laser with modulation-independent grating section to reduce chirp                                                                                              | 14/590,456 | January 6, 2015                 |
| Tunable laser including parallel lasing cavities with a common output                                                                                                                    | 14/661,772 | March 18, 2015                  |
| Multichannel receiver optical subassembly with improved sensitivity                                                                                                                      | 14/665,639 | March 23, 2015                  |
| Multi-channel transmitter optical subassembly (TOSA) with opposing placement of transistor outline (TO) can laser packages                                                               | 14/837,993 | August 27, 2015                 |
| Receiver optical subassembly (ROSA) housing with sidewall receptacle to provide electrical isolation between an adjacent transmitter optical subassembly (TOSA) in a transceiver housing | 14/838,017 | August 27, 2015                 |

|                                                                                                                                       |            |                   |
|---------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|
| Optical filter sub-assembly cartridge for use in a receiver optical subassembly (ROSA) housing                                        | 14/974,492 | December 18, 2015 |
| Optical transceiver assembly including thermal dual arrayed waveguide grating                                                         | 14/983,773 | December 30, 2015 |
| Techniques for reducing the footprint of a multi-channel transmitter optical subassembly (TOSA) within an optical transceiver housing | 15/204,174 | July 7, 2016      |
| Optical component assembly having a keyed structure for ensuring proper insertion orientation within an optical subassembly           | 15/241,979 | August 19, 2016   |

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT7649116

|                              |                              |
|------------------------------|------------------------------|
| <b>SUBMISSION TYPE:</b>      | NEW ASSIGNMENT               |
| <b>NATURE OF CONVEYANCE:</b> | RELEASE OF SECURITY INTEREST |

## CONVEYING PARTY DATA

| Name                                                              | Execution Date |
|-------------------------------------------------------------------|----------------|
| TRUIST BANK (FORMERLY KNOWN AS BRANCH BANKING AND TRUST COMPANY)) | 11/16/2022     |

## RECEIVING PARTY DATA

|                        |                               |
|------------------------|-------------------------------|
| <b>Name:</b>           | APPLIED OPTOELECTRONICS, INC. |
| <b>Street Address:</b> | 13139 JESS PIRTLE BLVD.       |
| <b>City:</b>           | SUGAR LAND                    |
| <b>State/Country:</b>  | TEXAS                         |
| <b>Postal Code:</b>    | 77478                         |

## PROPERTY NUMBERS Total: 109

| Property Type  | Number  |
|----------------|---------|
| Patent Number: | 9703054 |
| Patent Number: | 9698567 |
| Patent Number: | 9696503 |
| Patent Number: | 9685757 |
| Patent Number: | 9684141 |
| Patent Number: | 9671582 |
| Patent Number: | 9614620 |
| Patent Number: | 9606145 |
| Patent Number: | 9523826 |
| Patent Number: | 9509433 |
| Patent Number: | 9502858 |
| Patent Number: | 9479280 |
| Patent Number: | 9479259 |
| Patent Number: | 9455782 |
| Patent Number: | 9448372 |
| Patent Number: | 9448367 |
| Patent Number: | 9432122 |
| Patent Number: | 9356422 |
| Patent Number: | 9343870 |
| Patent Number: | 9341774 |

| Property Type  | Number  |
|----------------|---------|
| Patent Number: | 9306671 |
| Patent Number: | 9236949 |
| Patent Number: | 9236945 |
| Patent Number: | 9225428 |
| Patent Number: | 9214790 |
| Patent Number: | 9191111 |
| Patent Number: | 9170383 |
| Patent Number: | 9160455 |
| Patent Number: | 9083468 |
| Patent Number: | 9039303 |
| Patent Number: | 9002214 |
| Patent Number: | 8995484 |
| Patent Number: | 8899846 |
| Patent Number: | 8891974 |
| Patent Number: | 8831433 |
| Patent Number: | 8818208 |
| Patent Number: | 8805191 |
| Patent Number: | 8787772 |
| Patent Number: | 8718489 |
| Patent Number: | 8670675 |
| Patent Number: | 8655183 |
| Patent Number: | 8606116 |
| Patent Number: | 8406631 |
| Patent Number: | 8358937 |
| Patent Number: | 8320773 |
| Patent Number: | 8165475 |
| Patent Number: | 8165474 |
| Patent Number: | 8126329 |
| Patent Number: | 8121493 |
| Patent Number: | 8121170 |
| Patent Number: | 8091876 |
| Patent Number: | 8079222 |
| Patent Number: | 8073340 |
| Patent Number: | 8055138 |
| Patent Number: | 8045164 |
| Patent Number: | 7978985 |
| Patent Number: | 7925170 |
| Patent Number: | 7766686 |

| Property Type  | Number  |
|----------------|---------|
| Patent Number: | 7627012 |
| Patent Number: | 7583719 |
| Patent Number: | 7573923 |
| Patent Number: | 7542503 |
| Patent Number: | 7519260 |
| Patent Number: | 7478955 |
| Patent Number: | 7468286 |
| Patent Number: | 7226218 |
| Patent Number: | 7026178 |
| Patent Number: | 7010013 |
| Patent Number: | 7010012 |
| Patent Number: | 6859481 |
| Patent Number: | 6795478 |
| Patent Number: | 6788466 |
| Patent Number: | 6782019 |
| Patent Number: | 6765948 |
| Patent Number: | 6765939 |
| Patent Number: | 6763053 |
| Patent Number: | 6763046 |
| Patent Number: | 6746777 |
| Patent Number: | 6736550 |
| Patent Number: | 6735224 |
| Patent Number: | 6724796 |
| Patent Number: | 6697413 |
| Patent Number: | 6696307 |
| Patent Number: | 6669367 |
| Patent Number: | 6652707 |
| Patent Number: | 6638773 |
| Patent Number: | 6636544 |
| Patent Number: | 6611543 |
| Patent Number: | 6608855 |
| Patent Number: | 6603184 |
| Patent Number: | 6560265 |
| Patent Number: | 6560259 |
| Patent Number: | 6549556 |
| Patent Number: | 6455908 |
| Patent Number: | 6406795 |
| Patent Number: | 6263002 |

| Property Type       | Number   |
|---------------------|----------|
| Patent Number:      | 7290943  |
| Application Number: | 13916652 |
| Application Number: | 14295459 |
| Application Number: | 14551353 |
| Application Number: | 14590456 |
| Application Number: | 14661772 |
| Application Number: | 14665639 |
| Application Number: | 14837993 |
| Application Number: | 14838017 |
| Application Number: | 14974492 |
| Application Number: | 14983773 |
| Application Number: | 15204174 |
| Application Number: | 15241979 |

#### CORRESPONDENCE DATA

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|                                |                                                            |
|--------------------------------|------------------------------------------------------------|
| <b>ATTORNEY DOCKET NUMBER:</b> | 676.221                                                    |
| <b>NAME OF SUBMITTER:</b>      | KATHLEEN O. CURREY                                         |
| <b>SIGNATURE:</b>              | /KOC/                                                      |
| <b>DATE SIGNED:</b>            | 11/16/2022                                                 |
|                                | This document serves as an Oath/Declaration (37 CFR 1.63). |

#### Total Attachments: 12

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## **RELEASE OF SECURITY INTEREST IN PATENTS**

November 16, 2022

FOR VALUE RECEIVED, the undersigned, **TRUIST BANK**, a North Carolina banking corporation formerly known as Branch Banking and Trust Company, having an address at 333 Clay Street, Suite 3800, Houston, Texas 77002 ("Lender"), hereby releases and terminates all of Lender's liens and security interests in and to all Patent Collateral of **APPLIED OPTOELECTRONICS, INC.**, a Delaware corporation having a mailing address at 13139 Jess Pirtle Blvd., Sugar Land, Texas 77478 (the "Company"), including, without limitation, all of the patents and patent applications listed on Exhibit A attached hereto, and Lender hereby reassigns all right, title and interest (if any) that Lender may have in the Patent Collateral to Company, **without any representation or warranty by, or recourse to**, Lender, arising under that certain Patent Security Agreement between Lender and Company dated as of September 28, 2017, as recorded in the United States Patent and Trademark Office on September 29, 2017, at Reel 044061 Frame 0812 (the "Patent Security Agreement"). Capitalized terms used herein, unless otherwise defined herein, shall have the meanings ascribed to such terms in the Patent Security Agreement.

This Release of Security Interest in Patents (this "Release") is intended to operate as a release of all liens and security interests granted and conveyed by Company to Lender pursuant to the terms of the Patent Security Agreement and to reassign to Company all of Lender's right, title, and interest, if any, acquired pursuant to the terms of such Patent Security Agreement, in each case without any representation, warranty, recourse or undertaking by Lender.

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signature appears on the following page]

IN WITNESS WHEREOF, Lender has caused this Release to be signed by its duly authorized officer on the date first written above.

**TRUIST BANK**

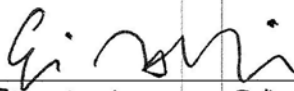
By:   
Name: Elizabeth H. Riley  
Title: Vice President

**EXHIBIT A****U.S. Patents and Patent Applications**

| <u>Patent Name</u>                                                                                                                      | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------|
| Aligning and directly optically coupling photodetectors to optical demultiplexer outputs in a multichannel receiver optical subassembly | 9,703,054                              | July 11, 2017                        |
| Wavelength-selectable laser device providing spatially-selectable wavelength(S)                                                         | 9,698,567                              | July 4, 2017                         |
| Multi-channel transmitter optical subassembly (TOSA) with an optical coupling receptacle providing an off-center fiber                  | 9,696,503                              | July 4, 2017                         |
| System, method and fixture for performing both optical power and wavelength measurements of light emitted from a laser diode            | 9,685,757                              | June 20, 2017                        |
| Techniques for reducing ingress of foreign matter into an optical subassembly                                                           | 9,684,141                              | June 20, 2017                        |
| Pluggable optical transceiver module                                                                                                    | 9,671,582                              | June 6, 2017                         |
| Coaxial transmitter optical subassembly (TOSA) with cuboid type to laser package and optical transceiver including same                 | 9,614,620                              | April 4, 2017                        |
| Test fixture with thermoelectric cooler and spring-operated holding pin                                                                 | 9,606,145                              | March 28, 2017                       |
| Pluggable optical transceiver module                                                                                                    | 9,523,826                              | December 20, 2016                    |
| Aligning and directly optically coupling photodetectors to                                                                              | 9,509,433                              | November 29, 2016                    |

| <u>Patent Name</u>                                                                                                                                            | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------|
| optical demultiplexer outputs in a multichannel receiver optical subassembly                                                                                  |                                        |                                      |
| Laser array mux assembly with external reflector for providing a selected wavelength or multiplexed wavelengths                                               | 9,502,858                              | November 22, 2016                    |
| Extended cavity fabry-perot laser assembly capable of high speed optical modulation with narrow mode spacing and WDM optical system including same            | 9,479,280                              | October 25, 2016                     |
| Multi-channel optical transceiver module including thermal arrayed waveguide grating multiplexer and athermal arrayed waveguide grating demultiplexer         | 9,479,259                              | October 25, 2016                     |
| Monitoring a multiplexed laser array in an optical communication system                                                                                       | 9,455,782                              | September 27, 2016                   |
| Optical coupling element and optical module having the same                                                                                                   | 9,448,372                              | September 20, 2016                   |
| Multi-channel optical transceiver module including dual fiber type direct link adapter for optically coupling optical subassemblies in the transceiver module | 9,448,367                              | September 20, 2016                   |
| Optical networking unit (ONU) packaging                                                                                                                       | 9,432,122                              | August 30, 2016                      |
| Scribe etch process for semiconductor laser chip manufacturing                                                                                                | 9,356,422                              | May 31, 2016                         |
| Semiconductor laser diode with integrated heating region                                                                                                      | 9,343,870                              | May 17, 2016                         |
| Optically matched laser array coupling assembly for coupling laser array to arrayed waveguide grating                                                         | 9,341,774                              | May 17, 2016                         |

| <u>Patent Name</u>                                                                                                                                            | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
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| Thermally isolated multi-channel transmitter optical subassembly and optical transceiver module including same                                                | 9,306,671                              | April 5, 2016                        |
| Laser transceiver with improved bit error rate                                                                                                                | 9,236,949                              | January 12, 2016                     |
| Thermally shielded multi-channel transmitter optical subassembly and optical transceiver module including same                                                | 9,236,945                              | January 12, 2016                     |
| Method and system for alignment of photodetector array to optical demultiplexer outputs                                                                       | 9,225,428                              | December 29, 2015                    |
| Filtered laser array assembly with external optical modulation and WDM optical system including same                                                          | 9,214,790                              | December 15, 2015                    |
| Reducing cross-modulation in multichannel modulated optical systems                                                                                           | 9,191,111                              | November 17, 2015                    |
| Multi-channel optical transceiver module including dual fiber type direct link adapter for optically coupling optical subassemblies in the transceiver module | 9,170,383                              | October 27, 2015                     |
| External cavity laser array system and WDM optical system including same                                                                                      | 9,160,455                              | October 13, 2015                     |
| Heated laser package with increased efficiency for optical transmitter systems                                                                                | 9,083,468                              | July 14, 2015                        |
| Compact multi-channel optical transceiver module                                                                                                              | 9,039,303                              | May 26, 2015                         |
| Wavelength-selectable laser device and apparatus and system including same                                                                                    | 9,002,214                              | April 7, 2015                        |

| <u>Patent Name</u>                                                                                                 | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
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| Temperature controlled multi-channel transmitter optical subassembly and optical transceiver module including same | 8,995,484                              | March 31, 2015                       |
| Receptacle diplexer                                                                                                | 8,899,846                              | December 2, 2014                     |
| Distortion compensation circuit including tunable phase path                                                       | 8,891,974                              | November 18, 2014                    |
| Temperature controlled multi-channel transmitter optical subassembly and optical transceiver module including same | 8,831,433                              | September 9, 2014                    |
| Laser mux assembly for providing a selected wavelength                                                             | 8,818,208                              | August 26, 2014                      |
| Optical transceiver including optical fiber coupling assembly to increase usable channel wavelengths               | 8,805,191                              | August 12, 2014                      |
| Laser package including semiconductor laser and memory device for storing laser parameters                         | 8,787,772                              | July 22, 2014                        |
| Distortion compensation circuit including one or more phase invertible distortion paths                            | 8,718,489                              | May 6, 2014                          |
| System and method for distortion compensation including configureable delay                                        | 8,670,675                              | March 11, 2014                       |
| Optical transceiver that maintains a bend diameter of an internal optical fiber and method of assembling same      | 8,655,183                              | February 18, 2014                    |
| System and method for distortion compensation in response to frequency detection                                   | 8,606,116                              | December 10, 2013                    |

| <u>Patent Name</u>                                                                                       | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
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| Network timing                                                                                           | 8,406,631                              | March 26, 2013                       |
| Systems and methods for reducing clipping in multichannel modulated optical systems                      | 8,358,937                              | January 22, 2013                     |
| Reducing cross-modulation in multichannel modulated optical systems                                      | 8,320,773                              | November 27, 2012                    |
| Systems and methods for reducing clipping in multichannel modulated optical systems                      | 8,165,475                              | April 24, 2012                       |
| Reducing cross modulation in multichannel modulated optical systems with anti-clipping                   | 8,165,474                              | April 24, 2012                       |
| Quad-port optical module with pass-through and add/drop configuration                                    | 8,126,329                              | February 28, 2012                    |
| Distortion compensation circuit and method based on orders of time dependent series of distortion signal | 8,121,493                              | February 21, 2012                    |
| Gain-coupled distributed feedback semiconductor laser including first-order and second-order gratings    | 8,121,170                              | February 21, 2012                    |
| Fixture for securing optoelectronic packages for wire and/or component bonding                           | 8,091,876                              | January 10, 2012                     |
| Thermoelectric cooler controller                                                                         | 8,079,222                              | December 20, 2011                    |
| Distortion compensation circuit including one or more phase invertible distortion paths                  | 8,073,340                              | December 6, 2011                     |
| Photosensor operating point                                                                              | 8,055,138                              | November 8, 2011                     |

| <u>Patent Name</u>                                                                                          | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
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| Position finding system and method for use in aligning laser device with an optical fiber                   | 8,045,164                              | October 25, 2011                     |
| Clipping correction system and method for correcting clipped signals in a receiver                          | 7,978,985                              | July 12, 2011                        |
| Predistortion circuit including distortion generator diodes with adjustable diode bias                      | 7,925,170                              | April 12, 2011                       |
| Pluggable form factor release mechanism                                                                     | 7,766,686                              | August 3, 2010                       |
| Distributed feedback semiconductor laser including wavelength monitoring section                            | 7,627,012                              | December 1, 2009                     |
| Complex-coupled distributed feedback semiconductor laser                                                    | 7,583,719                              | September 1, 2009                    |
| Laser drive circuit and method providing high limit clipping corresponding to low limit clipping in a laser | 7,573,923                              | August 11, 2009                      |
| Distributed feedback laser with improved optical field uniformity and mode stability                        | 7,542,503                              | June 2, 2009                         |
| Coaxial optoelectronic device separation apparatus and method                                               | 7,519,260                              | April 14, 2009                       |
| Modular laser package system                                                                                | 7,478,955                              | January 20, 2009                     |
| System and method for securing optoelectronic packages for mounting components at a mounting angle          | 7,468,286                              | December 23, 2008                    |
| Method and apparatus for coupling a laser to a fiber in a two-lens laser system                             | 7,226,218                              | June 5, 2007                         |
| Method for fabricating a VCSEL with ion-implanted current-confinement structure                             | 7,026,178                              | April 11, 2006                       |

| <u>Patent Name</u>                                                                                                            | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
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| Assembly with tapered, threaded ferrule housing for improved alignment of fiber with laser                                    | 7,010,013                              | March 7, 2006                        |
| Method and apparatus for reducing specular reflections in semiconductor lasers                                                | 7,010,012                              | March 7, 2006                        |
| Optically-pumped multiple-quantum well active region with improved distribution of optical pumping power                      | 6,859,481                              | February 22, 2005                    |
| VCSEL with antiguided current confinement layer                                                                               | 6,795,478                              | September 21, 2004                   |
| Multiple reflectivity band reflector                                                                                          | 6,788,466                              | September 7, 2004                    |
| VCSEL with heat-spreading layer                                                                                               | 6,782,019                              | August 24, 2004                      |
| VCSEL assembly with edge-receiving optical devices                                                                            | 6,765,948                              | July 20, 2004                        |
| Multiple reflectivity band reflector with non-uniform profile and laser system employing same for laser wavelength monitoring | 6,765,939                              | July 20, 2004                        |
| Laser having multiple reflectivity band reflector                                                                             | 6,763,053                              | July 13, 2004                        |
| Method and system employing multiple reflectivity band reflector for laser wavelength monitoring                              | 6,763,046                              | July 13, 2004                        |
| Alternative substrates for epitaxial growth                                                                                   | 6,746,777                              | June 8, 2004                         |
| Housing for passively aligning an optical fiber with a lens                                                                   | 6,736,550                              | May 18, 2004                         |
| Planar lightwave circuit for conditioning tunable laser output                                                                | 6,735,224                              | May 11, 2004                         |

| <u>Patent Name</u>                                                                                                                           | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
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| Modified distributed bragg reflector (DBR) for vertical cavity surface-emitting laser (VCSEL) resonant wavelength tuning sensitivity control | 6,724,796                              | April 20, 2004                       |
| Tunable vertical-cavity surface-emitting laser with tuning junction                                                                          | 6,697,413                              | February 24, 2004                    |
| Patterned phase shift layers for wavelength-selectable vertical cavity surface-emitting laser (VCSEL) arrays                                 | 6,696,307                              | February 24, 2004                    |
| Optical fiber with mirror for semiconductor laser                                                                                            | 6,669,367                              | December 30, 2003                    |
| Method and apparatus for demounting workpieces from adhesive film                                                                            | 6,652,707                              | November 25, 2003                    |
| Method for fabricating single-mode DBR laser with improved yield                                                                             | 6,638,773                              | October 28, 2003                     |
| Overlapping wavelength-tunable vertical cavity surface-emitting laser (VCSEL) arrays                                                         | 6,636,544                              | October 21, 2003                     |
| Vertical-cavity surface-emitting laser with metal mirror and method of fabrication of same                                                   | 6,611,543                              | August 26, 2003                      |
| Single-mode DBR laser with improved phase-shift section                                                                                      | 6,608,855                              | August 19, 2003                      |
| Double heterostructure photodiode with graded minority-carrier blocking structures                                                           | 6,603,184                              | August 5, 2003                       |
| Method and apparatus for polarizing light in a VCSEL                                                                                         | 6,560,265                              | May 6, 2003                          |
| Spatially coherent surface-emitting, grating coupled                                                                                         | 6,560,259                              | May 6, 2003                          |

| <u>Patent Name</u>                                                                                                         | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
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| quantum cascade laser with unstable resonance cavity                                                                       |                                        |                                      |
| Vertical-cavity surface-emitting laser with bottom dielectric distributed bragg reflector                                  | 6,549,556                              | April 15, 2003                       |
| Multispectral radiation detectors using strain-compensating superlattices                                                  | 6,455,908                              | 6,455,908<br>September 24, 2002      |
| Compliant universal substrates for optoelectronic and electronic devices                                                   | 6,406,795                              | June 18, 2002                        |
| Tunable fiber fabry-perot surface-emitting lasers                                                                          | 6,263,002                              | June 17, 2001                        |
| Modular laser package system and associated methods                                                                        | 7,290,943                              | November 6, 2007                     |
| Tunable laser with multiple in-line section                                                                                | 13/916,652                             | June 13, 2013                        |
| Monitoring nad controlling temperature across a laser array in a transmitter optical subassembly (TOSA) package            | 14/295,459                             | June 4, 2014                         |
| Tunable laser with multiple in-line section including sampled gratings                                                     | 14/551,353                             | November 24, 2014                    |
| Two-section semiconductor laser with modulation-independent grating section to reduce chirp                                | 14/590,456                             | January 6, 2015                      |
| Tunable laser including parallel lasing cavities with a common output                                                      | 14/661,772                             | March 18, 2015                       |
| Multichannel receiver optical subassembly with improved sensitivity                                                        | 14/665,639                             | March 23, 2015                       |
| Multi-channel transmitter optical subassembly (TOSA) with opposing placement of transistor outline (TO) can laser packages | 14/837,993                             | August 27, 2015                      |

| <u>Patent Name</u>                                                                                                                                                                       | <u>Registration/Application Number</u> | <u>Registration/Application Date</u> |
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| Receiver optical subassembly (ROSA) housing with sidewall receptacle to provide electrical isolation between an adjacent transmitter optical subassembly (TOSA) in a transceiver housing | 14/838,017                             | August 27, 2015                      |
| Optical filter sub-assembly cartridge for use in a receiver optical subassembly (ROSA) housing                                                                                           | 14/974,492                             | December 18, 2015                    |
| Optical transceiver assembly including thermal dual arrayed waveguide grating                                                                                                            | 14/983,773                             | December 30, 2015                    |
| Techniques for reducing the footprint of a multi-channel transmitter optical subassembly (TOSA) within an optical transceiver housing                                                    | 15/204,174                             | July 7, 2016                         |
| Optical component assembly having a keyed structure for ensuring proper insertion orientation within an optical subassembly                                                              | 15/241,979                             | August 19, 2016                      |