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Application Number: 16539910

Document Date: 08/13/2019

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PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	
	First Named Inventor	Yattung LAM
	Art Unit	
	Examiner Name	
	Attorney Docket Number	20160.0039.NPUS00

U.S.PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	9,322,704	B1	2016-04-26	Neveux			
	2	7,401,985	B2	2008-07-22	Aronson, et al			
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Yattung LAM	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	20160.0039.NPUS00	

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Rumer, B. "Fighting Jitter in Fibre-Channel Designs." Electronic Engineering Times, (2001, February 01). Retrieved August 13, 2019, from https://www.eetimes.com/document.asp?doc_id=1277249	
	2	IEEE P802.3cd/D1.2, 3rd February 2017 (Amendment of IEEE Std 802.3-2015 as amended) IEEE Draft Standard for Ethernet Amendment: Media Access Control Parameters for 50 Gb/s, 100 Gb/s and 200 Gb/s Operation. The Institute of Electrical and Electronics Engineers, Inc., 2017; S.I.: IEEE.	

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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	Filing Date		
	First Named Inventor	Yattung LAM	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	20160.0039.NPUS00	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Daniel J. Krueger/	Date (YYYY-MM-DD)	2019-08-13
Name/Print	Daniel J. Krueger	Registration Number	42,771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of invention	ACTIVE ETHERNET CABLE
As the below named inventor, I hereby declare that: This declaration is directed to: ☒ The attached application, or ☐ United States application or PCT international application number _____ filed on _____ The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.	
LEGAL NAME OF INVENTOR Inventor: <u>Baohua CHEN</u> Date (Optional) : _____ Signature: <u>Baohua CHEN</u>	
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Title of Invention	ACTIVE ETHERNET CABLE
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This declaration is directed to: ☒ The attached application, or ☐ United States application or PCT international application number _____
filed on _____.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Inventor: Yattung LAM Date (Optional): _____

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

☒

Practitioners associated with Customer Number:

63467

OR

☐

Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☒

The address associated with Customer Number:

63467

OR

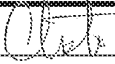
☐	Firm or Individual Name			
	Address			
	City	State	Zip	
	Country			
	Telephone			
		Email		

Assignee Name and Address: **Credo Technology Group Limited, Ugland House, Grand Cayman
Ky1-1104, Cayman Islands**

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date 2-9-2018
Name	Adam Thorngate-Gottlund	Telephone 408-664-9329 x127
Title	General Counsel	

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Yattung LAM and Baohua CHEN

Application No./Patent No.: _____ Filed/Issue Date: _____

Titled: Active Ethernet Cable

Credo Technology Group Limited, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Daniel J . Krueger/

August 13, 2019

Signature

Date

Daniel J . Krueger

42,771

Printed or Typed Name

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

WORLDWIDE ASSIGNMENT

WHEREAS, I/WE (hereinafter referred to as the "ASSIGNOR(S)");

Yattung LAM, c/o Credo Inc., 1600 Technology Drive, Fifth Floor, San Jose, CA 95110
Baohua CHEN, resident of Xiamen City, Fujian Province, China

has/have invented an **ACTIVE ETHERNET CABLE** ("Invention") for which one or more applications for patent, design registration, utility model registration, or other form of protection, rights, or title have been or will be made in certain countries ("Applications"), as further described below:

Patent Office or Country	China	:
Application No.	201910155535.9	:
Date Filed	March 1, 2019	:

AND WHEREAS, **CREDO TECHNOLOGY GROUP LIMITED**, (hereinafter referred to as the "ASSIGNEE"), a limited company organized under the laws of the Cayman Islands, having a place of business at Ugland House, Grand Cayman KY1-1104, is desirous of acquiring the full and exclusive right, title and interest in and to said Invention, said Applications inclusive of all ancillary rights relating thereto, any and all priority rights derived from said Applications, and all patents, design registrations, utility model registrations and other forms of protection, rights and titles relating to said Invention, in any country or countries and in respect of the whole or any part or parts of or improvements to the Invention;

NOW THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, ASSIGNOR(S) does/do hereby confirm that ASSIGNOR(S) has/have transferred, conveyed and assigned, and by way of further assurance does/do hereby transfer, convey and assign, any and all of ASSIGNOR(S)'s respective rights, title and interest in and to: the Invention; the Applications; any further applications for patent, design registration, utility model registration or other forms of protection, rights or titles for the whole or any part or parts of or improvements to the Invention in any country or countries ("Further Applications") together with the right to file divisional applications, substitute applications and continuation applications of any one or more of the Applications and Further Applications ("Divisionals"); the right to obtain patents, design registrations, utility model registrations and all other forms of protection, rights and titles relating to the Invention; the right in and to any patent or reissue patent relating to the Applications, Further Applications and Divisionals ("Grants"); and the right

to obtain any extensions / supplementary protection certificates ("Extensions"); together with the right to bring proceedings to recover damages and/or to obtain other remedies for acts committed in respect of one or more of the aforesaid Invention, Applications, Grants, Further Applications, Divisionals and Extensions, whether such acts are committed before or after the date of this Worldwide Assignment; with the intent that the Invention, Applications, Grants, Further Applications, Divisionals and Extensions are owned and enjoyed by ASSIGNEE absolutely to the full end of the term or terms for same.

ASSIGNOR(S) does/do hereby agree, upon request, to provide assistance and to execute any and all further documents, at the expense of ASSIGNEE and/or its successors and assigns (as applicable), which may be necessary or desirable to enable ASSIGNEE, and/or its successors and assigns (as applicable), to file, prosecute, bring proceedings and take other actions with respect to any and all of the Invention, Applications, Further Applications, Divisionals, Grants and Extensions, and any and all patents and registrations granted thereon and other forms of protection, rights and titles relating thereto, and ASSIGNOR(S) further agrees/agree to execute, upon request and at the expense of ASSIGNEE and/or its successors and assigns (as applicable), any and all further documents which may be necessary or desirable to vest or perfect the title of ASSIGNEE therein.

ASSIGNOR(S) does/do hereby authorize ASSIGNEE or its patent agents or attorneys to insert, above, the jurisdictions, application numbers, filing dates and any other indicia identifying the Applications when such information is available for the purpose of recording this assignment.

ASSIGNOR(S) does/do hereby authorize and request The Commissioner of Patents or any equivalent authority to issue to ASSIGNEE each and every patent, registration and other form of protection, right, and title granted upon the Applications, Further Applications, Divisionals and Extensions.

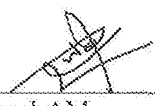
THIS WORLDWIDE ASSIGNMENT shall inure to the benefit of ASSIGNEE and its successors and assigns, and shall be binding upon ASSIGNOR(S) and their successors and permitted assigns.

DELIVERY of this Worldwide Assignment by copy, however transmitted, constitutes valid and effective delivery. This Worldwide Assignment may be executed in one or more counterparts, each of which when so executed and delivered shall be an original, and such counterparts shall together constitute one and the same instrument.

Docket No.: 20160.0039.NPUS00

IN WITNESS WHEREOF, this Worldwide Assignment has been executed below by the undersigned:

Date: Feb 27, 2019


Yattung LAM
c/o Credo Inc.
1600 Technology Drive, Fifth Floor
San Jose, CA 95110

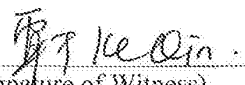
STATEMENT BY WITNESS

I, Ke Qin, whose full Post Office address is

Suite 309, Building One, 88 Chenhui Road, Zhangjiang High-Tech Park, Shanghai China.
(Address of Witness)

hereby declare that I was personally present and did see the above-named person, personally known to me to be a person named in the Worldwide Assignment, duly sign and execute same.

Date: 2018-02-27


(Signature of Witness)

IN WITNESS WHEREOF, this Worldwide Assignment has been executed below by the undersigned:

Date: Feb 27, 2019

Baohua CHEN

Baohua CHEN
resident of Xiamen City
Fujian Province, China

STATEMENT BY WITNESS

I, Ke Qin, whose full Post Office address is

Suite 309, Building One, 88 Chenhui Road, Zhangjiang High-Tech Park, Shanghai, China
(Address of Witness)

hereby declare that I was personally present and did see the above-named person, personally known to me to be a person named in the Worldwide Assignment, duly sign and execute same.

Date: 2019-02-27

Ke Qin
(Signature of Witness)

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		ACTIVE ETHERNET CABLE		
First Named Inventor/Applicant Name:		Yattung LAM		
Filer:		Daniel Joseph Krueger/Theresa Evenbly		
Attorney Docket Number:		20160.0039.NPUS00		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				785

Electronic Acknowledgement Receipt	
EFS ID:	36865166
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Theresa Evenbly
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	13-AUG-2019
Filing Date:	
Time Stamp:	19:07:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$785
RAM confirmation Number	E20198CJ08234611
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	Credo39_ADS-aia0014.pdf	1256149	no	8
			35d5102ce13e53fb1d1204f72618011b0cb22054		
Warnings:					
Information:					
2		C0039spec05AECarch.pdf	227695	yes	22
			ed581b470ce3a09f4aa712468518fd2d859296ac		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	16	
	Claims		17	21	
	Abstract		22	22	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	C0039DRWv5-AEC.pdf	928327	no	4
			236261637788119384c5d970178ec38bf9a1168		
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	Credo39_updated_IDS.pdf	1034533	no	4
			c5b10fd518b40160ad72525cea4f9f59047f021a		
Warnings:					
Information:					
5	Oath or Declaration filed	signedDeclarationCHENandLAM.pdf	181230	no	2
			529bc6ceacdfaa4a17422d157504cc40d14429af		

Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
6	Power of Attorney	Executed_Gen_POA.pdf	566825	no	1
			fb7cdefe4095b587392c6f74d7b8340e32f5dbc9		
Warnings:					
Information:					
7	Assignee showing of ownership per 37 CFR 3.73	Stmt3-73aia0096.pdf	732225	no	3
			d0e54a008f880f2cdcc627da4f4c1d92739fd01		
Warnings:					
Information:					
8	Assignee showing of ownership per 37 CFR 3.73	SignedworldwideAssignment-CHENandLAM7.pdf	1759134	no	4
			65ab960fea63c8becdc620ed15f7b645f9b2785a		
Warnings:					
Information:					
9	Non Patent Literature	FightingJitterFibre-ChannelDesigns-EETimesv3.pdf	295917	no	4
			b9b321040afb72ad67be9a8a384ab31026d4c0b7		
Warnings:					
Information:					
10	Non Patent Literature	Pages1-100from8023cd_D1p2-7a.pdf	14348431	no	100
			58ebbbbe7b483a49b4bce5c556df5561b2cd32a7		
Warnings:					
Information:					
11	Non Patent Literature	Pages101-200from8023cd_D1p2-7-2a.pdf	13727409	no	100
			79d2d5fc112cd42699c6052c0ab35cb9b2ed155f		
Warnings:					
Information:					
12	Non Patent Literature	Pages201-300from8023cd_D1p2-7-3a.pdf	13976106	no	100
			49e9714bc3a18e5aaf809e7312665cd9f8052c71		

Warnings:					
Information:					
13	Non Patent Literature	Pages301-374from8023cd_D1p 2-7-4a.pdf	8284580	no	74
			73a77fa37af4bcbebb32b9fedb389fc749f7c f62		
Warnings:					
Information:					
14	Fee Worksheet (SB06)	fee-info.pdf	35550	no	2
			5f4565aa6dc7656a166c29694a6a0749d4df 9d47		
Warnings:					
Information:					
Total Files Size (in bytes):				57354111	
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	
Title of Invention	ACTIVE ETHERNET CABLE		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor	1				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Yattung		AM			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	San Jose	State/Province	CA	Country of Residence ⁱ	US	
Mailing Address of Inventor:						
Address 1	c/o Credo Inc.					
Address 2	1600 Technology Drive, Fifth Floor					
City	San Jose	State/Province	CA			
Postal Code	95110	Country ⁱ	US			
Inventor	2				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Baohua		CHEN			
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service						
City	Xiamen City	Country of Residence ⁱ	CN			
Mailing Address of Inventor:						
Address 1						
Address 2	Fujian Province					
City	Xiamen City	State/Province				
Postal Code		Country ⁱ	CN			
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.						
Add						

Correspondence Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	
Title of Invention	ACTIVE ETHERNET CABLE		

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ An Address is being provided for the correspondence information of this application.

Customer Number	63467		
Email Address	uspto@rameyfirm.com	Add Email	Remove Email

Application Information:

Title of the Invention	ACTIVE ETHERNET CABLE		
Attorney Docket Number	20160.0039.NPUS00	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	2

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	63467		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	
Title of Invention	ACTIVE ETHERNET CABLE		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	Remove
201910155535.9	CN	2019-03-01		
Additional Foreign Priority Data may be generated within this form by selecting the Add button.				Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	
Title of Invention	ACTIVE ETHERNET CABLE		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	
Title of Invention	ACTIVE ETHERNET CABLE		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant	1		Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
		Clear	
☐ Assignee	Legal Representative under 35 U.S.C. 117		Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	CREDO TECHNOLOGY GROUP LIMITED		
Mailing Address Information For Applicant:			
Address 1	Ugland House		
Address 2			
City	Grand Cayman	State/Province	
Country	KY	Postal Code	KY1-1104
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	
Title of Invention	ACTIVE ETHERNET CABLE		

Assignee	1		
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.			
			Remove
If the Assignee or Non-Applicant Assignee is an Organization check here. ☒			
Organization Name	CREDO TECHNOLOGY GROUP LIMITED		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	Ugland House		
Address 2			
City	Grand Cayman	State/Province	
Country i	KY	Postal Code	KY1-1104
Phone Number		Fax Number	
Email Address			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.			Add

Signature:[Remove](#)

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Daniel J. Krueger/		Date (YYYY-MM-DD)	2019-08-13	
First Name	Daniel J.	Last Name	Krueger	Registration Number	42771
Additional Signature may be generated within this form by selecting the Add button.				Add	

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	
Title of Invention	ACTIVE ETHERNET CABLE		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ACTIVE ETHERNET CABLE

BACKGROUND

[0001] The Institute of Electrical and Electronics Engineers (IEEE) Standards Association publishes an IEEE Standard for Ethernet, IEEE Std 802.3-2015, which will be familiar to those of ordinary skill in the art to which this application pertains. This Ethernet standard provides a common media access control specification for local area network (LAN) operations at selected speeds from 1 Mb/s to 100 Gb/s over coaxial cable, twinaxial cable, twisted wire pair cable, fiber optic cable, and electrical backplanes, with various channel signal constellations. As demand continues for ever-higher data rates, the standard is being extended. Such extensions to the standard must account for increased channel attenuation and dispersion even as the equalizers are forced to operate at faster symbol rates. It is becoming increasingly difficult to provide affordable, mass-manufactured network hardware that assures consistently robust performance as the proposed per-lane bit rates rise beyond 50 Gbps with PAM4 or larger signal constellations.

SUMMARY

[0002] Accordingly, there are disclosed herein architectures and communication methods that enable mass-manufactured cables to perform robustly at per-lane PAM4 symbol rates up to 26.5625 GBd and beyond. One illustrative cable embodiment includes electrical conductors connected between a first connector and a second connector. The first and second connectors are each adapted to fit into an Ethernet port of a corresponding host device to receive from that host device an electrical input signal conveying an inbound data stream to the cable, and to provide to that host device an electrical output signal conveying an outbound

data stream from the cable. The first and second connectors each include a respective transceiver that performs clock and data recovery on the electrical input signal to extract and re-modulate the inbound data stream for transit via the electrical conductors as a respective electrical transit signal conveying a transit data stream.

[0003] One illustrative communication method embodiment includes, in a network cable having conductor pairs connecting a first connector to a second connector: receiving with the first connector a first electrical input signal conveying a first inbound data stream from a first host device; performing clock and data recovery on the first electrical input signal with a first transceiver in the first connector to extract the first inbound data stream; re-modulating the first inbound data stream as a first transit data stream conveyed by a first electrical transit signal over a first of the conductor pairs; receiving with the second connector a second electrical input signal conveying a second inbound data stream from a second host device; performing clock and data recovery on the second electrical input signal with a second transceiver in the second connector to extract the second inbound data stream; and re-modulating the second inbound data stream as a second transit data stream conveyed by a second electrical transit signal over a second of the conductor pairs.

[0004] One illustrative cable manufacturing method includes: connecting a first end and a second end of a set of conductor pairs to a first transceiver and a second transceiver, respectively, to transport a first electrical transit signal from the first transceiver to the second transceiver and a second electrical transit signal from the second transceiver to the first transceiver; packaging the first transceiver into a first connector configured to couple a first electrical input signal from a network

interface port of a first host device to the first transceiver and a first electrical output signal from the first transceiver to the network interface port of the first host device; and packaging the second transceiver into a second connector configured to couple a second electrical input signal from a network interface port of a second host device to the second transceiver and a second electrical output signal from the second transceiver to the network interface port of the second host device, the first and second transceivers being configured to perform clock and data recovery on the first and second electrical input signal to extract and re-modulate the first and second inbound data streams respectively as the first and second electrical transit signals conveying first and second transit data streams.

[0005] Each of the foregoing embodiments may be implemented individually or in combination, and may be implemented with one or more of the following features in any suitable combination: 1. the respective transceiver for each of the first and second connectors performs clock and data recovery on the respective electrical transit signal to extract and re-modulate the transit data stream as the outbound data stream from the cable. 2. the respective transceivers each employ fixed, cable-independent, equalization parameters for each of: the remodulation of the transit data stream as the outbound data stream, and the clock and data recovery performed on the electrical input signal. 3. the respective transceivers each employ cable-dependent equalization parameters for at least one of: the remodulation of the inbound data stream for transit, and the clock and data recovery performed on the electrical transit signal. 4. the cable-dependent equalization parameters are adapted during usage of the cable. 5. said cable-dependent equalization parameters are fixed during normal usage of the cable. 6. said cable-dependent equalization parameters are determined during manufacturer-testing of the cable.

7. the inbound data stream and the outbound data stream each have a per-lane bit rate of 50 Gbps or more. 8. performing clock and data recovery on the first electrical transit signal with the second transceiver to extract the first transit data stream; and performing clock and data recovery on the second electrical transit signal with the first transceiver to extract the second transit data stream. 9. re-modulating the first transit data stream as a second outbound data stream conveyed by a second electrical output signal to the second host device; and re-modulating the second transit data stream as a first outbound data stream conveyed by a first electrical output signal to the first host device. 10. said re-modulating the first transit data stream, said re-modulating the second transit data stream, said performing clock and data recovery on the first electrical input signal, and said performing clock and data recovery on the second electrical input signal, each employ fixed, cable-independent, equalization parameters. 11. cable-dependent equalization parameters are employed for at least one of: re-modulating the first inbound data stream, re-modulating the second inbound data stream, said performing clock and data recovery on the first electrical transit signal, and said performing clock and data recovery on the second electrical transit signal. 12. determining said cable-dependent equalization parameters during manufacturer-testing of the network cable. 13. the first and second transceivers are configured to perform clock and data recovery on the second and first electrical transit signals to extract and re-modulate the second and first transit data streams as first and second outbound data streams conveyed by the first and second electrical output signals from the cable. 14. the first and second transceivers are each configured to employ fixed, cable-independent, equalization parameters for clock and data recovery on the respective electrical input signals and for generating the respective electrical

output signals. 15. the first and second transceivers are each configured to employ cable-dependent equalization parameters for generating the first and second electrical transit signals and for clock and data recovery on the second and first electrical transit signals. 16. the first and second transceivers are each configured to adapt the cable-dependent equalization parameters during operation. 17. the first and second transceivers are each configured to use preset cable-dependent equalization parameters during operation. 18. testing an assembled cable to determine the cable-dependent equalization parameters.

BRIEF DESCRIPTION OF THE DRAWINGS

- [0006] Fig. 1 is a perspective view of an illustrative active Ethernet cable.
- [0007] Fig. 2 is a function-block diagram of the illustrative cable.
- [0008] Fig. 3 is an architectural diagram for a communications link including the illustrative cable.
- [0009] Fig. 4 is a block diagram of a receiver in an illustrative multi-lane transceiver.
- [0010] Fig. 5 is a block diagram of a transmitter in an illustrative multi-lane transceiver.
- [0011] Fig. 6 is a flow diagram of an illustrative cable manufacturing method.
- [0012] Fig. 7 is a perspective view of an illustrative active 1:4 breakout cable.
- [0013] Fig. 8 is a function-block diagram of the illustrative 1:4 breakout cable.

DETAILED DESCRIPTION

[0014] While specific embodiments are given in the drawings and the following description, keep in mind that they do not limit the disclosure. On the contrary, they provide the foundation for one of ordinary skill to discern the alternative

forms, equivalents, and modifications that are encompassed in the scope of the appended claims.

[0015] Fig. 1 is a perspective view of an illustrative cable that may be used to provide a high-bandwidth communications link between devices in a routing network. The routing network may be or include, for example, the Internet, a wide area network, or a local area network. The linked devices may be computers, switches, routers, and the like. The cable includes a first connector 102 and a second connector 104 that are electrically connected via a cord 106. The cord 106 includes electrically conductive wires usually in a paired form such as with twinaxial conductors. Twinaxial conductors can be likened to coaxial conductors, but with two inner conductors instead of one. The inner conductors may be driven with a differential signal and their shared shield operates to reduce crosstalk with other twinaxial conductors in the cable. Depending on the performance criteria, it may be possible to employ other paired or single-ended conductor implementations.

[0016] Pursuant to the Ethernet standard, each conductor pair may provide unidirectional transport of a differential signal. To enable robust performance over even extended cable lengths (greater than, say, 3 m, 6 m, or 9 m), each connector 102, 104 may include a powered transceiver that performs clock and data recovery (CDR) and re-modulation of data streams in each direction. Notably, the transceivers perform CDR and re-modulation not only of the outbound data streams as they exit the cable, but also of the inbound data streams as they enter the cable.

[0017] It is acknowledged here that the inbound data streams may be expected to be compliant with the relevant standard and may be expected to have experienced essentially no deterioration from their traversal of the network interface port's

receptacle pins and the cable assembly's connector plug pins. Nevertheless, the modulation quality and equalization strategy employed by the electronics manufacturer of the transmitting network interface is generally unknown and the minimum requirements of the standard may be inadequate for transport over an extended cable length, particularly if the electronics manufacturer of the receiving network interface is different than that of the transmitting network interface. As with the transmitting network interface, the equalization and demodulation strategy employed by the electronics manufacturer of the receiving network interface is generally unknown and may be unable to cope with the attenuation and interference caused by signal transport over an extended cable length. By performing CDR and re-modulation of both inbound and outbound data streams, the illustrative cable enables consistently robust data transfer over extended cable lengths can be assured without consideration of the electronics manufacturers of the network interfaces.

[0018] Fig. 2 is a function-block diagram of the illustrative cable of Fig. 1. Connector 102 includes a plug 202 adapted to fit a standard-compliant Ethernet port in a first host device 302 (Fig. 3) to receive an inbound data stream as an electrical input signal from the host device and to provide an outbound data stream as an electrical output signal to the host device. Similarly, connector 104 includes a plug 204 that fits an Ethernet port of a second host device 304. Connector 102 includes a first transceiver 206 to perform CDR and re-modulation of the data streams entering and exiting the cable at connector 102, and connector 104 includes a second transceiver 208 to perform CDR and re-modulation of the data streams entering and exiting the cable at connector 104. The transceivers 206, 208 may be integrated circuits mounted on a printed circuit board and connected to plug pins via circuit

board traces. The wires of cord 106 may be soldered to corresponding pads on the printed circuit board.

[0019] Each transceiver 206, 208, includes a set 210 of transmitters and receivers for communicating with the host device and a set 212 of transmitters and receivers for sending and receiving via conductor pairs running the length of the cable. The illustrated cable supports four bidirectional communication lanes LN0-LN3, each bidirectional lane formed by two unidirectional connections, each unidirectional connection having a differentially-driven twinaxial conductor pair (with a shield conductor not shown here). The transceivers optionally include a memory 214 to provide first-in first-out (FIFO) buffering between the transmitter & receiver sets 210, 212. A controller 216 coordinates the operation of the transmitters and receivers by, e.g., setting initial equalization parameters and ensuring the training phase is complete across all lanes and links before enabling the transmitters and receiver to enter the data transfer phase.

[0020] In at least some contemplated embodiments, the host-facing transmitter and receiver set 210 employ fixed equalization parameters that are cable-independent, i.e., they are not customized on a cable-by-cable basis. The center-facing transmitter and receiver set 212 preferably employ cable-dependent equalization parameters that are customized on a cable-by-cable basis. The cable-dependent equalization parameters may be adaptive or fixed, and initial values for these parameters may be determined during manufacturer tests of the cable. The equalization parameters may include filter coefficient values for pre-equalizer filters in the transmitters, and gain and filter coefficient values for the receivers.

[0021] The illustrative cable of Fig. 2 may be a part of a point-to-point communications link between two host devices 302, 304 as shown in the

architectural diagram of Fig. 3. Fig. 3 shows the architecture using the ISO/IEC Model for Open Systems Interconnection (See ISO/IEC 7498-1:1994.1) for communications over a physical medium such as the twinaxial conductor pairs represented by channels 306. The interconnection reference model employs a hierarchy of layers with defined functions and interfaces to facilitate the design and implementation of compatible systems by different teams or vendors. While it is not a requirement, it is expected that the higher layers in the hierarchy will be implemented primarily by software or firmware operating on programmable processors while the lower layers may be implemented as application-specific hardware.

[0022] The Application Layer 308 is the uppermost layer in the model, and it represents the user applications or other software operating on different systems that need a facility for communicating messages or data. The Presentation Layer 310 provides such applications with a set of application programming interfaces (APIs) that provide formal syntax along with services for data transformations (e.g., compression), establishing communication sessions, connectionless communication mode, and negotiation to enable the application software to identify the available service options and select therefrom. The Session Layer 312 provides services for coordinating data exchange including: session synchronization, token management, full- or half-duplex mode implementation, and establishing, managing, and releasing a session connection. In connectionless mode, the Session Layer may merely map between session addresses and transport addresses.

[0023] The Transport Layer 314 provides services for multiplexing, end-to-end sequence control, error detection, segmenting, blocking, concatenation, flow control on individual connections (including suspend/resume), and implementing

end-to-end service quality specifications. The focus of the Transport Layer 314 is end-to-end performance/behavior. The Network Layer 316 provides a routing service, determining the links used to make the end-to-end connection and when necessary acting as a relay service to couple together such links. The Data link layer 318 serves as the interface to physical connections, providing delimiting, synchronization, sequence and flow control across the physical connection. It may also detect and optionally correct errors that occur across the physical connection. The Physical layer 322 provides the mechanical, electrical, functional, and procedural means to activate, maintain, and deactivate channels 306, and to use the channels 306 for transmission of bits across the physical media.

[0024] The Data Link Layer 318 and Physical Layer 322 are subdivided and modified slightly by IEEE Std 802.3-2015, which provides a Media Access Control (MAC) Sublayer 320 in the Data Link Layer 318 to define the interface with the Physical Layer 322, including a frame structure and transfer syntax. Within the Physical Layer 322, the standard provides a variety of possible subdivisions such as the one illustrated in Fig. 3, which includes an optional Reconciliation Sublayer 324, a Physical Coding Sublayer (PCS) 326, a Forward Error Correction (FEC) Sublayer 328, a Physical Media Attachment (PMA) Sublayer 330, a Physical Medium Dependent (PMD) Sublayer 332, and an Auto-Negotiation (AN) Sublayer 334.

[0025] The optional Reconciliation Sublayer 324 merely maps between interfaces defined for the MAC Sublayer 320 and the PCS Sublayer 326. The PCS Sublayer 326 provides scrambling/descrambling, data encoding/decoding (with a transmission code that enables clock recovery and bit error detection), block and symbol redistribution, PCS alignment marker insertion/removal, and block-level lane synchronization and deskew. To enable bit error rate estimation by components of

the Physical Layer 322, the PCS alignment markers typically include Bit-Interleaved-Parity (BIP) values derived from the preceding bits in the lane up to and including the preceding PCS alignment marker.

[0026] The FEC Sublayer 328 provides, e.g., Reed-Solomon coding/decoding that distributes data blocks with controlled redundancy across the lanes to enable error correction. In some embodiments (e.g., in accordance with Article 91 or proposed Article 134 for the IEEE Std 802.3), the FEC Sublayer 328 modifies the number of lanes (Article 91 provides for a 20-to-4 lane conversion).

[0027] The PMA Sublayer 330 provides lane remapping, symbol encoding/decoding, framing, and octet/symbol synchronization. The PMD Sublayer 332 specifies the transceiver conversions between transmitted/received channel signals and the corresponding bit (or digital symbol) streams. An optional AN Sublayer 334 is shown as a internal element of the PMD Sublayer 332, and it implements an initial start-up of the communications channels, conducting an auto-negotiation phase and a link-training phase before entering a normal operating phase. The auto-negotiation phase enables the end nodes to exchange information about their capabilities, and the training phase enables the end nodes to adapt both transmit-side and receive-side equalization filters in a fashion that combats the channel non-idealities. A receptacle 336 is also shown as part of the PMD sublayer 332 to represent the physical network interface port.

[0028] The connectors 102, 104, have plugs 202, 204 that mate with the receptacles 336 of the two host devices 302, 304. Within each connector, the transceivers may implement a host-facing Physical Layer 322A, a center-facing Physical Layer 322B, and a Data Link Layer 340 that bridges together the two Physical Layers. More information regarding the operation of the sublayers, as well as the electrical and

physical specifications of the connections between the nodes and the communications medium (e.g., pin layouts, line impedances, signal voltages & timing), and the electrical and physical specifications for the communications medium itself (e.g., conductor arrangements in copper cable, limitations on attenuation, propagation delay, signal skew), can be found in the current Ethernet standard, and any such details should be considered to be well within the knowledge of those having ordinary skill in the art.

[0029] The MAC, Reconciliation, PCS, FEC, PMA, and PMD Sublayers, may be implemented as application-specific integrated circuitry to enable high-rate processing and data transmission. The receiver and transmitter sets 210, 212, may implement the PMA and PMD sublayers. Figs. 4 and 5 are block diagrams of an illustrative receiver and an illustrative transmitter that may be part of the sets 210, 212.

[0030] In Fig. 4, receiver 400 receives an analog electrical signal (CH_IN) and supplies it to a low noise amplifier (LNA) 402. The LNA 402 provides a high input impedance to minimize channel loading and amplifies the received electrical signal to drive the input of a continuous time linear equalizer (CTLE) filter 404. CTLE 404 provides continuous time filtering to shape the signal spectrum to reduce the length of the channel impulse response while minimizing leading inter-symbol interference (ISI). A decision feedback equalizer (DFE) 406 operates on the filtered signal to correct for trailing ISI and detect each transmitted channel bit or symbol, thereby producing a demodulated digital data stream. Some embodiments employ oversampling. A clock and data recovery (CDR) circuit 408 extracts a clock signal from the filtered signal and/or the digital data stream and supplies it to DFE 406 to control sample and symbol detection timing. A serial-to-parallel circuit 410 groups

the digital data stream bits or symbols into blocks to enable the use of lower clock rates for subsequent on-chip operations. The symbols or data blocks are placed on the digital receive bus (RXD) for retransmission to the remote end node by a transmitter.

[0031] While certain contemplated cable embodiments do not support auto-negotiation, other contemplated embodiments do support auto-negotiation in accordance with the Ethernet standard. When supported, the auto-negotiation may be implemented as described in PCT/CN2017/075961, titled "Ethernet link extension method and device" by inventors Yifei Dai, Haoli Qian, and Jeff Twombly, and filed 2017-03-08. A detector or packet information extractor 442 monitors the receive signal for the end of the auto-negotiation phase and/or the beginning of the training phase frames.

[0032] During the training phase, a filter adaptation circuit 440 measures an error between the input and output of a decision element in DFE 406, employing that error in accordance with well-known techniques from the literature on adaptive filtering to determine adjustments for the coefficients in CTLE filter 404, DFE 406, and a transmit filter 506 (discussed further below), and to determine whether convergence has been achieved. The locally-generated information (LOCAL_INFO) including the transmit filter coefficient adjustments and the convergence status are provided to the local transmitter 500 that communicates in the reverse direction on the data lane. As discussed below, the local transmitter communicates the transmit filter adjustments and the convergence status via a back-channel to the source of the CH_IN signal. In that vein, the received signal includes back-channel information *from* the source of the CH_IN signal. A packet information extractor 442 detects the back-channel information (BACK_INFO) and passes it to the local

transmitter. Once convergence is achieved, receiver 400 is ready to begin normal operations.

[0033] In Fig. 5, transmitter 500 receives blocks of channel bits or symbols for transmission to the source of the CH_IN signal (Fig. 4). During normal operations, multiplexer 502 supplies blocks of channel bits or symbols from the remote source (received on the TXD bus) to the parallel to serial (P2S) circuit 504. P2S circuit converts the blocks into a digital data stream. A transmit filter 506, also called a pre-emphasis filter, converts the digital data stream into an analog electrical signal with spectral shaping to combat channel degradation. Driver 508 amplifies the analog electrical signal to drive the channel output (CH_OUT) node.

[0034] If supported, the auto-negotiation phase may be implemented as set forth in Y.Dai et al. During the training phase, multiplexer 502 obstructs information from the TXD bus, instead supplying P2S circuit 504 with training frames from a training controller 540. The training controller 540 generates the training frames based on the convergence status and transmit filter coefficient adjustments (LOCAL_INFO) received from the local receiver 400. That is, in addition to training patterns, the training frames include backchannel information to be used by the remote end of the channel. Note that even after the local receiver indicates filter convergence has occurred, the training controller 540 may prolong the training phase to coordinate training phase timing across lanes and along each link of the channel. The training frames include training sequences as specified by the relevant portions of the current Ethernet standard (IEEE Std 802.3).

[0035] The training controller 540 further accepts the back-channel information (BACK_INFO) extracted by the local receiver from received training frames sent by the local end node. The training controller applies the corresponding adjustments

to the coefficients of transmit filter 506. Upon conclusion of the training phase, multiplexer 502 begins forwarding TXD blocks to the P2S circuit 504.

[0036] Fig. 6 is a flowchart of an illustrative cable manufacturing method. It begins in block 602 with connecting the ends of the conductor pairs to the first and second transceivers, typically by soldering the wire ends to pads of the circuit boards on which the transceivers are mounted. This and the ensuing steps may be performed by automated manufacturing/testing equipment. In block 604, the equipment packages each transceiver in a respective end connector for the network cable. The connectors are adapted to mate with network interface ports of host devices, and include plugs that electrically connect with matching receptacles in the ports.

[0037] In block 606, the equipment tests the cable to verify compliance with performance specifications and to determine cable-dependent equalization parameters for use by the center-facing transmitter and receiver sets 212. In block 608, the equipment causes the transceivers to store the equalization parameters (including both cable-dependent and cable-independent parameters) in nonvolatile memory. The cable may then be packaged and sold to customers expecting robust performance between host devices made by a range of different manufacturers.

[0038] Though a two-ended cable has been used in the foregoing description, the disclosed principles are also applicable to other cable designs, including the 1:4 breakout cable design of Figs. 7 and 8. Fig. 7 is a perspective view of the breakout cable having a first connector 102 which may be designed for sending and receiving a 200 Gbps Ethernet data stream, e.g., in the form of 4 lanes of 50 Gbps, each lane using PAM4 at 26.5625 GBd. Four cords 906 may each carry 1 lane of 50 Gbps or 2 lanes of 25 Gbps, each lane using PAM4 at 26.5625 GBd or non-return to zero (NRZ)

signaling at 26.5625 GBd. Each of the connectors 802-808 may be designed for sending and receiving a 50 Gbps Ethernet data stream. Such breakout cables are useful for linking host devices designed to different generations of the Ethernet standard. As another example, the first connector may be designed for sending and receiving 400 Gbps (8 lanes of 50 Gbps PAM4), while each of the remaining connectors may be designed for sending and receiving 100 Gbps (4 lanes of 25 Gbps NRZ).

[0039] Fig. 8 shows a block diagram of the 1:4 breakout cable. In the example of Fig. 8, connector 102 supports 4 lanes while each of the other connectors 802-808 supports one lane. Connectors 802-808 accordingly include transceivers 905 each having a single host-facing lane and a single center-facing lane supported by host-facing transmitter and receiver sets 910 and center-facing transmitter and receiver sets 912. Though not explicitly shown here, the host-facing transmitter and receiver sets 910 may include "gearbox" functions that convert 1 lane of PAM4 symbols into 2 lanes of NRZ symbols, and vice versa. FIFO buffers 914 bridge together the host-facing and center-facing sets, and operation of the transmitter and receiver sets is coordinated by controllers 916.

[0040] Numerous alternative forms, equivalents, and modifications will become apparent to those skilled in the art once the above disclosure is fully appreciated. It is intended that the claims be interpreted to embrace all such alternative forms, equivalents, and modifications that are encompassed in the scope of the appended claims.

CLAIMS

What is claimed is:

1. An active Ethernet cable that comprises:
electrical conductors connected between a first connector and a second connector,
each of the first and second connectors being adapted to fit into an Ethernet port of a corresponding host device to receive from that host device an electrical input signal conveying an inbound data stream to the cable and to provide to that host device an electrical output signal conveying an outbound data stream from the cable,
each of the first and second connectors including a respective transceiver that performs clock and data recovery on the electrical input signal to extract and re-modulate the inbound data stream for transit via the electrical conductors as a respective electrical transit signal conveying a transit data stream.
2. The active Ethernet cable of claim 1, wherein the respective transceiver for each of the first and second connectors performs clock and data recovery on the respective electrical transit signal to extract and re-modulate the transit data stream as the outbound data stream from the cable.
3. The active Ethernet cable of claim 2, wherein the respective transceivers each employ fixed, cable-independent, equalization parameters for each of: the remodulation of the transit data stream as the outbound data stream, and the clock and data recovery performed on the electrical input signal.
4. The active Ethernet cable of claim 3, wherein the respective transceivers each employ cable-dependent equalization parameters for at least one of: the remodulation of the inbound data stream for transit, and the clock and data

recovery performed on the electrical transit signal.

5. The active Ethernet cable of claim 4, wherein said cable-dependent equalization parameters adapt during usage of the Ethernet cable.

6. The active Ethernet cable of claim 4, wherein said cable-dependent equalization parameters are fixed during normal usage of the Ethernet cable, and wherein said cable-dependent equalization parameters are determined during manufacturer-testing of the Ethernet cable.

7. The active Ethernet cable of claim 6, wherein the inbound data stream and the outbound data stream each have a per-lane symbol rate in excess of 50 GBd.

8. A communication method that comprises, in a network cable having conductor pairs electrically connecting a first connector to a second connector:

receiving with the first connector a first electrical input signal conveying a first inbound data stream from a first host device;

performing clock and data recovery on the first electrical input signal with a first transceiver in the first connector to extract the first inbound data stream;

re-modulating the first inbound data stream as a first transit data stream

conveyed by a first electrical transit signal over a first of the conductor pairs;

receiving with the second connector a second electrical input signal conveying a second inbound data stream from a second host device;

performing clock and data recovery on the second electrical input signal with a second transceiver in the second connector to extract the second inbound data stream; and

re-modulating the second inbound data stream as a second transit data stream conveyed by a second electrical transit signal over a second of the conductor

pairs.

9. The communication method of claim 8, further comprising:

performing clock and data recovery on the first electrical transit signal with the second transceiver to extract the first transit data stream;
re-modulating the first transit data stream as a second outbound data stream conveyed by a second electrical output signal to the second host device;
performing clock and data recovery on the second electrical transit signal with the first transceiver to extract the second transit data stream; and
re-modulating the second transit data stream as a first outbound data stream conveyed by a first electrical output signal to the first host device.

10. The communication method of claim 9, wherein said re-modulating the first transit data stream, said re-modulating the second transit data stream, said performing clock and data recovery on the first electrical input signal, and said performing clock and data recovery on the second electrical input signal, each employ fixed, cable-independent, equalization parameters.

11. The communication method of claim 10, wherein cable-dependent equalization parameters are employed for at least one of: re-modulating the first inbound data stream, re-modulating the second inbound data stream, said performing clock and data recovery on the first electrical transit signal, and said performing clock and data recovery on the second electrical transit signal.

12. The communication method of claim 11, wherein said cable-dependent equalization parameters are adaptively updated.

13. The communication method of claim 11, wherein said cable-dependent equalization parameters are fixed during normal usage, and wherein the method further comprises: determining said cable-dependent equalization parameters

during manufacturer-testing of the network cable.

14. The communication method of claim 13, wherein the first inbound data stream has a per-lane symbol rate in excess of 50 GBd.

15. A cable manufacturing method that comprises:

connecting a first end and a second end of a set of conductor pairs to a first transceiver and a second transceiver, respectively, to transport a first electrical transit signal from the first transceiver to the second transceiver and a second electrical transit signal from the second transceiver to the first transceiver;

packaging the first transceiver into a first connector configured to couple a first electrical input signal from a network interface port of a first host device to the first transceiver and a first electrical output signal from the first transceiver to the network interface port of the first host device; and

packaging the second transceiver into a second connector configured to couple a second electrical input signal from a network interface port of a second host device to the second transceiver and a second electrical output signal from the second transceiver to the network interface port of the second host device, the first and second transceivers being configured to perform clock and data recovery on the first and second electrical input signal to extract and re-modulate the first and second inbound data streams respectively as the first and second electrical transit signals conveying first and second transit data streams.

16. The cable manufacturing method of claim 15, wherein the first and second transceivers are configured to perform clock and data recovery on the second and first electrical transit signals to extract and re-modulate the second and first

transit data streams as first and second outbound data streams conveyed by the first and second electrical output signals from the cable.

17. The cable manufacturing method of claim 16, wherein the first and second transceivers are each configured to employ fixed, cable-independent, equalization parameters for clock and data recovery on the respective electrical input signals and for generating the respective electrical output signals.

18. The cable manufacturing method of claim 17, wherein the first and second transceivers are each configured to employ cable-dependent equalization parameters for generating the first and second electrical transit signals and for clock and data recovery on the second and first electrical transit signals.

19. The cable manufacturing method of claim 18, wherein the first and second transceivers are each configured to adapt the cable-dependent equalization parameters during operation.

20. The cable manufacturing method of claim 18, wherein the first and second transceivers are each configured to use preset cable-dependent equalization parameters during operation, and wherein the method further comprises: testing an assembled cable to determine the cable-dependent equalization parameters.

ABSTRACT

Accordingly, there are disclosed herein architectures and communication methods that enable mass-manufactured cables to perform robustly at per-lane PAM4 symbol rates up to 56GBd and beyond. One illustrative cable embodiment includes conductor pairs connected between a first connector and a second connector. The first and second connectors are each adapted to fit into an Ethernet port of a corresponding host device to receive from that host device an electrical input signal conveying an inbound data stream to the cable, and to provide to that host device an electrical output signal conveying an outbound data stream from the cable. The first and second connectors each include a respective transceiver that performs clock and data recovery on the electrical input signal to extract and re-modulate the inbound data stream for transit via the conductor pairs as a respective electrical transit signal conveying a transit data stream.

FIG. 1

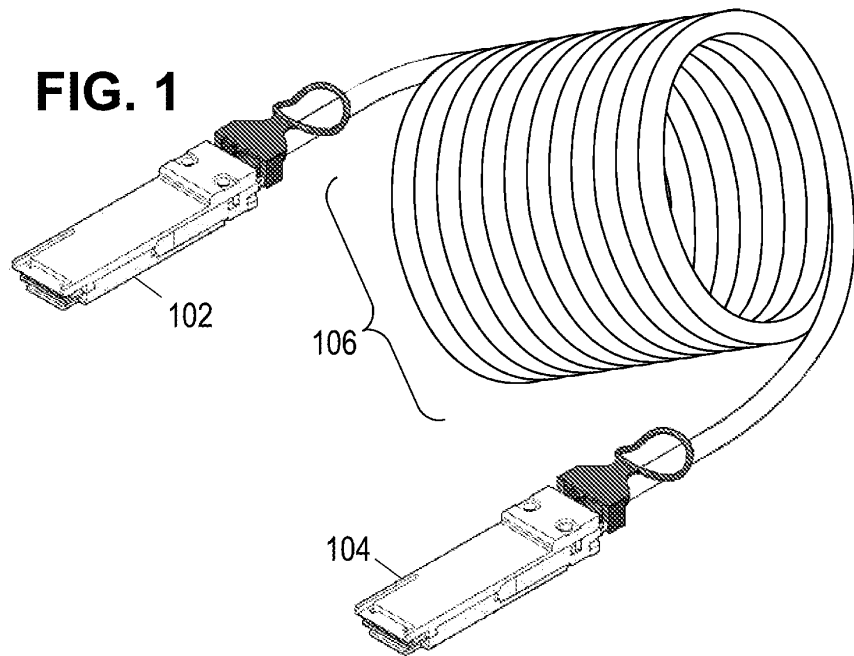
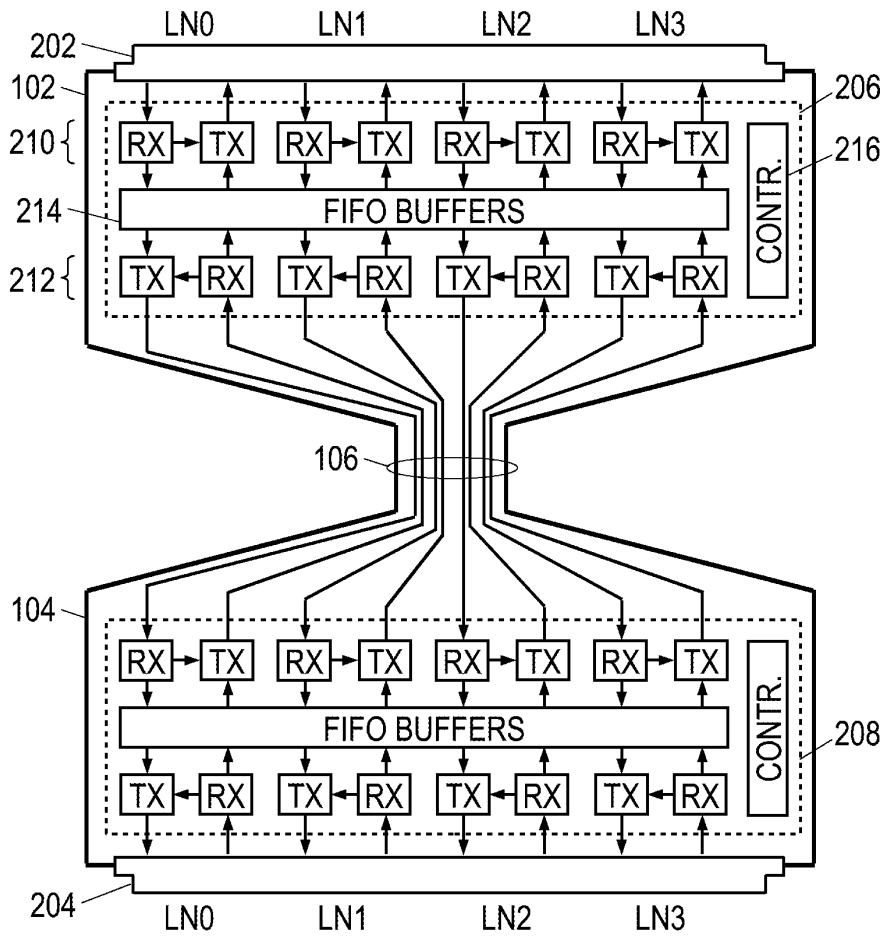


FIG. 2



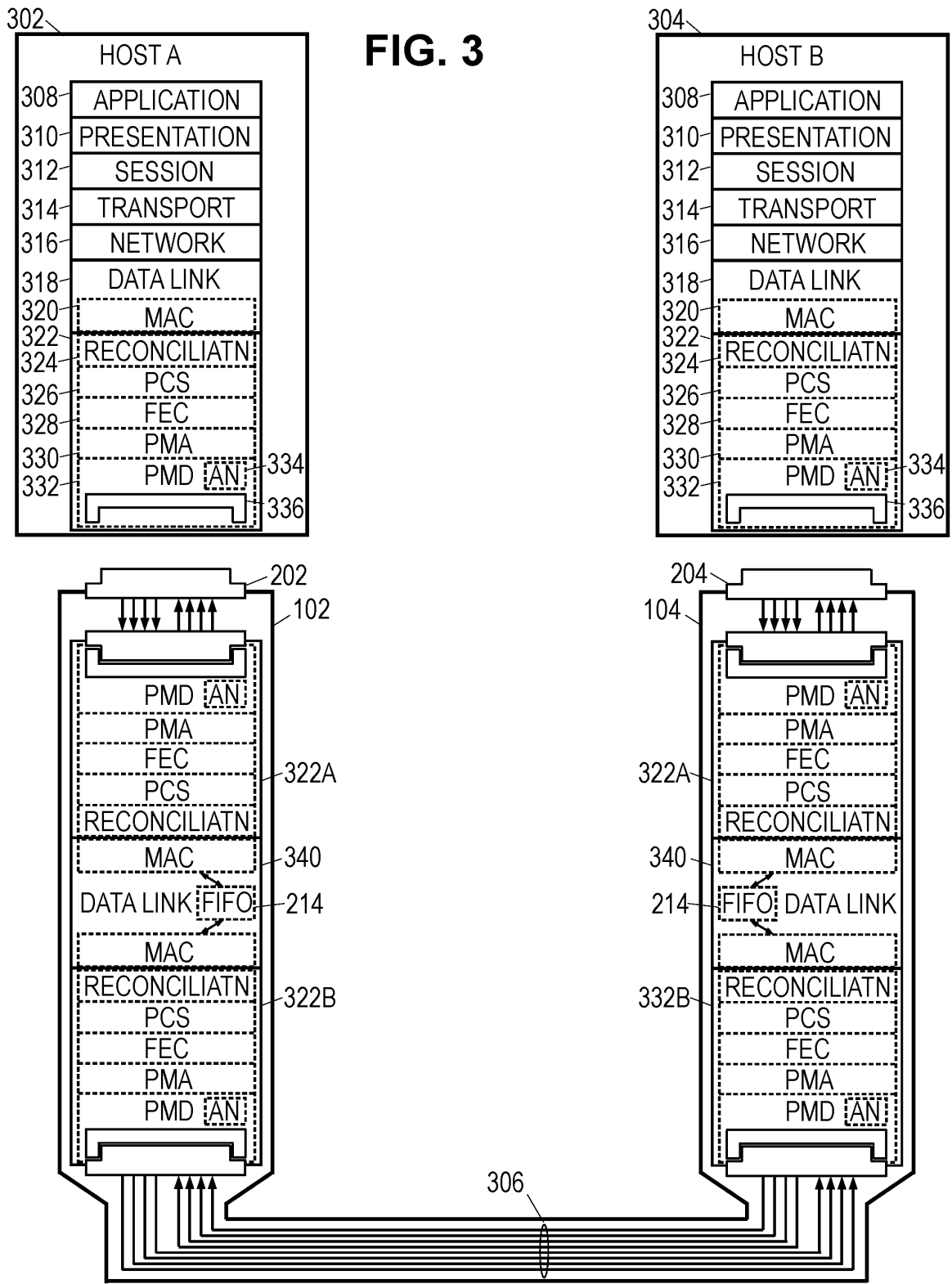


FIG. 4

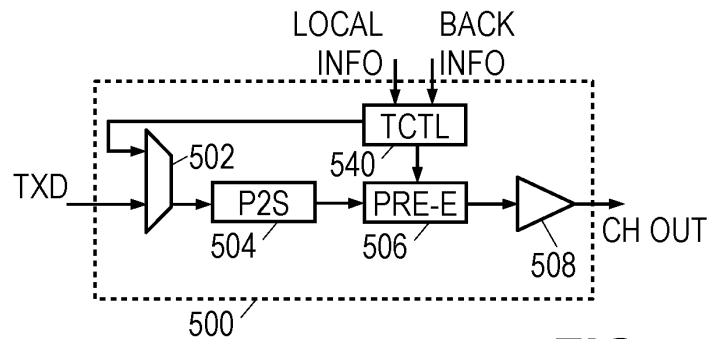
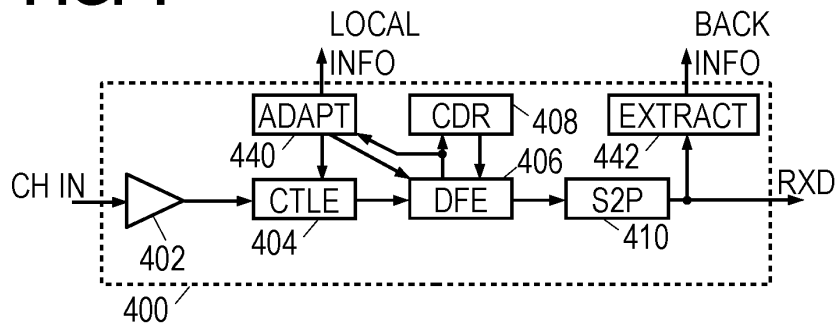


FIG. 5

FIG. 6

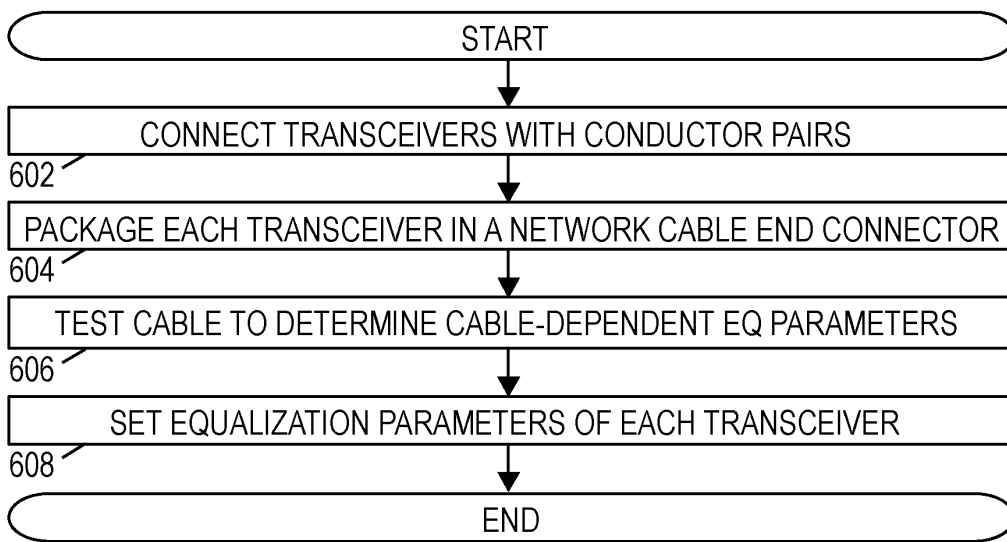


FIG. 7

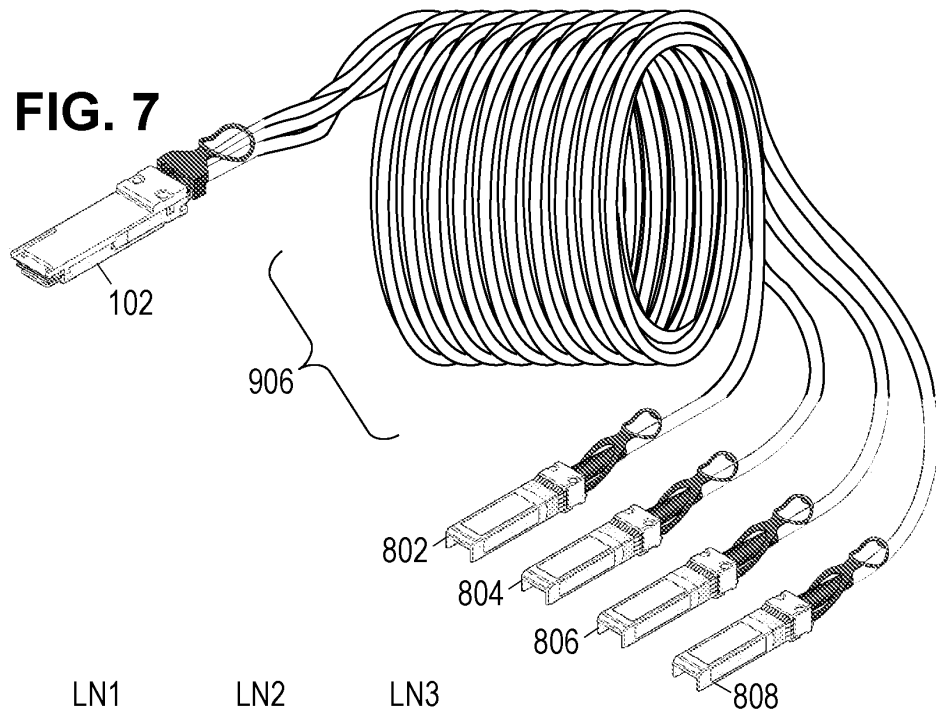
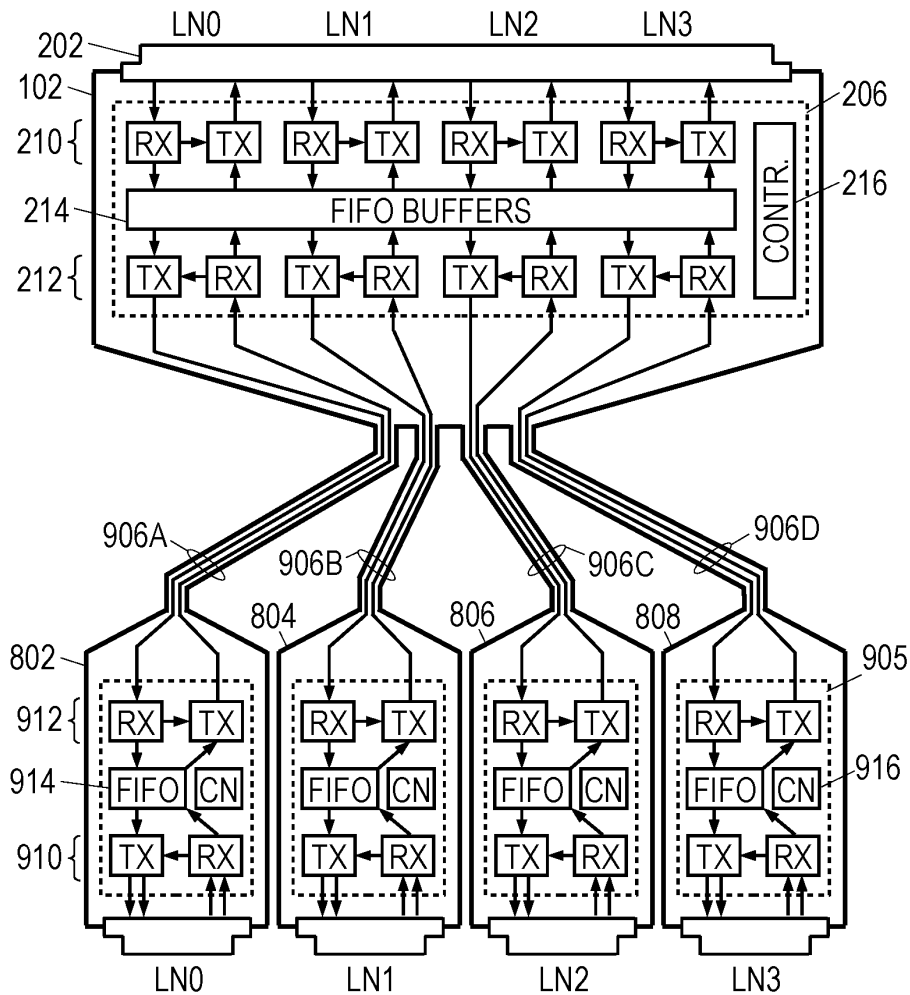


FIG. 8





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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/539,910	08/13/2019	2833	785	20160.0039.NPUS00	20	3

CONFIRMATION NO. 8175

FILING RECEIPT



63467
Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 750
Houston, TX 77006

Date Mailed: 08/26/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Yattung LAM, San Jose, CA;
Baohua CHEN, Xiamen City, CHINA;

Applicant(s)

CREDO TECHNOLOGY GROUP LIMITED, Grand Cayman, CAYMAN ISLANDS;

Assignment For Published Patent Application

CREDO TECHNOLOGY GROUP LIMITED, Grand Cayman, CAYMAN ISLANDS

Power of Attorney: The patent practitioners associated with Customer Number 63467

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

CHINA 201910155535.9 03/01/2019 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/22/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/539,910**

Projected Publication Date: 09/03/2020

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

ACTIVE ETHERNET CABLE

Preliminary Class

439

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

page 2 of 4

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/539,910	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 230 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL	
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		OTHER THAN SMALL ENTITY	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							

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 The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

5304969 99	8471396 98	20150316599 98
4269506 99	8474320 98	20150362354 98
4272984 98	8475370 98	
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8339141 98	20150110489 98	



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175
63467	7590	03/11/2020	EXAMINER	
Ramey & Schwaller, LLP			HA, DAC V	
Ramey & Schwaller			ART UNIT	
5020 Montrose Blvd.			PAPER NUMBER	
Suite 800			2633	
Houston, TX 77006			NOTIFICATION DATE	
			DELIVERY MODE	
			03/11/2020	
			ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tevenbly@rameyfirm.com
uspto@rameyfirm.com
wramey@rameyfirm.com

Office Action Summary	Application No. 16/539,910	Applicant(s) LAM et al.	
	Examiner DAC V HA	Art Unit 2633	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/13/19.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-20 is/are pending in the application.
 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☒ Claim(s) 1-20 is/are allowed.
- 7) ☐ Claim(s) ____ is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 08/13/19 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☒ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
 Paper No(s)/Mail Date ____.
- 3) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date ____.
- 4) ☐ Other: ____.

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

2. This application is in condition for allowance except for the following formal matters:

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in China on 03/01/19. It is noted, however, that applicant has not filed a certified copy of the China 201910155535.9 application as required by 37 CFR 1.55.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lett (US 2016/0197434)

Lin et al. (US 2018/0241579)

Zweig et al. (US 7,049,937)

Ward et al. (US 9,230,416)

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAC V HA whose telephone number is (571)272-3040. The examiner can normally be reached on 7-3:30 M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an

interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Ahn can be reached on 571-272-3044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DAC V HA/
Primary Examiner, Art Unit 2633

<i>Notice of References Cited</i>	Application/Control No. 16/539,910		Applicant(s)/Patent Under Reexamination LAM et al.	
	Examiner DAC V HA		Art Unit 2633	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20160197434-A1	07-2016	Lett; David B.	H01R13/516	348/373
*	B	US-20180241579-A1	08-2018	Lin; Chun-En	H04L12/10	1/1
*	C	US-7049937-B1	05-2006	Zweig; Jonathan M.	H01R13/641	324/66
*	D	US-9230416-B2	01-2016	Ward; Rafik	G08B5/00	1/1
	E					
	F					
	G					
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	K					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
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	O					
	P					
	Q					
	R					
	S					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20200306

<i>Search Notes</i> 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

CPC - Searched*		
Symbol	Date	Examiner
H04L 12/2801; H04L 25/4917; H04L 25/03885	03/06/2020	DH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
BRS and Inventor's search	03/06/2020	DH
PLUS	03/06/2020	DH
NPL	03/06/2020	DH

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	PGPUB	03/06/2020	DH

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Receipt date: 08/13/2019

16/539,910 - GAU: 2633

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	
	First Named Inventor	Yattung LAM
	Art Unit	
	Examiner Name	
	Attorney Docket Number	20160.0039.NPUS00

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	9,322,704	B1	2016-04-26	Neveux	
	2	7,401,985	B2	2008-07-22	Aronson, et al	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Yattung LAM
Art Unit	
Examiner Name	
Attorney Docket Number	20160.0039.NPUS00

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Rumer, B. "Fighting Jitter in Fibre-Channel Designs." Electronic Engineering Times, (2001, February 01). Retrieved August 13, 2019, from https://www.eetimes.com/document.asp?doc_id=1277249	
	2	IEEE P802.3cd/D1.2, 3rd February 2017 (Amendment of IEEE Std 802.3-2015 as amended) IEEE Draft Standard for Ethernet Amendment: Media Access Control Parameters for 50 Gb/s, 100 Gb/s and 200 Gb/s Operation. The Institute of Electrical and Electronics Engineers, Inc., 2017; S.I.: IEEE.	

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EXAMINER SIGNATURE

Examiner Signature	/DAC V HA/	Date Considered	01/15/2020
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Yattung LAM
Art Unit	
Examiner Name	
Attorney Docket Number	20160.0039.NPUS00

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Daniel J. Krueger/	Date (YYYY-MM-DD)	2019-08-13
Name/Print	Daniel J. Krueger	Registration Number	42,771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

~~ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.V.H/~~

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	706	(ethernet with (link cable)) same (electrica\$4 near2 conduct\$4)	US-PGPUB; USPAT	OR	ON	2020/03/06 13:34
L5	458	4 and (connect\$4 with (transceiv\$4 transmit\$4 receiv\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:34
L6	24	5 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
L7	24	6 and modulat\$4	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
L8	6020	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
L9	0	7 and L8	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
L10	81	5 and (ethernet with (link cable)) .clm.	US-PGPUB; USPAT	OR	ON	2020/03/06 13:40
L11	75	10 not 7	US-PGPUB; USPAT	OR	ON	2020/03/06 13:41
L12	50	11 and (pair with (wire twist\$4 conduct\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:42
L13	24	("2014/0258742").URPN.	USPAT	OR	ON	2020/03/06 13:43
L14	244	g02b6/36.cpc.	USPAT	OR	ON	2020/03/06 13:56
L15	0	4 and 14	USPAT	OR	ON	2020/03/06 13:56
L16	9	14 and ethernet	USPAT	OR	ON	2020/03/06 13:56
L17	89	("20020031955" "20020048990" "20030031025" "20030157842" "20030199192" "20030222786" "20040038564" "20040160774" "20050037672" "20050224585" "20060134996" "20060162947" "20060232385" "20070105453" "20070116411" "20070190863" "20080020658" "20080122579" "20090042431" "20090269973" "20100079248" "20100098425" "20110043333" "20110116748" "20120058689" "20120064750"	US-PGPUB; USPAT; USOCR	OR	ON	2020/03/06 13:57

		"20130052860" "20140035755" "20160020975" "20170293102" "3960428" "4761720" "4837488" "5159316" "5666453" "5741152" "5764043" "5888100" "6002331" "6080007" "6099345" "6244908" "6280232" "6394853" "6524128" "6532328" "6558204" "6577243" "6790096" "6798183" "6811445" "6975242" "7049937" "7080945" "7081808" "7168994" "7221284" "7335066" "7374458" "7547150" "7549886" "7556536" "7651361" "7760094" "7772975" "7782202" "7910833" "7910834" "7920764" "7940182" "7960648" "7965186" "7972183" "8043124" "8210755" "8264355" "8277260" "8465317" "8606972" "8611234" "8620123" "8702453" "8747141" "9196975" "9230416" "9577904" "9810859" "9952258" "9995432").PN.				
L18	17	17 and ethernet	USPAT	OR	ON	2020/03/06 13:57
S1	6018	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US- PGPUB; USPAT	OR	ON	2020/03/03 16:46
S2	21	((yattung near1 lam) (baohua near1 chen)).in.	US- PGPUB; USPAT	OR	ON	2020/03/03 16:46
S4	0	S2 and ethernet.clm.	US- PGPUB; USPAT	OR	ON	2020/03/03 16:48
S5	2	S2 and cable.clm.	US- PGPUB; USPAT	OR	ON	2020/03/03 16:48
S6	1632	(ethernet near2 cable).ab,clm.	US- PGPUB; USPAT	OR	ON	2020/03/04 12:01
S7	1501	S6 and (ethernet near2 cable).clm.	US- PGPUB; USPAT	OR	ON	2020/03/04 12:01
S8	224	S7 and (ethernet near2 cable).ab.	US- PGPUB; USPAT	OR	ON	2020/03/04 12:01
S9	45	S8 and ((ethernet near2 cable) same transceiv\$4)	US- PGPUB; USPAT	OR	ON	2020/03/04 12:02
S10	6018	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US- PGPUB; USPAT	OR	ON	2020/03/04 12:02
S11	3	S9 and S10	US- PGPUB; USPAT	OR	ON	2020/03/04 12:02
S12	42	S9 not S11	US- PGPUB; USPAT	OR	ON	2020/03/04 12:09
S13	158	S8 and ((ethernet near2 cable) with (coupl\$4 connect))	US- PGPUB;	OR	ON	2020/03/04 12:15

			USPAT			
S14	120	S13 not S9	US-PGPUB; USPAT	OR	ON	2020/03/04 12:16
S15	0	S14 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:17
S16	16	S14 and (ethernet near2 cable).ti.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:19
S17	11	("2017/0346200").URPN.	USPAT	OR	ON	2020/03/04 12:21
S18	104	S14 not S16	US-PGPUB; USPAT	OR	ON	2020/03/04 12:23
S19	66	S8 not S13	US-PGPUB; USPAT	OR	ON	2020/03/04 12:33
S20	15	S19 and ((ethernet near2 cable) with (standard\$5))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:34
S21	2	("9322704" "7401985").pn.	US-PGPUB; USPAT	OR	ON	2020/03/04 13:30
S22	77	("7401985").URPN.	USPAT	OR	ON	2020/03/04 13:31
S23	78	("20010035994" "20020018609" "20020044746" "20020049879" "20020063935" "20020114590" "20020136510" "20020149821" "20020159725" "20020160656" "20030016920" "20030021580" "20030034963" "20030208779" "20030223756" "20040008996" "20040076119" "20040141695" "20040184746" "20040208600" "20040263941" "20050036746" "20050053340" "20050063707" "20050063711" "20050078916" "20050105910" "20050105915" "20050180700" "20050238358" "20050249477" "20050286593" "20050286893" "20060008276" "20060036788" "20060045437" "20060049936" "20060067690" "20060077778" "20060083518" "20060088251" "20060093280" "20060142744" "4427879" "4768188" "4902092" "5337398" "5497187" "5515467" "5530787" "5631988" "5668419" "5732176" "5926303" "6036654" "6179627" "6217231" "6220873" "6267606" "6446867" "6458619" "6461059" "6478625" "6502997" "6540412" "6607307" "6758693" "6774348" "6793539" "6905257" "6914637" "6941395" "6952395" "6965722" "7065604" "7088518" "7162130" "7217022").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/03/04 13:31
S24	1	S21 and (modulat\$5 clock\$4)	US-	OR	ON	2020/03/04

			PGPUB; USPAT			13:46
S25	381	cable.ab. and cable.clm. and (ethernet near1 port)	USPAT	OR	ON	2020/03/04 13:56
S26	372	S25 and (transceiv\$4 transmit\$4 receiv\$4)	USPAT	OR	ON	2020/03/04 13:56
S27	7	S26 and (cdr (clock near3 recover\$4))	US- PGPUB; USPAT	OR	ON	2020/03/04 13:56
S29	4	S27 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/04 13:57
S30	142	S26 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/04 13:57
S31	500	(active with ethernet with cable)	US- PGPUB; USPAT	OR	ON	2020/03/04 13:58
S32	7	S25 and S31	US- PGPUB; USPAT	OR	ON	2020/03/04 13:58
S33	217	S31 and (transceiv\$4 transmit\$4 receiv\$4)	USPAT	OR	ON	2020/03/04 13:59
S34	55	S33 and (ethernet near1 port)	USPAT	OR	ON	2020/03/04 13:59
S36	48	S34 not S32	US- PGPUB; USPAT	OR	ON	2020/03/04 14:01
S37	500	(active with ethernet with cable)	US- PGPUB; USPAT	OR	ON	2020/03/05 07:53
S38	200	S37 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/05 07:53
S39	11	S38 and (cdr (clock near3 recover\$4))	US- PGPUB; USPAT	OR	ON	2020/03/05 07:53
S41	8639810	s "37"(ethernet with cable).clm.	US- PGPUB; USPAT	OR	ON	2020/03/05 16:32
S42	500	(active with ethernet with cable)	US- PGPUB; USPAT	OR	ON	2020/03/05 16:32
S43	67	S42 and (ethernet with cable).clm.	US- PGPUB; USPAT	OR	ON	2020/03/05 16:32

3/6/2020 2:01:34 PM**C:\Users\dha\Documents\EAST\Workspace2\16539910.wsp**



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United States Patent and Trademark Office
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BIB DATA SHEET

CONFIRMATION NO. 8175

SERIAL NUMBER 16/539,910	FILING or 371(c) DATE 08/13/2019 RULE	CLASS 375	GROUP ART UNIT 2633	ATTORNEY DOCKET NO. 20160.0039.NPUS00		
APPLICANTS CREDO TECHNOLOGY GROUP LIMITED, Grand Cayman, CAYMAN ISLANDS; INVENTORS Yattung LAM, San Jose, CA; Baohua CHEN, Xiamen City, CHINA; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** CHINA 201910155535.9 03/01/2019 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 08/22/2019						
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /DAC V HA/ Acknowledged Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 4	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS Ramey & Schwaller, LLP Ramey & Schwaller 5020 Montrose Blvd. Suite 800 Houston, TX 77006 UNITED STATES						
TITLE ACTIVE ETHERNET CABLE						
FILING FEE RECEIVED 785	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

Request to Retrieve Electronic Priority Application(s)

Send completed form to: Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

COMPLETE IF KNOWN

Application Number	16/539,910
Filing Date	August 13, 2019
First Named Inventor	Yattung, LAM
Art Unit	2633
Examiner Name	HA, Dac V
Attorney Docket Number	20160.0039.NPUS00

Pursuant to 37 CFR 1.55(i), the undersigned hereby requests that the USPTO retrieve an electronic copy of each of the following foreign applications for which priority has been claimed under 35 U.S.C. 119(a)-(d) from a foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement. This Request must be submitted:

- within the later of sixteen months from the filing date of the prior foreign application or four months from the actual filing date of an application under 35 U.S.C. 111(a),
- within four months from the later of the date of commencement (37 CFR 1.491(a)) or the date of the initial submission under 35 U.S.C. 371 of an application entering the national stage under 35 U.S.C. 371, or
- with a petition under 37 CFR 1.55(e) or (f).



OPTION A

Please retrieve the priority application identified in Column C, a certified copy of which is contained in the EP or JP application identified in Columns A and B:

A Code for Participating Office (EP or JP only)	B Application containing the non-participating priority application			C Non-participating priority application to be retrieved	
	App. No.	Filing Date	Access Code (for JP only)	Country Code	App. No.
1					



OPTION B

This Request may be used for the infrequent circumstance when a claim for priority to an application filed in a participating foreign intellectual property office was made prior to that foreign intellectual property office becoming a participating foreign intellectual property office.

Please retrieve the priority application identified in Columns A and B:

A Code for Participating Office (e.g., EP) or WIPO DAS Depositing Office (e.g., AU, BR, CN, DK, EA, EE, ES, FI, GB, IB, IN, JP, KR, MA, NL, NZ, SE)	B Application to be retrieved		
	App. No.	Filing Date	Access Code (for WIPO DAS Depositing Office)
1	CN	201910155535.9	2019-03-01
2			

The USPTO will not attempt to retrieve the identified priority application(s) unless an identical claim for foreign priority to the application identified above is made pursuant to 37 CFR 1.55(d) or a petition is granted under 37 CFR 1.55(e) or (f). Applicants are advised to consult Private PAIR (accessed through www.uspto.gov) to assure that the retrieval has been successful. The applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period set forth in 37 CFR 1.55(g)(1).

I hereby declare that I have the authority to grant access to the above-identified foreign application(s).

/Dan Krueger/

Signature

Daniel J. Krueger

Printed or Typed Name

Attorney of Record

Title

March 24, 2020

Date

713-426-3923

Telephone Number

42771

Registration Number, if applicable

This collection of information is required by 37 CFR 1.55(d). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	38951907
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	24-MAR-2020
Filing Date:	13-AUG-2019
Time Stamp:	13:32:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	2020-03-24_FINAL-ADS.pdf	135498	no	8
			41da1bf9cb7269e851ecce0419a358167d8c5eebc		

Warnings:

Information:					
This is not an USPTO supplied ADS fillable form					
2	Request for USPTO to retrieve priority docs	2020-03-24_Request_to_Retrieve_Priority_Application.pdf	278829 b0571693c0d213a55003448c64e36299421a9b0f5	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			414327		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	16/539,910
Title of Invention	ACTIVE ETHERNET CABLE		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1					Remove		
Legal Name							
Prefix	Given Name		Middle Name		Family Name		Suffix
	Yattung				LAM		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service							
City	San Jose		State/Province	CA	Country of Residence		US
Mailing Address of Inventor:							
Address 1		c/o Credo Inc.					
Address 2		1600 Technology Drive, Fifth Floor					
City	San Jose		State/Province		CA		
Postal Code		95110		Country i	US		
Inventor 2					Remove		
Legal Name							
Prefix	Given Name		Middle Name		Family Name		Suffix
	Baohua				CHEN		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service							
City	Xiamen City		Country of Residence i			CN	
Mailing Address of Inventor:							
Address 1							
Address 2		Fujian Province					
City	Xiamen City		State/Province				
Postal Code				Country i	CN		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.							
Add							

Correspondence Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
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Title of Invention	ACTIVE ETHERNET CABLE		

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ An Address is being provided for the correspondence information of this application.

Customer Number	63467		
Email Address	uspto@rameyfirm.com	Add Email	Remove Email

Application Information:

Title of the Invention	ACTIVE ETHERNET CABLE		
Attorney Docket Number	20160.0039.NPUS00	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	2

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	63467		

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Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Remove Access Code ⁱ (if applicable)
201910155535.9	CN	2019-03-01	<u>008D</u>
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. ☐ NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.
--

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Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Title of Invention	ACTIVE ETHERNET CABLE		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant 1			
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
Clear			
☒ Assignee	☐ Legal Representative under 35 U.S.C. 117	☐ Joint Inventor	
☐ Person to whom the inventor is obligated to assign.		☐ Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	CREDO TECHNOLOGY GROUP LIMITED		
Mailing Address Information For Applicant:			
Address 1	Ugland House		
Address 2			
City	Grand Cayman	State/Province	
Country	KY	Postal Code	KY1-1104
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

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		Application Number	16/539,910
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Assignee 1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.			
If the Assignee or Non-Applicant Assignee is an Organization check here. ☒			
Organization Name	CREDO TECHNOLOGY GROUP LIMITED		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	Ugland House		
Address 2			
City	Grand Cayman	State/Province	
Country ⁱ	KY	Postal Code	KY1-1104
Phone Number		Fax Number	
Email Address			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.			

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Daniel J. Krueger/		Date (YYYY-MM-DD)	2020-03-24	
First Name	Daniel J.	Last Name	Krueger	Registration Number	42771
Additional Signature may be generated within this form by selecting the Add button.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20160.0039.NPUS00
		Application Number	<u>16/539,910</u>
Title of Invention	ACTIVE ETHERNET CABLE		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

CERTIFICATE OF AVAILABILITY OF A CERTIFIED PATENT DOCUMENT IN A DIGITAL LIBRARY

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Document details: Country/Office: CN

Filing date: 01 Mar 2019 (01.03.2019)

Application number: 2019101555359

Date of availability of document: 18 Mar 2020 (18.03.2020)

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Date of issue of this certificate: 26 Mar 2020 (26.03.2020)

国家知识产权局

NATIONAL INTELLECTUAL PROPERTY ADMINISTRATION, PRC



证 明

本证明之附件是向本局提交的下列专利申请文件副本。

申 请 号：201910155535.9

申 请 类 型：发明专利

发 明 创 造 名 称：有源以太网电缆

申 请 日：2019 年 03 月 01 日

申 请 人：默升科技集团有限公司

发明人或设计人：Y·拉姆、B·陈

局长

申长雨

2020 年 03 月 18 日

权 利 要 求 书

1. 一种有源以太网电缆，包括：
连接在第一连接器和第二连接器之间的导电体，
5 所述第一连接器和第二连接器中的每一个适于适配到相应主机设备的以太网端口中，以从该主机设备接收将入站数据流传送到所述电缆的输入电信号，并向该主机设备提供传输来自所述电缆的出站数据流的输出电信号，
 所述第一连接器和第二连接器中的每一个包括相应的收发器，该收发器对所述输入电信号执行时钟和数据恢复，以提取和重新调制所述入站数据流，
10 以作为传送传输数据流的相应电传输信号经由所述导电体进行传输。
2. 如权利要求1所述的有源以太网电缆，其特征在于，用于所述第一连接器和第二连接器中的每一个的所述相应的收发器对所述相应的电传输信号执行时钟和数据恢复，以提取和重新调制所述传输数据流作为来自所述电缆的所述出站数据流。
- 15 3. 如权利要求2所述的有源以太网电缆，其特征在于，所述相应的收发器均采用固定的、与电缆无关的均衡参数，以用于以下各项中的每一项：重新调制所述传输数据流作为所述出站数据流；以及对所述输入电信号执行的时钟和数据恢复。
- 20 4. 如权利要求3所述的有源以太网电缆，其特征在于，所述相应的收发器均采用依赖于电缆的均衡参数，以用于以下各项中的至少一项：重新调制所述入站数据流用于传输、以及对所述电传输信号执行的时钟和数据恢复。
5. 如权利要求4所述的有源以太网电缆，其特征在于，所述依赖于电缆的均衡参数在使用所述以太网电缆期间进行适配。
- 25 6. 如权利要求4所述的有源以太网电缆，其特征在于，所述依赖于电缆的均衡参数在所述以太网电缆的正常使用期间是固定的，并且其中所述依赖于电缆的均衡参数是在所述以太网电缆的制造商测试期间确定的。
7. 如权利要求6所述的有源以太网电缆，其特征在于，所述入站数据流和所述出站数据流均具有50GBd的每通道码元率。
8. 一种通信方法，包括：在具有将第一连接器电连接到第二连接器的导



体对的网络电缆中：

利用所述第一连接器接收第一输入电信号，该第一输入电信号传送来自第一主机设备的第一入站数据流；

5 利用所述第一连接器中的第一收发器对所述第一输入电信号执行时钟和数据恢复，以提取所述第一入站数据流；

将所述第一入站数据流重新调制为由第一电传输信号在所述导体对中的第一导体对上传送的第一传输数据流；

利用所述第二连接器接收第二输入电信号，该第二输入电信号传送来自第二主机设备的第二入站数据流；

10 利用所述第二连接器中的第二收发器对所述第二输入电信号执行时钟和数据恢复，以提取所述第二入站数据流；以及

将所述第二入站数据流重新调制为由第二电传输信号在所述导体对中的第二导体对上传送的第二传输数据流。

9. 如权利要求8所述的通信方法，还包括：

15 利用所述第二收发器对所述第一电传输信号执行时钟和数据恢复，以提取所述第一传输数据流；

将所述第一传输数据流重新调制为由第二输出电信号传送到所述第二主机设备的第二出站数据流；

20 利用所述第一收发器对所述第二电传输信号执行时钟和数据恢复，以提取所述第二传输数据流；以及

将所述第二传输数据流重新调制为由第一输出电信号传送到所述第一主机设备的第一出站数据流。

25 10. 如权利要求9所述的通信方法，其特征在于，所述重新调制第一传输数据流、所述重新调制第二传输数据流、所述对第一输入电信号执行时钟和数据恢复、以及所述对第二输入电信号执行时钟和数据恢复均都采用固定的、与电缆无关的均衡参数。

11. 如权利要求10所述的通信方法，其特征在于，依赖于电缆的均衡参数用于以下各项中的至少一项：重新调制所述第一入站数据流、重新调制所述第二入站数据流、所述对第一电传输信号执行时钟和数据恢复、以及所述对



第二电传输信号执行时钟和数据恢复。

12. 如权利要求11所述的通信方法，其特征在于，所述依赖于电缆的均衡参数被自适应地更新。

13. 如权利要求11所述的通信方法，其特征在于，所述依赖于电缆的均衡参数在正常使用期间是固定的，并且其中所述方法还包括：在所述网络电缆的制造商测试期间确定所述依赖于电缆的均衡参数。

14. 如权利要求13所述的通信方法，其特征在于，所述第一入站数据流具有超过50 GBd的每通道码元率。

15. 一种电缆制造方法，包括：

10 将一组导体对的第一端和第二端分别连接到第一收发器和第二收发器，以用于将第一电传输信号从所述第一收发器传输到所述第二收发器，并将第二电传输信号从所述第二收发器传输到所述第一收发器；

将所述第一收发器封装到第一连接器中，该第一连接器被配置为将来自第一主机设备的网络接口端口的第一输入电信号耦合到所述第一收发器，并且将来自所述第一收发器的第一输出电信号耦合到所述第一主机设备的所述网络接口端口；以及

20 将所述第二收发器封装到第二连接器中，该第二连接器被配置为将来自第二主机设备的网络接口端口的第二输入电信号耦合到所述第二收发器，并且将来自所述第二收发器的第二输出电信号耦合到所述第二主机设备的所述网络接口端口，

所述第一收发器和所述第二收发器被配置为对所述第一输入电信号和所述第二输入电信号执行时钟和数据恢复，以分别提取和重新调制所述第一入站数据流和所述第二入站数据流，来作为传送第一传输数据流和第二传输数据流的所述第一电传输信号和所述第二电传输信号。

25 16. 如权利要求15所述的电缆制造方法，其特征在于，所述第一收发器和所述第二收发器被配置为对所述第二电传输信号和所述第一电传输信号执行时钟和数据恢复，以提取和重新调制所述第二传输数据流和所述第一传输数据流，来作为由来自所述电缆的所述第一输出电信号和所述第二输出电信号传送的所述第一出站数据流和所述第二出站数据流。



17. 如权利要求16所述的电缆制造方法，其特征在于，所述第一收发器和所述第二收发器均被配置为采用固定的、与电缆无关的均衡参数，用于对所述相应的输入电信号上进行时钟和数据恢复，并用于产生所述相应的输出电信号。

- 5 18. 如权利要求17所述的电缆制造方法，其特征在于，所述第一收发器和所述第二收发器均被配置为采用依赖于电缆的均衡参数来产生所述第一电传输信号和所述第二电传输信号，并用于对第所述二电传输信号和所述第一电传输信号进行的时钟和数据恢复。

- 10 19. 如权利要求18所述的电缆制造方法，其特征在于，所述第一收发器和所述第二收发器均被配置为在操作期间适配所述依赖于电缆的均衡参数。

20. 如权利要求18所述的电缆制造方法，其特征在于，所述第一收发器和所述第二收发器均被配置为在操作期间使用预设的依赖于电缆的均衡参数，并且其中所述方法还包括：测试经组装的电缆以确定所述依赖于电缆的均衡参数。

说明书

有源以太网电缆

5 背景技术

[0001] 电气和电子工程师协会(IEEE)标准协会出版了以太网IEEE标准 IEEE Std 802.3-2015, 这对于本申请所属领域的普通技术人员而言是熟知的。该以太网标准为通过同轴电缆、双轴电缆、双绞线电缆、光纤电缆和电子背板以各种信道信号星座在1Mb/s至100Gb/s的选定速度下的局域网(LAN)操作提供通用介质访问控制规范。随着对更高数据率的持续需求, 正在扩展该标准。即使均衡器被迫以更快的码元率操作, 对标准的这种扩展也必须考虑增加的信道衰减和色散。随着所提出的每通道比特率利用PAM4或更大的信号星座上升超过50Gbps, 提供确保始终如一的稳健性能的可负担且大规模制造的网络硬件变得越来越困难。

15

发明内容

[0002] 因此, 本文公开了架构和通信方法, 其使得大规模制造的电缆能够以高达26.5625GBd及更高的每通道PAM4码元率稳健地执行。一个说明性电缆实施例包括连接在第一连接器和第二连接器之间的导电体。第一连接器和第二连接器各自适于适配到相应主机设备的以太网端口中, 以从该主机设备接收将入站数据流传送到电缆的输入电信号, 并向该主机设备提供传来自电缆的出站数据流的输出电信号。第一连接器和第二连接器均包括相应的收发器, 其对输入电信号执行时钟和数据恢复, 以提取和重新调制入站数据流, 以作为传送传输数据流的相应电传输信号经由导电体进行传输。

25 [0003] 一种说明性通信方法实施例包括: 在具有将第一连接器连接到第二连接器的导体对的网络电缆中: 利用第一连接器接收传送来自第一主机设备的第一入站数据流的第一输入电信号; 利用第一连接器中的第一收发器对第一输入电信号执行时钟和数据恢复, 以提取第一入站数据流; 将第一入站数据流重新调制为由第一电传输信号在第一导体对上传送的第一传输数据流;



利用第二连接器接收传送来自第二主机设备的第二进站数据流的第二输入电信号；利用第二连接器中的第二收发器对第二输入电信号执行时钟和数据恢复，以提取第二进站数据流；以及将第二进站数据流重新调制为由第二电传输信号在第二导体对上传送的第二传输数据流。

- 5 **[0004]** 一种说明性电缆制造方法包括：将一组导体对的第一端和第二端分别连接到第一收发器和第二收发器，用于将第一电传输信号从第一收发器传输到第二收发器，并将第二电传输信号从第二收发器传输到第一收发器；将第一收发器封装到第一连接器中，该第一连接器被配置为将来自第一主机设备的网络接口端口的第一输入电信号耦合到第一收发器，并且将来自第一收发器的第一输出电信号耦合到第一主机设备的网络接口端口；以及将第二收发器封装到第二连接器中，该第二连接器被配置为将来自第二主机设备的网络接口端口的第二输入电信号耦合到第二收发器，并且将来自第二收发器的第二输出电信号耦合到第二主机设备的网络接口端口，第一收发器和第二收发器被配置为对第一输入电信号和第二输入电信号执行时钟和数据恢复，
- 10 以分别提取和重新调制第一进站数据流和第二进站数据流，来作为传送第一传输数据流和第二传输数据流的第一电传输信号和第二电传输信号。
- 15

- [0005]** 前述实施例中的每一个可以单独或组合地实现，并且可以以任何合适的组合来用以下特征中的一个或多个来实现：1. 用于第一连接器和第二连接器中的每一个的相应收发器对相应的电传输信号执行时钟和数据恢复，
- 20 以提取和重新调制传输数据流作为来自电缆的出站数据流。2. 各个收发器均采用固定的、与电缆无关的均衡参数，用于以下各项中的每一项：重新调制传输数据流作为出站数据流；以及对输入电信号执行的时钟和数据恢复。3. 各个收发器均采用依赖于电缆的均衡参数用于以下各项中的至少一项：重新调制进站数据流用于传输、以及对电传输信号执行的时钟和数据恢复。4. 在
- 25 使用电缆期间适配依赖于电缆的均衡参数。5. 所述依赖于电缆的均衡参数在电缆的正常使用期间是固定的。6. 所述依赖于电缆的均衡参数在电缆的制造商测试期间确定。7. 进站数据流和出站数据流均具有50Gbps或更高的每通道比特率。8. 利用第二收发器对第一电传输信号执行时钟和数据恢复，以提取第一传输数据流；利用第一收发器对第二电传输信号执行时钟和数据恢复，

以提取第二传输数据流。9. 将第一传输数据流重新调制为由第二输出电信号传送到第二主机设备的第二出站数据流；并且将第二传输数据流重新调制为由第一输出电信号传送到第一主机设备的第一出站数据流。10. 所述重新调制第一传输数据流、所述重新调制第二传输数据流、所述对第一输入电信号执行时钟和数据恢复、以及所述对第二输入电信号执行时钟和数据恢复均采用固定的、与电缆无关的均衡参数。11. 依赖于电缆的均衡参数用于以下各项中的至少一项：重新调制第一入站数据流、重新调制第二入站数据流、所述对第一电传输信号执行时钟和数据恢复、以及所述对第二电传输信号执行时钟和数据恢复。12. 在网络电缆的制造商测试期间确定所述依赖于电缆的均衡参数。13. 第一收发器和第二收发器被配置为对第二电传输信号和第一电传输信号执行时钟和数据恢复，以提取和重新调制第二传输数据流和第一传输数据流，来作为由来自电缆的第一输出电信号和第二输出电信号传送的第一出站数据流和第二出站数据流。14. 第一收发器和第二收发器均被配置为采用固定的、与电缆无关的均衡参数，用于对相应的输入电信号的时钟和数据恢复，并用于产生相应的输出电信号。15. 第一收发器和第二收发器均被配置为采用依赖于电缆的均衡参数来产生第一电传输信号和第二电传输信号，并用于对第二电传输信号和第一电传输信号的时钟和数据恢复。16. 第一收发器和第二收发器均被配置为在操作期间适配依赖于电缆的均衡参数。17. 第一收发器和第二收发器均被配置为在操作期间使用预设的依赖于电缆的均衡参数。18. 测试经组装的电缆以确定依赖于电缆的均衡参数。

附图说明

- [0006] 图1是说明性有源以太网电缆的立体图。
- [0007] 图2是说明性电缆的功能框图。
- 25 [0008] 图3是包括说明性电缆的通信链路的架构图。
- [0009] 图4是说明性多通道收发器中的接收器的框图。
- [0010] 图5是说明性多通道收发器中的发射器的框图。
- [0011] 图6是说明性电缆制造方法的流程图。
- [0012] 图7是说明性有源1：4分支电缆的立体图。

[0013] 图8是说明性1：4分支电缆的功能框图。

具体实施方式

[0014] 尽管在附图和以下描述中给出了特定实施例，但是请记住它们不
5 限制本公开。相反，它们为普通技术人员提供用于辨别包含在所附权利要求
书的范围内的替代形式、等效物和修改的基础。

[0015] 图1是说明性电缆的立体图，该电缆可用于在路由网络中的设备
之间提供高带宽通信链路。路由网络可以是或者包括例如互联网、广域网或
局域网。被链接的设备可以是计算机、交换机、路由器等。电缆包括经由电
10 线106电连接的第一连接器102和第二连接器104。电线106包括通常成对形式
的导电线，诸如具有双轴导体。双轴导体可以比作同轴导体，但其具有两个
内导体而不是一个。内导体可以用差分信号驱动，并且它们的共用屏蔽操作
用于减少与电缆中的其他双轴导体的串扰。根据性能标准，可以采用其他成
对或单端的导体实现。

15 **[0016]** 根据以太网标准，每个导体对可以提供差分信号的单向传输。为
了在甚至扩展的电缆长度(大于，例如，3米、6米或9米)上实现稳健的性能，
每个连接器102、104可以包括在每个方向上执行时钟和数据恢复(CDR)以及数
据流的重新调制的有源收发器。值得注意的是，收发器不仅会在出站数据流
离开电缆时对其执行CDR和重新调制，还会在进站数据流进入电缆时对其进
20 行CDR和重新调制。

[0017] 这里认识到，可以预期进站数据流符合相关标准，并且可以预期
进站数据流遍历网络接口端口的插座引脚和电缆组件的连接器插头引脚，基
本上没有经历劣化。然而，传送网络接口的电子制造商采用的调制质量和均
衡策略通常是未知的，并且标准的最低要求可能不足以在扩展的电缆长度上
25 传输，特别是如果接收网络接口的电子制造商与传送网络接口的电子制造商
不同。与传送网络接口一样，接收网络接口的电子制造商采用的均衡和解调
策略通常是未知的，并且可能无法应对由扩展的电缆长度上的信号传输引起
的衰减和干扰。通过执行进站数据流和出站数据流两者的CDR和重新调制，
可以在不考虑网络接口的电子制造商的情况下确保说明性电缆能够在扩展电

缆长度上的一致稳健的数据传输。

[0018] 图2是图1的说明性电缆的功能框图。连接器102包括插头202，其适于适配第一主机设备302(图3)中的符合标准的以太网端口，以接收入站数据流作为来自主机设备的输入电信号并提供出站数据流作为到主机设备的输出电信号。类似地，连接器104包括适配第二主机设备304的以太网端口的插头204。连接器102包括第一收发器206，用于对在连接器102处进入和离开电缆的数据流执行CDR和重新调制，并且连接器104包括第二收发器208，用于对在连接器104处进入和离开电缆的数据流执行CDR和重新调制。收发器206、208可以是安装在印刷电路板上并经由电路板迹线连接到插头引脚的集成电路。电线106的线可以焊接到印刷电路板上的相应焊盘。

[0019] 每个收发器206、208包括用于与主机设备通信的发射器和接收器组210以及用于经由沿电缆长度的导体对进行发送和接收的发射器和接收器组212。所图示的电缆支持四个双向通信通道LN0-LN3，每个双向通道由两个单向连接形成，每个单向连接具有差动驱动的双轴导体对(这里未示出屏蔽导体)。收发器可选地包括存储器214，用于在发射器和接收器组210、212之间提供先进先出(FIFO)缓冲。控制器216通过例如设置初始均衡参数并确保在使所述发射器和接收器能进入数据传输阶段之前跨所有通道和链路完成训练阶段来协调发射器和接收器的操作。

[0020] 在至少一些预期的实施例中，面向主机的发射器和接收器组210采用与电缆无关的固定均衡参数，即，它们不是在逐个电缆的基础上定制的。面向中心的发射器和接收器组212优选采用在逐个电缆的基础上定制的依赖于电缆的均衡参数。依赖于电缆的均衡参数可以是自适应或固定的，并且可以在电缆的制造商测试期间确定这些参数的初始值。均衡参数可以包括用于发射器中的预均衡器滤波器的滤波器系数值、以及用于接收器的增益和滤波器系数值。

[0021] 图2的说明性电缆可以是两个主机设备302、304之间的点对点通信链路的一部分，如图3的架构图所示。图3示出了使用用于开放系统互连的ISO/IEC模型(参见ISO/IEC 7498-1: 1994.1)的架构，以用于通过诸如由信道306表示的双轴导体对的物理介质上的通信。互连参考模型采用具有定义的功能

能和接口的层的层次结构，以促进由不同团队或供应商对兼容系统的设计和实现。虽然这不是要求，但预期分层结构中的较高层主要由在可编程处理器上操作的软件或固件来实现，而较低层可以实现为专用硬件。

5 **[0022]** 应用层308是模型中的最上层，并且它表示在不同系统上操作的用户应用或其他软件，这些用户应用或其他软件需要用于传递消息或数据的设施。表示层310向这样的应用提供一组应用编程接口(API)(其提供形式语法以及用于数据转换(例如，压缩)的服务)，建立通信会话，无连接通信模式以及协商以使应用软件能够识别可用的服务选项并从中选择。会话层312提供协调数据交换的服务，包括：会话同步、令牌管理、全双工或半双工模式实现
10 以及建立、管理和释放会话连接。在无连接模式下，会话层可以仅仅在会话地址和传输地址之间映射。

[0023] 传输层314为多路复用、端到端序列控制、错误检测、分段、分块(blocking)、级联、各个连接上的流控制(包括挂起/恢复)、以及实现端到端服务质量规范提供服务。传输层314的重点是端到端性能/行为。网络层316提供路由服务，确定用于进行端到端连接的链路，并在必要时充当中继服务以
15 将这些链路耦合在一起。数据链路层318用作到物理连接的接口，提供跨物理连接的定界、同步、序列和流控制。它也可以检测并可选地校正跨物理连接发生的错误。物理层322提供机械、电、功能和程序手段来激活、维持和去激活信道306，并使用信道306用于在物理介质上的比特传输。

20 **[0024]** 数据链路层318和物理层322被IEEE标准802.3-2015稍微细分和修改，IEEE标准802.3-2015在数据链路层318中提供媒体访问控制(MAC)子层320以定义与物理层322的接口，包括帧结构和传输语法。在物理层322内，该标准提供了各种可能的细分，诸如图3中所示的细分，其包括可选的调解子层324、物理编码子层(PCS)326、前向纠错(FEC)子层328、物理媒体附件(PMA)
25 子层330、物理媒体从属(PMD)子层332和自动协商(AN)子层334。

[0025] 可选的调解子层324仅在为MAC子层320和PCS子层326定义的接口之间映射。PCS子层326提供加扰/解扰、数据编码/解码(具有能够实现时钟恢复和比特错误检测的传输码)、块和码元重新分配、PCS对准标记插入/移除以及块级别通道同步和抗扭斜(deskew)。为了通过物理层322的部件实现比特

误码率估计，PCS对准标记通常包括从通道中的直到并包括先前PCS对准标记的先前比特导出的比特交叉奇偶校验(BIP)值。

[0026] FEC子层328提供例如里德-所罗门(Reed-Solomon)编码/解码，其跨通道分布具有受控冗余性的数据块以实现纠错。在一些实施例中(例如，根据IEEE Std 802.3的第91条或提议的第134条)，FEC子层328修改通道的数量(第91条提供20到4通道转换)。

[0027] PMA子层330提供通道重新映射、码元编码/解码、成帧和八比特/码元同步。PMD子层332指定发射/接收的信道信号与对应的比特(或数字码元)流之间的收发器转换。可选的AN子层334被示为PMD子层332的内部元件，并且其实现通信信道的初始启动，以在进入正常操作阶段之前进行自动协商阶段和链路训练阶段。自动协商阶段使端节点能够交换关于其能力的信息，并且训练阶段使得端节点能够以对抗信道非理想性的方式适配发射侧和接收侧均衡滤波器两者。插座336还被示为PMD子层332的一部分以表示物理网络接口端口。

[0028] 连接器102、104具有插头202、204，插头202、204与两个主机设备302、304的插座336配合。在每个连接器内，收发器可以实现面向主机的物理层322A、面向中心的物理层322B、以及将两个物理层桥接在一起的数据链路层340。关于子层的操作的更多信息以及节点和通信介质之间的连接的电气和物理规范(例如，引脚布局、线路阻抗、信号电压和时序)、以及通信介质本身的电气和物理规范(例如，铜缆中的导体布置、衰减限制、传播延迟、信号偏斜)可以在当前的以太网标准中找到，并且任何这样的细节都应该被认为是本领域普通技术人员的知识范围内。

[0029] MAC、调解、PCS、FEC、PMA和PMD子层可以作为专用集成电路来实现，以实现高速率处理和数据传输。接收器和发射器组210、212可以实现PMA和PMD子层。图4和图5是说明性接收器和说明性发射器的框图，其可以是组210、212的一部分。

[0030] 在图4中，接收器400接收模拟电信号(CH_IN)并将其提供给低噪声放大器(LNA)402。LNA 402提供高输入阻抗以最小化信道负载并放大接收的电信号以驱动连续时间线性均衡器(CTLE)滤波器404的输入。CTLE 404提

供连续时间滤波以对信号频谱进行整形，以减小信道脉冲响应的长度，同时最小化前导码元间干扰(ISI)。决策反馈均衡器(DFE)406对经滤波的信号进行操作以校正尾随ISI并检测每个被传送的信道比特或码元，由此产生经解调的数字数据流。一些实施例采用过采样。时钟和数据恢复(CDR)电路408从经滤波的信号和/或数字数据流中提取时钟信号，并将其提供给DFE 406以控制样本和码元检测定时。串并转换电路410将数字数据流比特或码元分组为块，以使得能够使用较低的时钟速率用于随后的芯片上操作。码元或数据块放置在数字接收总线(RXD)上，以便由发射器重新发送到远程端节点。

[0031] 虽然某些预期的电缆实施例不支持自动协商，但是其他预期的实施例确实支持根据以太网标准的自动协商。当得到支持时，自动协商可以由发明人 Yifei Dai, Haoli Qian 和 Jeff Twombly 于2017年3月8日提交的题为“以太网链路扩展方法和设备”的国际专利申请PCT/CN2017/075961中所描述的那样实现。检测器或包信息提取器442监视接收信号以检测自动协商阶段的结束和/或训练阶段帧的开始。

[0032] 在训练阶段，滤波器适配电路440测量DFE 406中的决策元件的输入和输出之间的误差，根据关于自适应滤波的文献中的公知技术采用该误差，以确定对CTLE滤波器404、DFE 406和发送滤波器506中的系数的调整(下面进一步讨论)，并确定是否已实现收敛。包括发送滤波器系数调整和收敛状态的本地生成的信息(LOCAL_INFO)被提供给在数据通道上以反向通信的本地发射器500。如下文中讨论的，本地发射器通过反向信道将发送滤波器调整和收敛状态传送到CH_IN信号的源。在那种情况下，接收到的信号包括来自CH_IN信号的源的反向信道信息。分组信息提取器442检测反向信道信息(BACK_INFO)并将其传递给本地发射器。一旦实现收敛，接收器400就准备好开始正常操作。

[0033] 在图5中，发射机500接收信道比特或码元的块，以便传输到CH_IN信号的源(图4)。在正常操作期间，多路复用器502将来自远程源(在TXD总线上接收)的信道比特或码元的块提供给并行到串行(P2S)电路504。P2S电路将块转换为数字数据流。发送滤波器506，也称为预加强滤波器，将数字数据流转换为具有频谱整形的模拟电信号，以对抗信道劣化。驱动器508放大

模拟电信号以驱动信道输出(CH_OUT)节点。

[0034] 如果支持，则自动协商阶段可以如Y.Dai等人所阐述的那样实现。在训练阶段期间，多路复用器502阻挡来自TXD总线的信息，取而代之向P2S电路504提供来自训练控制器540的训练帧。训练控制器540基于从本地接收器5400接收的收敛状态和发送滤波器系数调整(LOCAL_INFO)来生成训练帧。也就是说，除了训练模式之外，训练帧还包括要由信道的远程端使用的反向信道信息。应注意，即使在本地接收器指示已经发生滤波器收敛之后，训练控制器540也可以延长训练阶段以协调跨通道和沿着信道的每个链路的训练阶段定时。训练帧包括由当前以太网标准(IEEE Std 802.3)的相关部分指定的训练序列。

[0035] 训练控制器540还接收由本地接收器从所接收的由本地端节点发送的训练帧中提取的反向信道信息(BACK_INFO)。训练控制器将相应的调整应用于发送滤波器506的系数。在训练阶段结束时，多路复用器502开始将TXD块转发到P2S电路504。

[0036] 图6是说明性电缆制造方法的流程图。它开始于框602，通常通过将导线端部焊接到安装有收发器的电路板的焊盘上，来将导体对的端部连接到第一收发器和第二收发器。该步骤和随后的步骤可以由自动化制造/测试设备执行。在框604中，设备将每个收发器封装到用于网络电缆的相应端部连接器中。连接器适于与主机设备的网络接口端口配合，并包括与端口中的匹配插座电连接的插头。

[0037] 在框606中，设备测试电缆以验证是否符合性能规范并确定依赖于电缆的均衡参数以供面向中心的发射器和接收器组212使用。在框608中，设备使收发器将均衡参数(包括依赖于电缆的参数和与电缆无关的参数)存储在非易失性存储器中。然后可以将电缆封装并销售给期望在由一系列不同制造商制造的主机设备之间具有稳健性能的客户。

[0038] 尽管在前面的描述中使用了双端电缆，但是所公开的原理也适用于其他电缆设计，包括图7和图8的1：4分支电缆设计。图7是具有第一连接器102的分支电缆的立体图，该分支电缆可以被设计用于发送和接收200Gbps以太网数据流，例如，以50Gbps的4个通道的形式，每个通道使用26.5625 GBd



下的PAM4。四根电线906每个可以携带1个50Gbps的通道或2个25Gbps的通道，每个通道使用26.5625GBd下的PAM4或26.5625GBd下的不归零(NRZ)信令。连接器802-808中的每一个可以被设计用于发送和接收50Gbps以太网数据流。这种分支电缆可用于链接设计用于不同代的以太网标准的主机设备。作为另一

5 示例，第一连接器可以被设计用于发送和接收400Gbps(8个50Gbps PAM4的通道)，而其余连接器中的每一个可以被设计用于发送和接收100Gbps(4个25Gbps NRZ的通道)。

[0039] 图8示出了1:4分支电缆的框图。在图8的示例中，连接器102支持4个通道，而其他连接器802-808中的每一个支持一个通道。因此，连接器

10 802-808包括收发器905，每个收发器905具有由面向主机的发射器和接收器组910以及面向中心的发射器和接收器组912支持的单个面向主机的通道和单个面向中心的通道。虽然这里没有明确示出，但是面向主机的发射器和接收器组910可以包括“变速箱”功能，其将1个PAM4码元通道转换成2个NRZ码元通道，反之亦然。FIFO缓冲器914将面向主机和面向中心的组桥接在一起，并

15 且发射器和接收器组的操作由控制器916协调。

[0040] 对本领域技术人员来说，一旦完全了解以上公开内容，则众多其替代形式、等效物和修改方案将变得显而易见。旨在将权利要求书解释为涵盖包含在所附权利要求书的范围内的所有这些替代形式、等效物和修改方案。

说明书附图

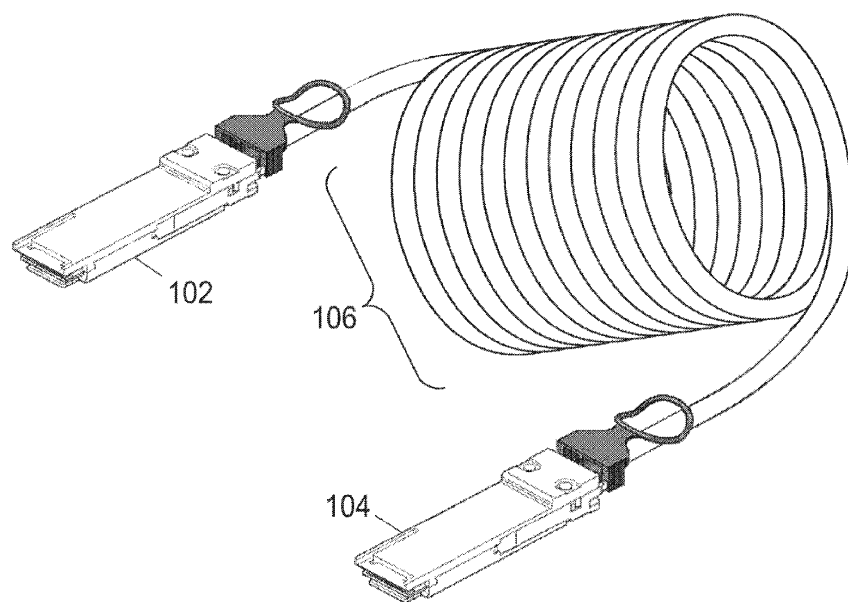


图 1

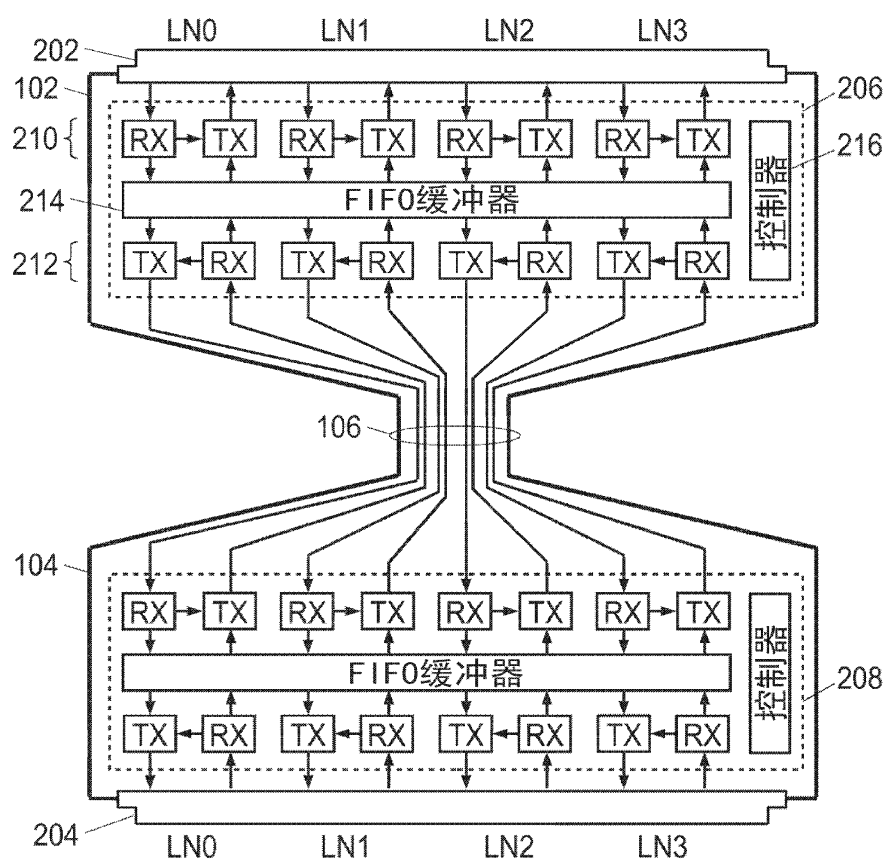


图 2

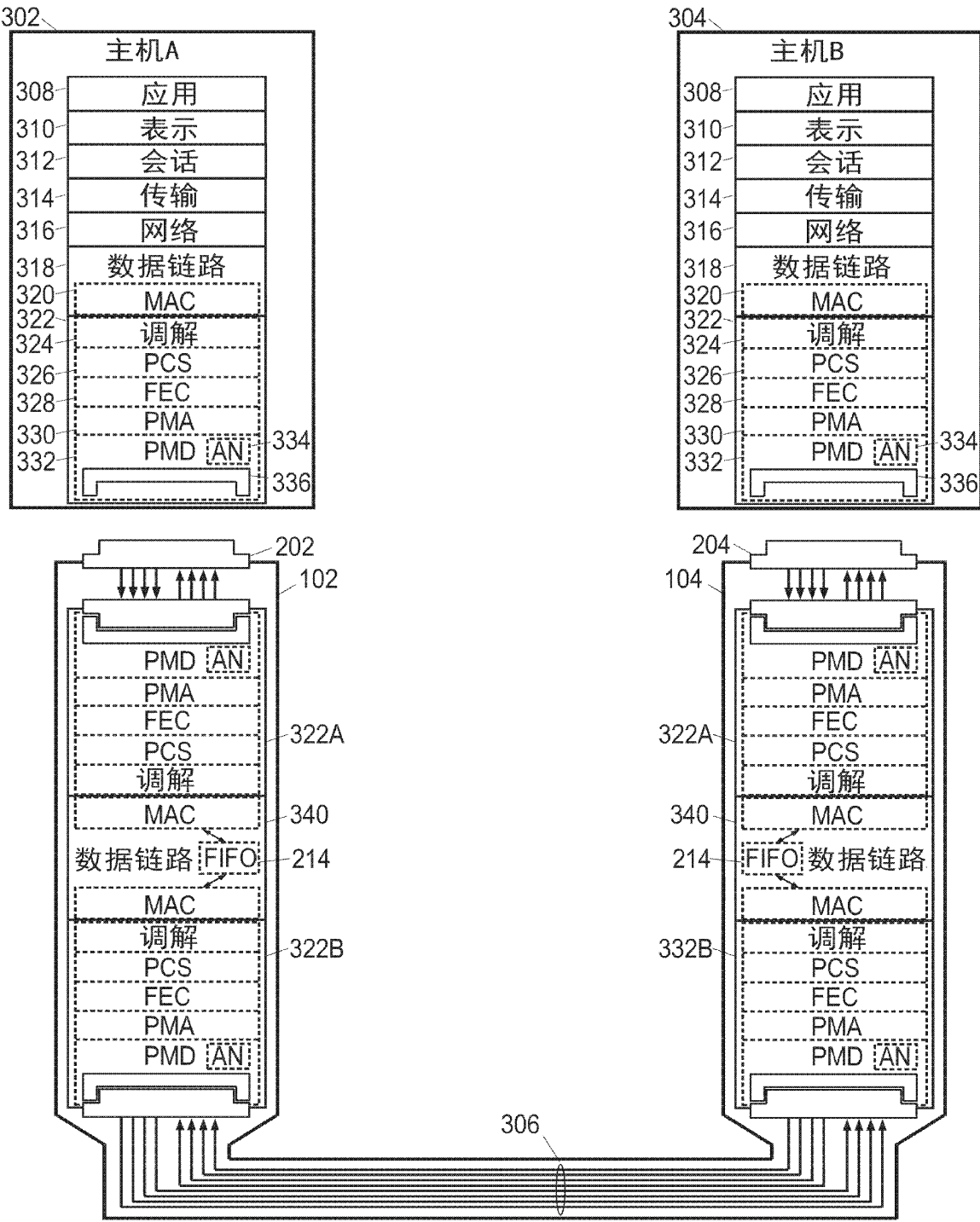


图 3

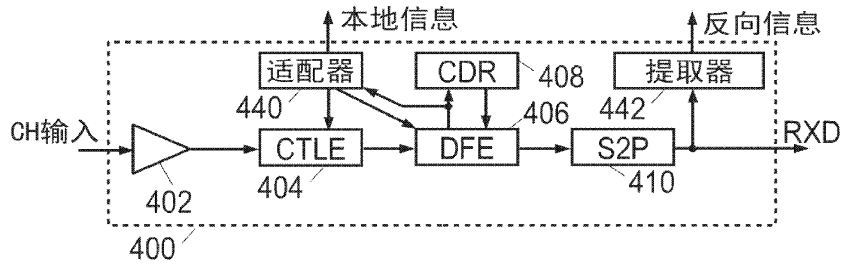


图 4

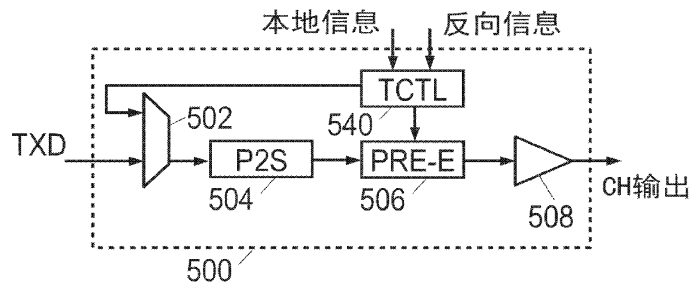


图 5

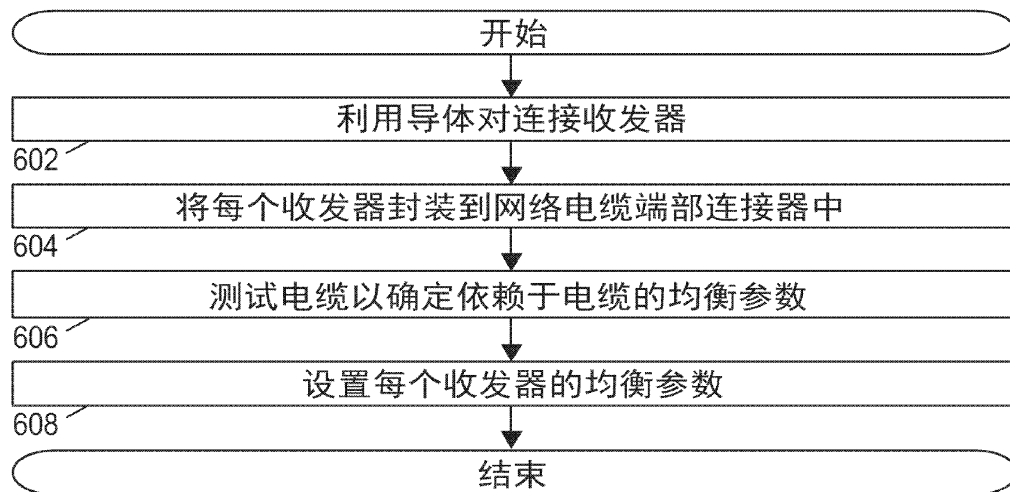


图 6

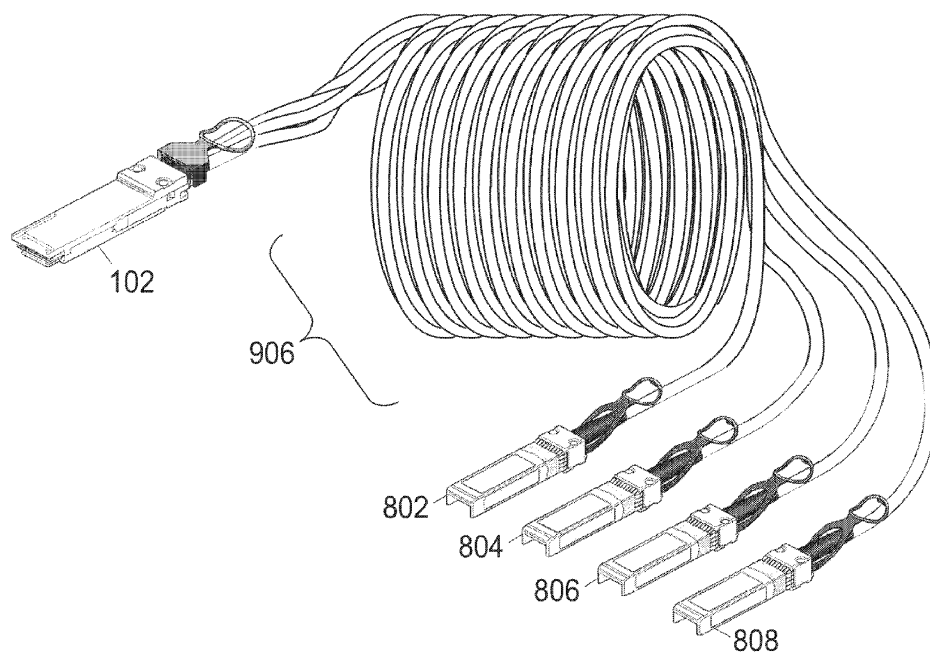


图 7

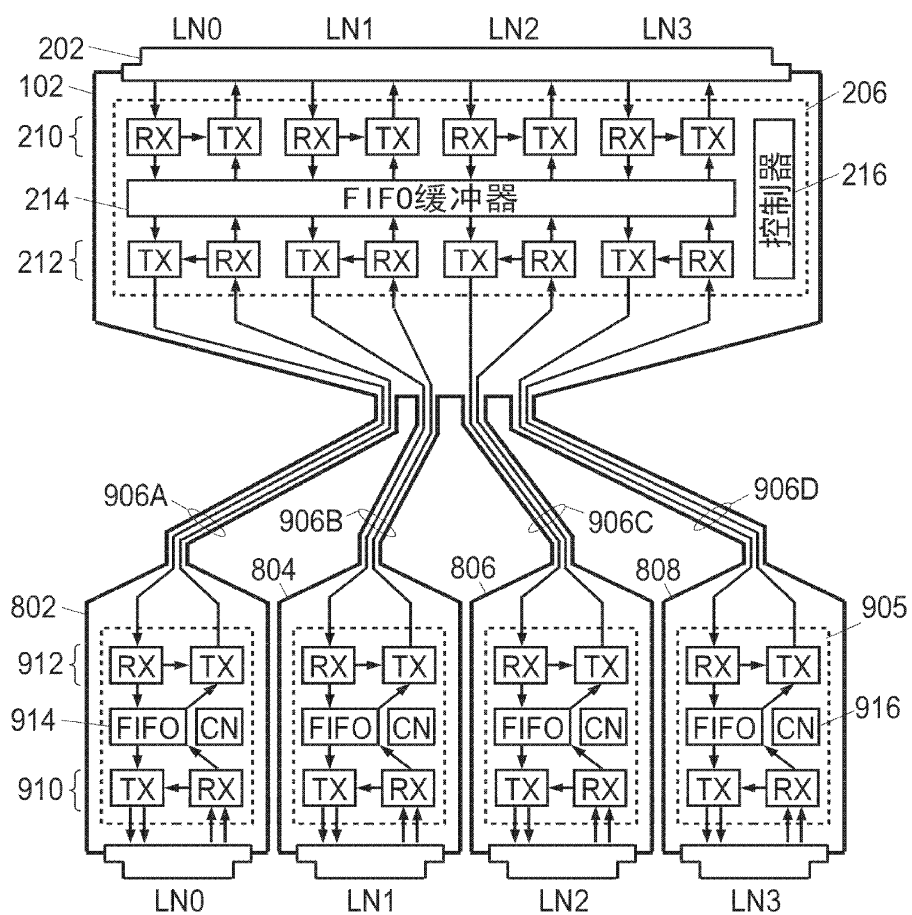


图 8



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/539,910	08/13/2019	2633	785	20160.0039.NPUS00	20	3

CONFIRMATION NO. 8175

REPLACEMENT FILING RECEIPT



0000000115722638

63467

Ramey & Schwaller, LLP
Ramey & Schwaller
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

Date Mailed: 03/26/2020

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

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Applicant(s)

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Assignment For Published Patent Application

CREDO TECHNOLOGY GROUP LIMITED, Grand Cayman, CAYMAN ISLANDS

Power of Attorney: The patent practitioners associated with Customer Number 63467

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

CHINA 201910155535.9 03/01/2019 Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

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If Required, Foreign Filing License Granted: 03/25/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/539,910**

Projected Publication Date: 09/03/2020

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

ACTIVE ETHERNET CABLE

Preliminary Class

375

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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page 2 of 4

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Yattung LAM

Art Unit : 2633

Serial No. : 16/539,910

Examiner : HA, DAC V

Filed : August 13, 2019

Conf. No. : 8175

Title : ACTIVE ETHERNET CABLE

U.S. Patent and Trademark Office
Customer Window, **Mail Stop Amendment**
Randolph Building
401 Dulany Street
Alexandria, VA 22314

RESPONSE TO EX PARTE QUAYLE OF MARCH 11, 2020

This paper is submitted in response to the above-identified office action.

Remarks/Arguments begin on page 2 of this paper.

Applicant : Yattung LAM
Serial No. : 16/539,910
Filed : August 13, 2019
Page : 2 of 2

Attorney's Docket No.: 20160.0039.NPUS00

REMARKS

Claims 1-20 remain pending, and have been allowed subject to correction of a certain informality. In particular, the office noted that it had not received a certified copy of the priority application CN201910155535.9 filed 2019-03-01.

After receiving the office action, applicant submitted an electronic retrieval request, and on 2020-03-26, the patent office electronically retrieved a copy of the priority application. Applicant respectfully submits that the application is now in condition for allowance.

Respectfully submitted,

/Dan Krueger/

Date: 2020-04-21

Electronic Acknowledgement Receipt	
EFS ID:	39222406
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	21-APR-2020
Filing Date:	13-AUG-2019
Time Stamp:	16:45:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2020-04-21_C039RQ_Final_Response.pdf	114637	yes	2
			0a0328c300becc97f09e8e3c64225282bea7f87b		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Response after Ex Parte Quayle Action	1	1
	Applicant Arguments/Remarks Made in an Amendment	2	2
Warnings:			
Information:			
Total Files Size (in bytes):		114637	
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.			



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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

NOTICE OF ALLOWANCE AND FEE(S) DUE

63467 7590 06/04/2020
Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

EXAMINER

HA, DAC V

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 06/04/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175

TITLE OF INVENTION: ACTIVE ETHERNET CABLE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	09/04/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

63467 7590 06/04/2020
Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

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.

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175

TITLE OF INVENTION: ACTIVE ETHERNET CABLE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	09/04/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
HA, DAC V	2633	375-220000

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 03-09 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,

1 _____

(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.

2 _____

3 _____

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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

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

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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 _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175
63467	7590	06/04/2020	EXAMINER	
Ramey & Schwaller, LLP			HA, DAC V	
5020 Montrose Blvd.			ART UNIT	
Suite 800			PAPER NUMBER	
Houston, TX 77006			2633	

DATE MAILED: 06/04/2020

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.** Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/539,910	Applicant(s) LAM et al.	
	Examiner DAC V HA	Art Unit 2633	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 04/21/20.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
a) ☒ All b) ☐ Some *c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/DAC V HA/ Primary Examiner, Art Unit 2633	
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Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Allowable Subject Matter

2. Claims 1-20 are allowed.
3. The following is a statement of reasons for the indication of allowable subject matter:

The present invention relates particularly to Ethernet Cable. Prior art of record (closest reference – Lett – U S2016/0197434), taking individually or collectively, fails to suggest a motivation for incorporating in an Ethernet cable, as claimed as a whole, including claimed subject matter “An active Ethernet cable that comprises:

electrical conductors connected between a first connector and a second connector,

each of the first and second connectors being adapted to fit into an Ethernet port of a corresponding host device to receive from that host device an electrical input signal conveying an inbound data stream to the cable and to provide to that host device an electrical output signal conveying an outbound data stream from the cable,

each of the first and second connectors including a respective transceiver that performs clock and data recovery on the electrical input signal to extract and re-modulate the inbound data stream for transit via the electrical conductors as a respective electrical transit signal conveying a transit data stream” in independent claim 1 and similar claimed subject matter in corresponding independent claims 8, 15 (claims

2-7, 9-14, 16-20 depend therefrom.) Thus, claims 1-20 are allowed over prior art of record.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAC V HA whose telephone number is (571)272-3040. The examiner can normally be reached on 7-3:30 M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Ahn can be reached on 571-272-3044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 16/539,910
Art Unit: 2633

Page 4

/DAC V HA/
Primary Examiner, Art Unit 2633

<i>Search Notes</i> 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

CPC - Searched*		
Symbol	Date	Examiner
H04L 12/2801; H04L 25/4917; H04L 25/03885	03/06/2020	DH
Update	05/22/2020	DH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
BRS and Inventor's search	03/06/2020	DH
PLUS	03/06/2020	DH
NPL	03/06/2020	DH
Update	05/22/2020	DH

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	PGPUB	03/06/2020	DH
	Udgate	05/22/2020	DH

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Issue Classification 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

CPC						
Symbol					Type	Version
H04L		12		2801	F	2013-01-01
H04L		25		03885	I	2013-01-01
H04L		25		4917	I	2013-01-01

CPC Combination Sets					
Symbol				Type	Version

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/DAC V HA/ Primary Examiner, Art Unit 2633	25 May 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Issue Classification 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

INTERNATIONAL CLASSIFICATION			
CLAIMED			
H01R		13	52

NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/DAC V HA/ Primary Examiner, Art Unit 2633	25 May 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Issue Classification 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19										
	2		11		20										
	3		12												
	4		13												
	5		14												
	6		15												
	7		16												
	8		17												
	9		18												

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/DAC V HA/ Primary Examiner, Art Unit 2633 (Primary Examiner) _____ (Date) 25 May 2020		O.G. Print Claim(s) 1	O.G. Print Figure 2

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	6018	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:46
S2	21	((yattung near1 lam) (baohua near1 chen)).in.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:46
S4	0	S2 and ethernet.clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:48
S5	2	S2 and cable.clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:48
S6	1632	(ethernet near2 cable).ab,clm.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01
S7	1501	S6 and (ethernet near2 cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01
S8	224	S7 and (ethernet near2 cable).ab.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01
S9	45	S8 and ((ethernet near2 cable) same transceiv\$4)	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02
S10	6018	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02
S11	3	S9 and S10	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02

S12	42	S9 not S11	US-PGPUB; USPAT	OR	ON	2020/03/04 12:09
S13	158	S8 and ((ethernet near2 cable) with (coupl\$4 connect))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:15
S14	120	S13 not S9	US-PGPUB; USPAT	OR	ON	2020/03/04 12:16
S15	0	S14 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:17
S16	16	S14 and (ethernet near2 cable).ti.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:19
S17	11	("2017/0346200").URPN.	USPAT	OR	ON	2020/03/04 12:21
S18	104	S14 not S16	US-PGPUB; USPAT	OR	ON	2020/03/04 12:23
S19	66	S8 not S13	US-PGPUB; USPAT	OR	ON	2020/03/04 12:33
S20	15	S19 and ((ethernet near2 cable) with (standard\$5))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:34
S21	2	("9322704" "7401985").pn.	US-PGPUB; USPAT	OR	ON	2020/03/04 13:30
S22	77	("7401985").URPN.	USPAT	OR	ON	2020/03/04 13:31
S23	78	("20010035994" "20020018609" "20020044746" "20020049879" "20020063935" "20020114590" "20020136510" "20020149821" "20020159725" "20020160656" "20030016920" "20030021580" "20030034963" "20030208779"	US-PGPUB; USPAT; USOCR	OR	ON	2020/03/04 13:31

		"20030223756" "20040008996" "20040076119" "20040141695" "20040184746" "20040208600" "20040263941" "20050036746" "20050053340" "20050063707" "20050063711" "20050078916" "20050105910" "20050105915" "20050180700" "20050238358" "20050249477" "20050286593" "20050286893" "20060008276" "20060036788" "20060045437" "20060049936" "20060067690" "20060077778" "20060083518" "20060088251" "20060093280" "20060142744" "4427879" "4768188" "4902092" "5337398" "5497187" "5515467" "5530787" "5631988" "5668419" "5732176" "5926303" "6036654" "6179627" "6217231" "6220873" "6267606" "6446867" "6458619" "6461059" "6478625" "6502997" "6540412" "6607307" "6758693" "6774348" "6793539" "6905257" "6914637" "6941395" "6952395" "6965722" "7065604" "7088518" "7162130" "7217022").PN.				
S24	1	S21 and (modulat\$5 clock\$4)	US- PGPUB; USPAT	OR	ON	2020/03/04 13:46
S25	381	cable.ab. and cable.clm. and (ethernet near1 port)	USPAT	OR	ON	2020/03/04 13:56
S26	372	S25 and (transceiv\$4 transmit\$4 receiv\$4)	USPAT	OR	ON	2020/03/04 13:56
S27	7	S26 and (cdr (clock near3 recover\$4))	US- PGPUB; USPAT	OR	ON	2020/03/04 13:56
S29	4	S27 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/04 13:57
S30	142	S26 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/04 13:57

S31	500	(active with ethernet with cable)	US-PGPUB; USPAT	OR	ON	2020/03/04 13:58
S32	7	S25 and S31	US-PGPUB; USPAT	OR	ON	2020/03/04 13:58
S33	217	S31 and (transceiv\$4 transmit\$4 receiv\$4)	USPAT	OR	ON	2020/03/04 13:59
S34	55	S33 and (ethernet near1 port)	USPAT	OR	ON	2020/03/04 13:59
S36	48	S34 not S32	US-PGPUB; USPAT	OR	ON	2020/03/04 14:01
S37	500	(active with ethernet with cable)	US-PGPUB; USPAT	OR	ON	2020/03/05 07:53
S38	200	S37 and modulat\$4	US-PGPUB; USPAT	OR	ON	2020/03/05 07:53
S39	11	S38 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/05 07:53
S41	8639810	s "37"(ethernet with cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S42	500	(active with ethernet with cable)	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S43	67	S42 and (ethernet with cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S44	706	(ethernet with (link cable)) same (electrica\$4 near2 conduct\$4)	US-PGPUB; USPAT	OR	ON	2020/03/06 13:34
S45	458	S44 and (connect\$4 with (transceiv\$4 transmit\$4 receiv\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:34

S46	24	S45 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S47	24	S46 and modulat\$4	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S48	6020	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S49	0	S47 and S48	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S50	81	S45 and (ethernet with (link cable)) .clm.	US-PGPUB; USPAT	OR	ON	2020/03/06 13:40
S51	75	S50 not S47	US-PGPUB; USPAT	OR	ON	2020/03/06 13:41
S52	50	S51 and (pair with (wire twist\$4 conduct\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:42
S53	24	("2014/0258742").URPN.	USPAT	OR	ON	2020/03/06 13:43
S54	244	g02b6/36.cpc.	USPAT	OR	ON	2020/03/06 13:56
S55	0	S44 and S54	USPAT	OR	ON	2020/03/06 13:56
S56	9	S54 and ethernet	USPAT	OR	ON	2020/03/06 13:56
S57	89	("20020031955" "20020048990" "20030031025" "20030157842" "20030199192" "20030222786" "20040038564" "20040160774" "20050037672" "20050224585" "20060134996" "20060162947" "20060232385" "20070105453" "20070116411" "20070190863" "20080020658" "20080122579"	US-PGPUB; USPAT; USOCR	OR	ON	2020/03/06 13:57

		"20090042431" "20090269973" "20100079248" "20100098425" "20110043333" "20110116748" "20120058689" "20120064750" "20130052860" "20140035755" "20160020975" "20170293102" "3960428" "4761720" "4837488" "5159316" "5666453" "5741152" "5764043" "5888100" "6002331" "6080007" "6099345" "6244908" "6280232" "6394853" "6524128" "6532328" "6558204" "6577243" "6790096" "6798183" "6811445" "6975242" "7049937" "7080945" "7081808" "7168994" "7221284" "7335066" "7374458" "7547150" "7549886" "7556536" "7651361" "7760094" "7772975" "7782202" "7910833" "7910834" "7920764" "7940182" "7960648" "7965186" "7972183" "8043124" "8210755" "8264355" "8277260" "8465317" "8606972" "8611234" "8620123" "8702453" "8747141" "9196975" "9230416" "9577904" "9810859" "9952258" "9995432").PN.				
S58	17	S57 and ethernet	USPAT	OR	ON	2020/03/06 13:57
S59	22	((yattung near1 lam) (baohua near1 chen)).in.	US- PGPUB; USPAT	OR	ON	2020/05/21 10:12
S60	0	S59 and ethernet.clm.	US- PGPUB; USPAT	OR	ON	2020/05/21 10:12
S61	2	S59 and cable.clm.	US- PGPUB; USPAT	OR	ON	2020/05/21 10:13
S62	25	("2014/0258742").URPN.	USPAT	OR	ON	2020/05/21 10:14
S63	0	("2018/0241579").URPN.	USPAT	OR	ON	2020/05/21 10:28

S64	0	("2016/0197434").URPN.	USPAT	OR	ON	2020/05/21 10:29
S65	0	("2016/0099861").URPN.	USPAT	OR	ON	2020/05/21 10:29
S66	6	("2010/0267283").URPN.	USPAT	OR	ON	2020/05/21 10:29

5/25/2020 10:48:40 AM

C:\Users\dha\Documents\EAST\Workspace2\16539910.wsp



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BIB DATA SHEET

CONFIRMATION NO. 8175

SERIAL NUMBER 16/539,910	FILING or 371(c) DATE 08/13/2019 RULE	CLASS 375	GROUP ART UNIT 2633	ATTORNEY DOCKET NO. 20160.0039.NPUS00		
APPLICANTS CREDO TECHNOLOGY GROUP LIMITED, Grand Cayman, CAYMAN ISLANDS; INVENTORS Yattung LAM, San Jose, CA; Baohua CHEN, Xiamen City, CHINA; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** CHINA 201910155535.9 03/01/2019 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 03/25/2020						
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☒ Yes ☐ No Verified and /DAC V HA/ Acknowledged Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 4	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS Ramey & Schwaller, LLP 5020 Montrose Blvd. Suite 800 Houston, TX 77006 UNITED STATES						
TITLE ACTIVE ETHERNET CABLE						
FILING FEE RECEIVED 785	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY.DOCKET NO./TITLE	REQUEST ID
16/539,910	08/13/2019	CREDO TECHNOLOGY GROUP LIMITED	20160.0039.NPUS00	114619

Acknowledgement of Loss of Entitlement to Entity Status Discount

The entity status change request below filed through Private PAIR on 06/18/2020 has been accepted.

CERTIFICATIONS:

Change of Entity Status:

☒ Applicant changing to regular undiscounted fee status.

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

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Signature:	/Daniel J. Krueger/
Name:	Daniel J. Krueger
Registration Number:	42771

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor:
Yattung LAM et al.

U.S. Application No. 16/539,910

Filed: August 13, 2019

Title: ACTIVE ETHERNET CABLE

Atty. Docket No. 20160.0039.NPUS00

Confirmation No.: 8175

Examiner: Ha, Dac V

Group Art Unit: 2633

ENTITY STATUS CHANGE AND SUBMISSION OF CORRECTIVE FEE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In connection with the above-captioned patent application, this letter serves as a Notification of Loss of Entitlement to Small Entity Status.

A review of the fee payment history in connection with the subject application indicates that the filing, search and examination fees were inadvertently paid at a small entity rate instead of the large entity fee, thus creating an outstanding shortage of \$935. Applicant respectfully submits the remaining fees as required for a large entity. Please charge our credit card for the fees set forth above. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 60-2539 (20160.0039.NPUS00).

Respectfully submitted,

Date: June 18, 2020

/Daniel J. Krueger/
Registration No. 42,771
Attorney for Applicant
Ramey & Schwaller, LLP
5020 Montrose Blvd, Suite 800
Houston, TX 77006
Tel 713-426-3923x304
docketing@rameyfirm.com

Electronic Patent Application Fee Transmittal				
Application Number:		16539910		
Filing Date:		13-Aug-2019		
Title of Invention:		ACTIVE ETHERNET CABLE		
First Named Inventor/Applicant Name:		Yattung LAM		
Filer:		Daniel Joseph Krueger/Shanay Hines		
Attorney Docket Number:		20160.0039.NPUS00		
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:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
PROCESSING FEE FOR PROVIS. APPLICATIONS	1807	1	50	50
SUBMISSION AFTER FINAL REJECTION	1809	1	840	840
PRINTED COPY OF PATENT - NO COLOR	8001	15	3	45
Total in USD (\$)				935

Electronic Acknowledgement Receipt	
EFS ID:	39767786
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	18-JUN-2020
Filing Date:	13-AUG-2019
Time Stamp:	23:02:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$935
RAM confirmation Number	E20206HN02546536
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	20160-0039-NPUS00_Entity- Status-Change-and- Corrective_Fee.pdf	111571	no	1
			14367668a683e3a113e5f07d0617ca4732ddfffb		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	33434	no	2
			a155de1e207837a83d213f064e8c8b2f41285ab8		
Warnings:					
Information:					
Total Files Size (in bytes):			145005		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00

CONFIRMATION NO. 8175

63467
Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

PUBLICATION NOTICE



Title:ACTIVE ETHERNET CABLE

Publication No.US-2020-0280458-A1

Publication Date:09/03/2020

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PART B – FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By fax, send to: (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)

Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

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.

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Shanay Hines	(Typed or printed name)
/Shanay Hines/	(Signature)
September 3, 2020	(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175

TITLE OF INVENTION:

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
16/539,910	Undiscounted	\$1,000			\$1,000	09/04/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
HA, DAC V	2633	375-220000

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 03-09 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.

1. Ramey & Schwaller LLP
2. Daniel J. Krueger
- 3.

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Credo Technology Group Limited

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

Grand Cayman, CAYMEN ISLANDS

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government4a. Fees Submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

- ☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29. 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.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27. NOTE: If the application was previously under micro entity status, checking this box will be taken as a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status. NOTE: Checking this box will be taken as 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 /Daniel J. Krueger/

Date September 3, 2020

Typed or printed name Daniel Krueger

Registration No. 42771

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	40465645
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	03-SEP-2020
Filing Date:	13-AUG-2019
Time Stamp:	14:00:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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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)	ptol85b.pdf	330136	no	2
			d5c66542b69e4caa6436c2363ac58f59e3119497		

Warnings:

Information:	
Total Files Size (in bytes):	330136
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.	

REQUEST FOR REFUND

Reference # (Patent #, Application #, Trademark Serial #, Registration #, etc.)		Title of Invention or Mark Information	
16/539,910		ACTIVE ETHERNET CABLE	
Attorney Docket # (if applicable)	Payment Date (mm/dd/yyyy)	Refund Request Amount	
20160.0039.NPUS00	09/02/2020	\$ 1,000.00	
Refund Option (Select one)			
☒ If approved, issue the refund to the account associated with the original payment.			
☐ If approved, and the original payment was a check, issue the refund to deposit account # _____.			
☐ If approved, and the original payment was a check, issue the refund as a U.S. Treasury check.			
Reason for Refund Request Refund requests must generally be filed within 2 years of payment date (37 CFR 1.26 and 2.209)			
☒ Duplicate Payment	☐ No Fee Due	☐ Office Error	
☐ Small Entity Later Established* (*must be filed within 3 months of payment date, 37 CFR 1.28)	☐ Other _____		
Rationale (Supporting documentation may be submitted with this form)			
Please see attached the USPTO credit card payment receipt for transaction ID #E202092I01174206 posted on September 2, 2020. There was a duplicate payment for the issue fee made. Please issue a refund for one of the two \$1,000.00 payments that were made.			

Requester's Information

Company or Firm Name (if applicable)		
Ramey & Schwaller, LLP		
Address Line 1	City	State/Region
5020 Montrose Blvd, Suite 800	Houston	Texas
Address Line 2 (if applicable)	Country	Zip/Postal Code
	United States	77006
Email Address (You will receive an acknowledgment of receipt only if you provide a valid email address)		Phone Number
shines@rameyfirm.com		713-426-3923
Requester's Name		Registration Number (if applicable)
Daniel Krueger		42771
Signature		Date (mm/dd/yyyy)
/Daniel Krueger/		06/12/2020

Submit online: [EFS-Web](#) (registered users only; select "Request for Refund" from the document description menu), or

Fax to: 571-273-6500, or

Mail to: Director of the U.S. Patent and Trademark Office, Attn: Refunds, 2051 Jamieson Avenue, Suite 300, Alexandria, VA 22314

**USPTO**United States Patent
and Trademark OfficeP.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Transaction Details

CREDIT / DEBIT CARD *****2005

Amex2

TYPE	DATE POSTED	STATUS	TRANSACTION ID	TOTAL PAYMENT (+) / TOTAL REFUND (-)
Payment	09/02/2020	Processed	E202092H01174206	\$1,000.00

Sale Item Reference #	Attorney Docket #	Status	Sale ID	Fee Code	Qty	Item Price	Item Total	Custom
1853991G	20180.6039.NPJ3500	Processed	E202092H01174206	1501	1	\$1,000.00	\$1,000.00	Shenay

An asterisk (*) in the Sale ID column means that an item with that Sale ID may have been paid for by more than one transaction.
A caret (^) in the Sale ID column means that only a partial payment for an item with that sale ID has been received by USPTO.

Electronic Acknowledgement Receipt	
EFS ID:	40468021
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	03-SEP-2020
Filing Date:	13-AUG-2019
Time Stamp:	15:51:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Refund Request	Refund_Request_Form_.pdf	682980	no	1
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Warnings:

Information:					
2	Miscellaneous Incoming Letter	Fee_Transaction_ID_.pdf	110903	no	1
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Warnings:					
Information:					
Total Files Size (in bytes):			793883		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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

Office of the Chief Financial Officer

September 15, 2020

RAMEY & SCHWALLER LLP
Attn: DANIEL KRUEGER
5020 MONTROSE BLVD,
STE 800
HOUSTON, TX 77006

Dear Sir/Madam,

The United States Patent and Trademark Office (USPTO) has reviewed your refund request for Reference Number **16539910** - Refund Request ID **REFND-20200908-27518**. Below is the current status of your refund request assigned to the following processing area: Patent Publication Branch

Fee code	Decision	Decision Reason(s)	Refund Amount
1501	Approved	Duplicate Payment	\$1,000.00

Generally, approved refunds will be issued in the form that the original payment was provided. You will receive a separate decision letter for any additional fee codes assigned to other processing areas, if applicable. Decisions may be subject to change if an error is identified.

For questions related to this decision, contact Kimberly House at (703) 756-1568 or kimberly.terrell@USPTO.GOV.

Thank you,
Refund Branch



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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	10/13/2020	10805103	20160.0039.NPUS00	8175

63467 7590 09/23/2020
Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

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 0 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):

Yattung LAM, San Jose, CA;
CREDO TECHNOLOGY GROUP LIMITED, Grand Cayman, CAYMAN ISLANDS;
Baohua CHEN, Xiamen City, CHINA;

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	DAC V HA
	Attorney Docket Number	20160.0039.NPUS00

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	9337993	B1	2016-05-10	Lugthart et al.			
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U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	20200280329	A1	2020-09-03	Brennan et al.			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	111641090	CN	A	2020-09-08	Credo Tech Group Ltd	corresponds with US publication no. 2020280329A1	
If you wish to add additional Foreign Patent Document citation information please click the Add button.							Add	
NON-PATENT LITERATURE DOCUMENTS							Remove	
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.						T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		16539910
	Filing Date		2019-08-13
	First Named Inventor	Yattung LAM	
	Art Unit	2633	
	Examiner Name	DAC V HA	
	Attorney Docket Number	20160.0039.NPUS00	

1	Non-Final Office Action in U.S. Application 16/541,094 dated September 9, 2020
2	Corresponds to U.S. Application no. 16/698,935 dated November 27, 2019
3	Corresponds to U.S. Application no. 16/541,094 dated August 14, 2019
4	Corresponds to U.S. Application no. 16/693,144 dated November 22, 2019

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	DAC V HA
	Attorney Docket Number	20160.0039.NPUS00

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Dan Krueger/	Date (YYYY-MM-DD)	2020-09-24
Name/Print	Daniel J. Krueger	Registration Number	42771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	40664640
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	24-SEP-2020
Filing Date:	13-AUG-2019
Time Stamp:	22:02:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SB08.pdf	612354	no	4
			999a4d587191730849bccfcf0e055f3bfff766b3		

Warnings:

Information:					
2	Other Reference-Patent/App/Search documents	2020-09-09_16541094_NFOA.pdf	1024671	no	26
			9cb6818d41e7c60bb03414e0fc0c548babe86c6		
Warnings:					
Information:					
Total Files Size (in bytes):			1637025		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

Electronic Patent Application Fee Transmittal				
Application Number:		16539910		
Filing Date:		13-Aug-2019		
Title of Invention:		ACTIVE ETHERNET CABLE		
First Named Inventor/Applicant Name:		Yattung LAM		
Filer:		Daniel Joseph Krueger/Shanay Hines		
Attorney Docket Number:		20160.0039.NPUS00		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
PETITION FEE- 37 CFR 1.17(H) (GROUP III)	1464	1	140	140
RCE- 1ST REQUEST	1801	1	1300	1300
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1440



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date : September 25, 2020

In re Application of :

Yattung LAM

DECISION ON PETITION

UNDER CFR 1.313(c)(2)

Application No : 16539910

Filed : 13-Aug-2019

Attorney Docket No : 20160.0039.NPUS00

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed September 25, 2020, to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED**.

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 2633 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt	
EFS ID:	40669675
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	25-SEP-2020
Filing Date:	13-AUG-2019
Time Stamp:	16:27:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1440
RAM confirmation Number	E20209OG27137047
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Quick Path Information Disclosure Statement	QPIDS_form.pdf	188653	no	2
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Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	SB08_quick_path.pdf	612389	no	4
			909a2bdfce38335d8a9c4fc0be8fe05538ebb55b5		
Warnings:					
Information:					
3	Petition automatically granted by EFS	petition-request.pdf	31450	no	2
			a3989023830a374c552307d8b973d808ce2eb114		
Warnings:					
Information:					
4	Request for Continued Examination (RCE)	Final_RCE.pdf	196297	no	3
			6e490134d46fc79cdabc90d29a54c6e7de0670033		
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	32202	no	2
			b1edb2f50cdf70cf148401dc5f2912024a1466f8		
Warnings:					
Information:					
Total Files Size (in bytes):			1060991		

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.

CERTIFICATION AND REQUEST FOR CONSIDERATION OF AN INFORMATION DISCLOSURE STATEMENT FILED AFTER PAYMENT OF THE ISSUE FEE UNDER THE QPIDS PROGRAM	
Non-Provisional Application Number: 16/539,910	Filing Date: August 13, 2019
First Named Inventor: HA, DAC V	Title of Invention: ACTIVE ETHERNET CABLE
THE UNDERSIGNED HEREBY CERTIFIES AND REQUESTS THE FOLLOWING FOR THE ABOVE-IDENTIFIED APPLICATION. 1. Consideration is requested of the information disclosure statement (IDS) submitted herewith, which is being filed after payment of the issue fee. 2. Check the box next to the appropriate selection: ☐ Each item of information contained in the IDS was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the IDS. See 37 CFR 1.97(e)(1). OR ☒ No item of information contained in the IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the IDS was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the IDS. See 37 CFR 1.97(e)(2). OR ☐ See attached certification statement in compliance with 37 CFR 1.97(e). 3. Please charge the IDS fee set forth in 37 CFR 1.17(p) to Deposit Account No. _____. 4. A Petition to Withdraw from Issue After Payment of the Issue Fee (37 CFR 1.313(c)(2)), including the petition fee set forth in 37 CFR 1.17(h), is submitted herewith as a Web-based ePetition. WARNING: Do <u>not</u> submit the petition as a follow-on paper via EFS-Web. Submit the petition as a Web-based ePetition by signing on to EFS-Web as a registered user, selecting the radio button next to "Existing application/patent," and then selecting the radio button next to "ePetition (for automatic processing and immediate grant, if all petitions requirements are met)." Failure to use the Web-based ePetition interface will result in automatic entry of the RCE. 5. A request for continued examination (RCE) under 37 CFR 1.114 and the RCE fee under 37 CFR 1.17(e) are submitted herewith. 6. The RCE will be treated as a "conditional" RCE. In the event the examiner determines that any item of information contained in the IDS necessitates the reopening of prosecution in the application, the undersigned understands that (i) the RCE will be processed and treated as an RCE under 37 CFR 1.114 and therefore (ii) the IDS fee under 37 CFR 1.17(p) will be returned in accordance with 37 CFR 1.97(b)(4). In the event that no item of information in the IDS necessitates reopening prosecution, the undersigned understands that the RCE will not be processed and the RCE fee under 37 CFR 1.17(e) will be returned. 7. This certification and request is being filed as a Web-based ePetition and is not accompanied by an amendment to the application. Inclusion of an amendment will result in automatic entry of the RCE.	
Signature /Daniel J. Krueger/	Date September 25, 2020
Name (Print/Typed) Daniel J. Krueger	Practitioner Registration Number (If applicable) 42771
Note: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required in accordance with 37 CFR 1.33 and 11.18. Please see 37 CFR 1.4(d) for the form of the signature. If necessary, submit multiple forms for more than one signature, see below.*	
☐ *Total of _____ forms are submitted.	

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	DAC V HA
	Attorney Docket Number	20160.0039.NPUS00

U.S.PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	9337993	B1	2016-05-10	Lugthart et al.			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S.PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	20200280329	A1	2020-09-03	Brennan et al.			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	111641090	CN	A	2020-09-08	Credo Tech Group Ltd	corresponds with US publication no. 2020280329A1	
If you wish to add additional Foreign Patent Document citation information please click the Add button.							Add	
NON-PATENT LITERATURE DOCUMENTS							Remove	
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.						T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		16539910
	Filing Date		2019-08-13
	First Named Inventor	Yattung LAM	
	Art Unit	2633	
	Examiner Name	DAC V HA	
	Attorney Docket Number	20160.0039.NPUS00	

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3	Corresponds to U.S. Application no. 16/541,094 dated August 14, 2019
4	Corresponds to U.S. Application no. 16/693,144 dated November 22, 2019

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	DAC V HA
	Attorney Docket Number	20160.0039.NPUS00

CERTIFICATION STATEMENT

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That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Daniel J. Krueger/	Date (YYYY-MM-DD)	2020-09-25
Name/Print	Daniel J. Krueger	Registration Number	42771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc Code: PET.AUTO Document Description: Petition automatically granted by EFS-Web		PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request	PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)	
Application Number	16539910	
Filing Date	13-Aug-2019	
First Named Inventor	Yattung LAM	
Art Unit	2633	
Examiner Name	DAC HA	
Attorney Docket Number	20160.0039.NPUS00	
Title	ACTIVE ETHERNET CABLE	
An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary. APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c). A grantable petition requires the following items: (1) Petition fee; and (2) One of the following reasons: (a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable; (b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or (c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).		
Petition Fee		
☐ Small Entity		
☐ Micro Entity		
☒ Regular Undiscounted		
Reason for withdrawal from issue		

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	DAC V HA
	Attorney Docket Number	20160.0039.NPUS00

U.S.PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	9337993	B1	2016-05-10	Lugthart et al.			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S.PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	20200280329	A1	2020-09-03	Brennan et al.			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	111641090	CN	A	2020-09-08	Credo Tech Group Ltd	corresponds with US publication no. 2020280329A1	
If you wish to add additional Foreign Patent Document citation information please click the Add button.							Add	
NON-PATENT LITERATURE DOCUMENTS							Remove	
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.						T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16539910
Filing Date	2019-08-13
First Named Inventor	Yattung LAM
Art Unit	2633
Examiner Name	DAC V HA
Attorney Docket Number	20160.0039.NPUS00

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4	Corresponds to U.S. Application no. 16/693,144 dated November 22, 2019

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/DAC V HA/	Date Considered	10/01/2020
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	First Named Inventor	Yattung LAM
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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

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Signature	/Daniel J. Krueger/	Date (YYYY-MM-DD)	2020-09-25
Name/Print	Daniel J. Krueger	Registration Number	42771

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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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	Examiner Name	DAC V HA
	Attorney Docket Number	20160.0039.NPUS00

U.S.PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
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If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S.PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	20200280329	A1	2020-09-03	Brennan et al.			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	111641090	CN	A	2020-09-08	Credo Tech Group Ltd	corresponds with US publication no. 2020280329A1	
If you wish to add additional Foreign Patent Document citation information please click the Add button.							Add	
NON-PATENT LITERATURE DOCUMENTS							Remove	
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.						T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16539910
Filing Date	2019-08-13
First Named Inventor	Yattung LAM
Art Unit	2633
Examiner Name	DAC V HA
Attorney Docket Number	20160.0039.NPUS00

1	Non-Final Office Action in U.S. Application 16/541,094 dated September 9, 2020
2	Corresponds to U.S. Application no. 16/698,935 dated November 27, 2019
3	Corresponds to U.S. Application no. 16/541,094 dated August 14, 2019
4	Corresponds to U.S. Application no. 16/693,144 dated November 22, 2019

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/DAC V HA/	Date Considered	10/01/2020
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	DAC V HA
	Attorney Docket Number	20160.0039.NPUS00

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Dan Krueger/	Date (YYYY-MM-DD)	2020-09-24
Name/Print	Daniel J. Krueger	Registration Number	42771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	16/539,910
Filing Date	August 13, 2019
First Named Inventor	Yattung LAM
Art Unit	2633
Examiner Name	DAC HA
Attorney Docket Number	20160.0039.NPUS00

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

- a. ☒ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ii. ☐ Other _____
- b. ☒ Enclosed
- i. ☐ Amendment/Reply
- iii. ☐ Information Disclosure Statement (IDS)
- ii. ☐ Affidavit(s)/ Declaration(s)
- iv. ☒ Other Outstanding RCE fee

2. **Miscellaneous**

- a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. ☐ Other _____

3. **Fees**

- The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
- The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 60-2539.
- a. ☒ RCE fee required under 37 CFR 1.17(e)
- i. ☒ RCE fee required under 37 CFR 1.17(e)
- ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)
- iii. ☐ Other _____
- b. ☐ Check in the amount of \$ _____ enclosed
- c. ☐ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Daniel J. Krueger/	Date	2020-10-07
Name (Print/Type)	Daniel J. Krueger	Registration No.	42771

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature		Date	
Name (Print/Type)			

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Instruction Sheet for RCEs

(not to be submitted to the USPTO)

NOTES:

An RCE is not a new application, and filing an RCE will not result in an application being accorded a new filing date.

Filing Qualifications:

The application must be a utility or plant application filed on or after June 8, 1995. The application cannot be a provisional application, a utility or plant application filed before June 8, 1995, a design application, or a patent under reexamination. See 37 CFR 1.114(e).

Filing Requirements:

Prosecution in the application must be closed. Prosecution is closed if the application is under appeal, or the last Office action is a final action, a notice of allowance, or an action that otherwise closes prosecution in the application (e.g., an Office action under *Ex parte Quayle*). See 37 CFR 1.114(b).

A submission and a fee are required at the time the RCE is filed. If reply to an Office action under 35 U.S.C. 132 is outstanding (e.g., the application is under final rejection), the submission must meet the reply requirements of 37 CFR 1.111. If there is no outstanding Office action, the submission can be an information disclosure statement, an amendment, new arguments, or new evidence. See 37 CFR 1.114(c). The submission may be a previously filed amendment (e.g., an amendment after final rejection).

WARNINGS:

Request for Suspension of Action:

All RCE filing requirements must be met before suspension of action is granted. A request for a suspension of action under 37 CFR 1.103(c) does not satisfy the submission requirement and does not permit the filing of the required submission to be suspended.

Improper RCE will NOT toll Any Time Period:

Before Appeal - If the RCE is improper (e.g., prosecution in the application is not closed or the submission or fee has not been filed) and the application is not under appeal, the time period set forth in the last Office action will continue to run and the application will be abandoned after the statutory time period has expired if a reply to the Office action is not timely filed. No additional time will be given to correct the improper RCE.

Under Appeal - If the RCE is improper (e.g., the submission or the fee has not been filed) and the application is under appeal, the improper RCE is effective to withdraw the appeal. Withdrawal of the appeal results in the allowance or abandonment of the application depending on the status of the claims. If there are no allowed claims, the application is abandoned. If there is at least one allowed claim, the application will be passed to issue on the allowed claim(s). See MPEP 1215.01.

See MPEP 706.07(h) for further information on the RCE practice.

Privacy Act Statement

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:		16539910		
Filing Date:		13-Aug-2019		
Title of Invention:		ACTIVE ETHERNET CABLE		
First Named Inventor/Applicant Name:		Yattung LAM		
Filer:		Daniel Joseph Krueger/Shanay Hines		
Attorney Docket Number:		20160.0039.NPUS00		
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:				
PETITION FEE- 37 CFR 1.17(H) (GROUP III)	1464	1	140	140
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1360	1360
Total in USD (\$)				1500

Electronic Acknowledgement Receipt	
EFS ID:	40787829
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	07-OCT-2020
Filing Date:	13-AUG-2019
Time Stamp:	21:08:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$1500
RAM confirmation Number	E202007L08453891
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2020-10-07_Fee_Transmittal_Form_.pdf	242211	no	2
			63f7be0b5457dec7804523b9e437bfc38f5eb5e		
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	2020-10-07_Final_RCE_0.pdf	197848	no	3
			96999c86cd18eaa9fd3947f6be31d28cdd7955e7		
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32253	no	2
			c0116db62af3f185801b50557ad157604697087a		
Warnings:					
Information:					
Total Files Size (in bytes):			472312		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

FEE TRANSMITTAL		Complete if known	
		Application Number	16539910
		Filing Date	08-13-2019
☐ Applicant asserts small entity status. See 37 CFR 1.27.		First Named Inventor	Yattung LAM
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.		Examiner Name	HA, DAC V
		Art Unit	2633
TOTAL AMOUNT OF PAYMENT	(\$)	Practitioner Docket No.	20160.0039.NPUS00

METHOD OF PAYMENT (check all that apply)
☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 60-2539 Deposit Account Name: Ramey & Schwaller

For the above-identified deposit account, the Director is hereby authorized to (check all that apply):

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**
☐ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☐ Credit any overpayment of fee(s)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION**1. BASIC FILING, SEARCH, AND EXAMINATION FEES** (U = undiscounted fee; S = small entity fee; M = micro entity fee)

Application Type	FILING FEES			SEARCH FEES			EXAMINATION FEES			Fees Paid (\$)
	U (\$)	S (\$)	M (\$)	U (\$)	S (\$)	M (\$)	U (\$)	S (\$)	M (\$)	
Utility	320	160*	80	700	350	175	800	400	200	
Design	220	110	55	160	80	40	640	320	160	
Plant	220	110	55	440	220	110	660	330	165	
Reissue	320	160	80	700	350	175	2,320	1,160	580	
Provisional	300	150	75	0	0	0	0	0	0	

* The \$160 small entity status filing fee for a utility application is further reduced to \$80 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description	Undiscounted Fee (\$)	Small Entity Fee (\$)	Micro Entity Fee (\$)
Each claim over 20 (including Reissues)	100	50	25
Each independent claim over 3 (including Reissues)	480	240	120
Multiple dependent claims	860	430	215
Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
-20 or HP = _____ x _____ = _____			
HP = highest number of total claims paid for, if greater than 20.			
Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
-3 or HP = _____ x _____ = _____			
HP = highest number of independent claims paid for, if greater than 3.			

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$420 (\$210 for small entity) (\$105 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
_____ - 100 = _____	_____ / 50 = _____	_____ (round up to a whole number) x _____	_____ = _____	_____

4. OTHER FEE(S)

Non-English specification, \$140 fee (\$70 for small entity) (\$35 for micro entity)

Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, \$400 fee (\$200 small or micro entity)

Other (e.g., late filing surcharge): QPIDS Program and RCE fee \$1,500

SUBMITTED BY

Signature	/Dan Krueger/	Registration No. (Attorney/Agent) 42771	Telephone
Name (Print/Type)	Daniel Krueger	Date	10-07-2020

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175
63467	7590	10/29/2020	EXAMINER	
Ramey & Schwaller, LLP 5020 Montrose Blvd. Suite 800 Houston, TX 77006			HA, DAC V	
			ART UNIT	PAPER NUMBER
			2633	
			NOTIFICATION DATE	DELIVERY MODE
			10/29/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tevenbly@rameyfirm.com
uspto@rameyfirm.com
wramey@rameyfirm.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

3. Claim(s) 1, 2, 8, 9, 15, 16 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Lugthart et al. (US 9,337,993) (hereafter Lugthart).

Re claim 1, Lugthart discloses:

“electrical conductors connected between a first connector and a second connector,

each of the first and second connectors being adapted to fit into an Ethernet port of a corresponding host device to receive from that host device an electrical input signal conveying an inbound data stream to the cable and to provide to that host device an electrical output signal conveying an outbound data stream from the cable,” (Fig. 2A, elements 111, 105a, 105b; col. 14, lines 3-16; col. 15, line 64 to col. 16, line 5; Fig. 1A, col. 8, line 15 to col. 9, line 5)

“each of the first and second connectors including a respective transceiver that performs clock and data recovery on the electrical input signal to extract and re-modulate the inbound data stream for transit via the electrical conductors as a respective electrical transit signal conveying a transit data stream” (Fig. 1A, col. 7, line 49 to col. 9, line 51; col. 12, line 56 to col. 13, line 24; col. 15, lines 35-47; col. 21, lines 33-56; col. 29, line 38 to col. 30, line 29; wherein each of the respective transceiver is capable of receiving and transmit signal from and to the host as well as to the line side; the transceiver is adapted to condition, among other thing, the received signal for appropriate transmission to the other end).

Re claim 2, Lugthart further discloses “wherein the respective transceiver for each of the first and second connectors performs clock and data recovery on the respective electrical transit signal to extract and re-modulate the transit data stream as the outbound data stream from the cable” in Fig. 1A, 2A; col. 7, lines 18-26; col. 7, line 49 to col. 9, line 51).

Re claim 8, Lugthart discloses:

“receiving with the first connector a first electrical input signal conveying a first inbound data stream from a first host device;” (Fig. 1C; col. 10, line 40 to col. 11, line 14; Fig. 2A; col. 15, lines 3-16; and the assembly 105a teaches the claimed “first connector”);

“performing clock and data recovery on the first electrical input signal with a first transceiver in the first connector to extract the first inbound data stream;” (col. 7, line 49 to col. 8, line 2; Fig. 1A, 1C, elements 12a-d);

“re-modulating the first inbound data stream as a first transit data stream conveyed by a first electrical transit signal over a first of the conductor pairs;” (Fig. 1A, 1C, 2A; col. 8, lines 32-36; col. 9, lines 33-51; col. 12, line 56 to col. 13, line 24);

“receiving with the second connector a second electrical input signal conveying a second inbound data stream from a second host device;” (Fig. 1C; col. 10, line 40 to col. 11, line 14; Fig. 2A; col. 15, lines 3-16; in this case, data is going from Device 2 to Device 1 and assembly 105b teaches the claimed “second connector”)

performing clock and data recovery on the second electrical input signal with a second transceiver in the second connector to extract the second inbound data stream;” (col. 7, line 49 to col. 8, line 2; Fig. 1A, 1C, elements 12a-d)

“re-modulating the second inbound data stream as a second transit data stream conveyed by a second electrical transit signal over a second of the conductor pairs” (Fig. 1A, 1C, 2A; col. 8, lines 32-36; col. 9, lines 33-51; col. 12, line 56 to col. 13, line 24).

Re claim 9, Lugthart further discloses:

“performing clock and data recovery on the first electrical transit signal with the second transceiver to extract the first transit data stream;

re-modulating the first transit data stream as a second outbound data stream conveyed by a second electrical output signal to the second host device;” (Fig. 1A; col. 9, lines 6-51; Fig. 1C, 2A; col. 11, lines 14-65; Note: this is the case when the assembly 105b receives signal from the assembly 105a);

“performing clock and data recovery on the second electrical transit signal with the first transceiver to extract the second transit data stream;

and re-modulating the second transit data stream as a first outbound data stream conveyed by a first electrical output signal to the first host device” (Fig. 1A; col. 9, lines 6-51; Fig. 1C, 2A; col. 11, lines 14-65; in this case, the assembly 105a receives signal from the assembly 105b).

Re claim 15, Lugthart discloses:

“connecting a first end and a second end of a set of conductor pairs to a first transceiver and a second transceiver, respectively, to transport a first electrical transit signal from the first transceiver to the second transceiver and a second electrical transit signal from the second transceiver to the first transceiver;” (Fig. 2A; col. 14, lines 3-16)

“packaging the first transceiver into a first connector configured to couple a first electrical input signal from a network interface port of a first host device to the first transceiver and a first electrical output signal from the first transceiver to the network interface port of the first host device; (Fig. 2A, 1A, 1C; col. 7, line 63 to col. 8, line 21; col. 11, lines 16-28);

“packaging the second transceiver into a second connector configured to couple a second electrical input signal from a network interface port of a second host device to the second transceiver and a second electrical output signal from the second transceiver to the network interface port of the second host device (Fig. 2A, 1A, 1C; col. 7, line 63 to col. 8, line 21; col. 11, lines 16-28; wherein operation of the second assembly 105b is the same with that of assembly 105a),

“the first and second transceivers being configured to perform clock and data recovery on the first and second electrical input signal to extract and remodulate the first and second inbound data streams respectively as the first and second electrical transit signals conveying first and second transit data streams” (col. 7, line 49 to col. 8, line 2; Fig. 1A, 1C, elements 12a-d; 1A, 1C, 2A; col. 8, lines 32-36; col. 9, lines 33-51; col. 12, line 56 to col. 13, line 24).

Re claim 16, Lugthart further discloses:

“wherein the first and second transceivers are configured to perform clock and data recovery on the second and first electrical transit signals to extract and re-modulate the second and first transit data streams as first and second outbound data streams conveyed by the first and second electrical output signals from the cable” (Fig. 1A; col. 9, lines 6-51; Fig. 1C, 2A; col. 11, lines 14-65).

Allowable Subject Matter

4. Claims 3-7, 10-14, 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAC V HA whose telephone number is (571)272-3040. The examiner can normally be reached on 7-3:30 M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Ahn can be reached on 571-272-3044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DAC V HA/
Primary Examiner, Art Unit 2633

<i>Search Notes</i> 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

CPC - Searched*		
Symbol	Date	Examiner
H04L 12/2801; H04L 25/4917; H04L 25/03885	03/06/2020	DH
Update	05/22/2020	DH
Update	10/22/2020	DH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
BRS and Inventor's search	03/06/2020	DH
PLUS	03/06/2020	DH
NPL	03/06/2020	DH
Update	05/22/2020	DH
Supplemental IDS	09/25/2020	DH

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<i>Search Notes</i> 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	PGPUB	03/06/2020	DH
	Udpate	05/22/2020	DH
	Update	10/22/2020	DH

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	6,018	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:46
S2	21	((yattung near1 lam) (baohua near1 chen)).in.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:46
S4	0	S2 and ethernet.clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:48
S5	2	S2 and cable.clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:48
S6	1,632	(ethernet near2 cable).ab,clm.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01
S7	1,501	S6 and (ethernet near2 cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01
S8	224	S7 and (ethernet near2 cable).ab.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01
S9	45	S8 and ((ethernet near2 cable) same transceiv\$4)	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02
S10	6,018	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02
S11	3	S9 and S10	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02
S12	42	S9 not S11	US-PGPUB; USPAT	OR	ON	2020/03/04 12:09
S13	158	S8 and ((ethernet near2 cable) with (coupl\$4 connect))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:15
S14	120	S13 not S9	US-PGPUB; USPAT	OR	ON	2020/03/04 12:16

S15	0	S14 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:17
S16	16	S14 and (ethernet near2 cable).ti.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:19
S17	11	("2017/0346200").URPN.	USPAT	OR	ON	2020/03/04 12:21
S18	104	S14 not S16	US-PGPUB; USPAT	OR	ON	2020/03/04 12:23
S19	66	S8 not S13	US-PGPUB; USPAT	OR	ON	2020/03/04 12:33
S20	15	S19 and ((ethernet near2 cable) with (standard\$5))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:34
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S22	77	("7401985").URPN.	USPAT	OR	ON	2020/03/04 13:31
S23	78	("20010035994" "20020018609" "20020044746" "20020049879" "20020063935" "20020114590" "20020136510" "20020149821" "20020159725" "20020160656" "20030016920" "20030021580" "20030034963" "20030208779" "20030223756" "20040008996" "20040076119" "20040141695" "20040184746" "20040208600" "20040263941" "20050036746" "20050053340" "20050063707" "20050063711" "20050078916" "20050105910" "20050105915" "20050180700" "20050238358" "20050249477" "20050286593" "20050286893" "20060008276" "20060036788" "20060045437" "20060049936" "20060067690" "20060077778" "20060083518" "20060088251" "20060093280" "20060142744" "4427879" "4768188" "4902092" "5337398" "5497187" "5515467" "5530787" "5631988" "5668419" "5732176" "5926303" "6036654" "6179627" "6217231" "6220873" "6267606" "6446867"	US-PGPUB; USPAT; USOCR	OR	ON	2020/03/04 13:31

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S24	1	S21 and (modulat\$5 clock\$4)	US- PGPUB; USPAT	OR	ON	2020/03/04 13:46
S25	381	cable.ab. and cable.clm. and (ethernet near1 port)	USPAT	OR	ON	2020/03/04 13:56
S26	372	S25 and (transceiv\$4 transmit\$4 receiv\$4)	USPAT	OR	ON	2020/03/04 13:56
S27	7	S26 and (cdr (clock near3 recover\$4))	US- PGPUB; USPAT	OR	ON	2020/03/04 13:56
S29	4	S27 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/04 13:57
S30	142	S26 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/04 13:57
S31	500	(active with ethernet with cable)	US- PGPUB; USPAT	OR	ON	2020/03/04 13:58
S32	7	S25 and S31	US- PGPUB; USPAT	OR	ON	2020/03/04 13:58
S33	217	S31 and (transceiv\$4 transmit\$4 receiv\$4)	USPAT	OR	ON	2020/03/04 13:59
S34	55	S33 and (ethernet near1 port)	USPAT	OR	ON	2020/03/04 13:59
S36	48	S34 not S32	US- PGPUB; USPAT	OR	ON	2020/03/04 14:01
S37	500	(active with ethernet with cable)	US- PGPUB; USPAT	OR	ON	2020/03/05 07:53
S38	200	S37 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/05 07:53
S39	11	S38 and (cdr (clock near3 recover\$4))	US- PGPUB; USPAT	OR	ON	2020/03/05 07:53

S41	8,639,810	s "37"(ethernet with cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S42	500	(active with ethernet with cable)	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S43	67	S42 and (ethernet with cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S44	706	(ethernet with (link cable)) same (electrica\$4 near2 conduct\$4)	US-PGPUB; USPAT	OR	ON	2020/03/06 13:34
S45	458	S44 and (connect\$4 with (transceiv\$4 transmit\$4 receiv\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:34
S46	24	S45 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S47	24	S46 and modulat\$4	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S48	6,020	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S49	0	S47 and S48	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S50	81	S45 and (ethernet with (link cable)) .clm.	US-PGPUB; USPAT	OR	ON	2020/03/06 13:40
S51	75	S50 not S47	US-PGPUB; USPAT	OR	ON	2020/03/06 13:41
S52	50	S51 and (pair with (wire twist\$4 conduct\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:42
S53	24	("2014/0258742").URPN.	USPAT	OR	ON	2020/03/06 13:43
S54	244	g02b6/36.cpc.	USPAT	OR	ON	2020/03/06 13:56
S55	0	S44 and S54	USPAT	OR	ON	2020/03/06 13:56
S56	9	S54 and ethernet	USPAT	OR	ON	2020/03/06 13:56
S57	89	("20020031955" "20020048990" "20030031025" "20030157842"	US-PGPUB;	OR	ON	2020/03/06 13:57

		"20030199192" "20030222786" "20040038564" "20040160774" "20050037672" "20050224585" "20060134996" "20060162947" "20060232385" "20070105453" "20070116411" "20070190863" "20080020658" "20080122579" "20090042431" "20090269973" "20100079248" "20100098425" "20110043333" "20110116748" "20120058689" "20120064750" "20130052860" "20140035755" "20160020975" "20170293102" "3960428" "4761720" "4837488" "5159316" "5666453" "5741152" "5764043" "5888100" "6002331" "6080007" "6099345" "6244908" "6280232" "6394853" "6524128" "6532328" "6558204" "6577243" "6790096" "6798183" "6811445" "6975242" "7049937" "7080945" "7081808" "7168994" "7221284" "7335066" "7374458" "7547150" "7549886" "7556536" "7651361" "7760094" "7772975" "7782202" "7910833" "7910834" "7920764" "7940182" "7960648" "7965186" "7972183" "8043124" "8210755" "8264355" "8277260" "8465317" "8606972" "8611234" "8620123" "8702453" "8747141" "9196975" "9230416" "9577904" "9810859" "9952258" "9995432").PN.	USPAT; USOCR			
S58	17	S57 and ethernet	USPAT	OR	ON	2020/03/06 13:57
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S60	0	S59 and ethernet.clm.	US- PGPUB; USPAT	OR	ON	2020/05/21 10:12
S61	2	S59 and cable.clm.	US- PGPUB; USPAT	OR	ON	2020/05/21 10:13
S62	25	("2014/0258742").URPN.	USPAT	OR	ON	2020/05/21 10:14
S63	0	("2018/0241579").URPN.	USPAT	OR	ON	2020/05/21 10:28
S64	0	("2016/0197434").URPN.	USPAT	OR	ON	2020/05/21 10:29

S65	0	("2016/0099861").URPN.	USPAT	OR	ON	2020/05/21 10:29
S66	6	("2010/0267283").URPN.	USPAT	OR	ON	2020/05/21 10:29
S67	2	("9337993" "20200280329").pn.	US- PGPUB; USPAT	OR	ON	2020/10/01 10:00
S68	2	(h04L12/2801 H04L25/4917 h04L25/03885).cpcc.	US- PGPUB; USPAT	OR	ON	2020/10/21 11:20
S69	2	("9337993" "20200280329").pn.	US- PGPUB; USPAT	OR	ON	2020/10/22 09:45
S70	1	S69 and (re-modulat\$5 remodulat\$4)	US- PGPUB; USPAT	OR	ON	2020/10/22 09:45
S71	2	S69 and ethernet	US- PGPUB; USPAT	OR	ON	2020/10/22 09:46
S72	2	("9337993" "20200280329").pn.	US- PGPUB; USPAT	OR	ON	2020/10/22 12:50
S73	2	S72 and ethernet	US- PGPUB; USPAT	OR	ON	2020/10/22 12:50
S74	2	S73 and interface	US- PGPUB; USPAT	OR	ON	2020/10/22 12:50
S75	2	S72 and equali\$6	US- PGPUB; USPAT	OR	ON	2020/10/22 13:23
S76	11,420	ethernet and (cdr (clock near3 recover\$4))	US- PGPUB; USPAT	OR	ON	2020/10/22 13:31
S77	300	S76 and (host\$4 same equali\$6)	US- PGPUB; USPAT	OR	ON	2020/10/22 13:32
S78	84	S77 and (equali\$6 with (fix\$4 known preset prestor\$4 independen\$4))	US- PGPUB; USPAT	OR	ON	2020/10/22 13:33
S79	6,257	(h04L12/2801 H04L25/4917 h04L25/03885).cpcc.	US- PGPUB; USPAT	OR	ON	2020/10/22 13:33
S80	8	S78 and S79	US- PGPUB; USPAT	OR	ON	2020/10/22 13:33

10/23/2020 1:50:42 PM
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/539,910		Filing Date 08/13/2019		☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO									
APPLICATION AS FILED - PART I									
		(Column 1)	(Column 2)						
FOR		NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A		N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A				
TOTAL CLAIMS (37 CFR 1.16(j))		minus 20 =	*		x \$100 =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*		x \$460 =				
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL				
APPLICATION AS AMENDED - PART II									
		(Column 1)	(Column 2)		(Column 3)				
AMENDMENT	12/01/2020	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 11	Minus	** 20	= 0		x \$100 =		0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x \$480 =		0
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
							TOTAL ADD'L FEE		0
AMENDMENT		(Column 1)	(Column 2)		(Column 3)				
		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x \$0 =		
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x \$0 =		
	☐ Application Size Fee (37 CFR 1.16(s))								
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
							TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.							SLIE		
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".							/KAREN L VESTAL/		
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".									
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Serial No.: 16/539910
Filing Date: 2018-08-13
Confirmation: 8175
Atty Docket: 20160.0039.npUS00
1st Inventor: Yattung Lam
Title: Active Ethernet Cable
Examiner: Dac V Ha
Art Unit: 2633

REPLY TO NON-FINAL OFFICE ACTION OF 2020-10-29

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 23313-1450

Dear Sir or Madam:

This paper is filed in response to the above-identified office action. Please reconsider the rejections in light of the following:

An Amendment of the Claims begins on page 2.

Remarks begin on page 7.

AMENDMENT OF THE CLAIMS

Please amend the claims to read as provided below:

1. – 2. (Canceled)

3. (Currently amended) An active Ethernet cable that comprises:

electrical conductors connected between a first connector and a second connector,
each of the first and second connectors being adapted to fit into an Ethernet port of a
corresponding host device to receive from that host device an electrical input signal
conveying an inbound data stream to the cable and to provide to that host device an
electrical output signal conveying an outbound data stream from the cable,
each of the first and second connectors including a respective transceiver that
performs clock and data recovery on the electrical input signal to extract and re-
modulate the inbound data stream for transit via the electrical conductors as a
respective electrical transit signal conveying a transit data stream,
the respective transceiver for each of the first and second connectors performing clock
and data recovery on the respective electrical transit signal to extract and re-
modulate the transit data stream as the outbound data stream from the cable, and
~~The active Ethernet cable of claim 2, wherein~~ the respective transceivers each employ
employing fixed, cable-independent, equalization parameters for each of: the
 remodulation of the transit data stream as the outbound data stream, and the clock
 and data recovery performed on the electrical input signal.

4. (Original) The active Ethernet cable of claim 3, wherein the respective transceivers each employ cable-dependent equalization parameters for at least one of: the remodulation of the inbound data stream for transit, and the clock and data recovery performed on the electrical transit signal.

5. (Original) The active Ethernet cable of claim 4, wherein said cable-dependent equalization parameters adapt during usage of the Ethernet cable.

6. (Original) The active Ethernet cable of claim 4, wherein said cable-dependent equalization parameters are fixed during normal usage of the Ethernet cable, and wherein said cable-dependent equalization parameters are determined during manufacturer-testing of the Ethernet cable.

7. (Original) The active Ethernet cable of claim 6, wherein the inbound data stream and the outbound data stream each have a per-lane symbol rate in excess of 50 GBd.

8. – 9. (Canceled)

10. (Currently amended) A communication method that comprises, in a network cable having conductor pairs electrically connecting a first connector to a second connector:
receiving with the first connector a first electrical input signal conveying a first inbound data stream from a first host device;
performing clock and data recovery on the first electrical input signal with a first transceiver in the first connector to extract the first inbound data stream;
re-modulating the first inbound data stream as a first transit data stream conveyed by a first electrical transit signal over a first of the conductor pairs;
receiving with the second connector a second electrical input signal conveying a second inbound data stream from a second host device;
performing clock and data recovery on the second electrical input signal with a second transceiver in the second connector to extract the second inbound data stream;
re-modulating the second inbound data stream as a second transit data stream conveyed by a second electrical transit signal over a second of the conductor pairs;
performing clock and data recovery on the first electrical transit signal with the second transceiver to extract the first transit data stream;
re-modulating the first transit data stream as a second outbound data stream conveyed by a second electrical output signal to the second host device;

performing clock and data recovery on the second electrical transit signal with the first transceiver to extract the second transit data stream; and
re-modulating the second transit data stream as a first outbound data stream
conveyed by a first electrical output signal to the first host device,

~~The communication method of claim 9,~~ wherein said re-modulating the first transit data stream, said re-modulating the second transit data stream, said performing clock and data recovery on the first electrical input signal, and said performing clock and data recovery on the second electrical input signal, each employ fixed, cable-independent, equalization parameters.

11. (Original) The communication method of claim 10, wherein cable-dependent equalization parameters are employed for at least one of: re-modulating the first inbound data stream, re-modulating the second inbound data stream, said performing clock and data recovery on the first electrical transit signal, and said performing clock and data recovery on the second electrical transit signal.

12. (Original) The communication method of claim 11, wherein said cable-dependent equalization parameters are adaptively updated.

13. (Original) The communication method of claim 11, wherein said cable-dependent equalization parameters are fixed during normal usage, and wherein the method further comprises: determining said cable-dependent equalization parameters during manufacturer-testing of the network cable.

14. (Original) The communication method of claim 13, wherein the first inbound data stream has a per-lane symbol rate in excess of 50 GBd.

15. – 16. (Canceled)

17. (Currently amended) A cable manufacturing method that comprises:
connecting a first end and a second end of a set of conductor pairs to a first transceiver and a second transceiver, respectively, to transport a first electrical

transit signal from the first transceiver to the second transceiver and a second electrical transit signal from the second transceiver to the first transceiver;
packaging the first transceiver into a first connector configured to couple a first electrical input signal from a network interface port of a first host device to the first transceiver and a first electrical output signal from the first transceiver to the network interface port of the first host device; and
packaging the second transceiver into a second connector configured to couple a second electrical input signal from a network interface port of a second host device to the second transceiver and a second electrical output signal from the second transceiver to the network interface port of the second host device,
the first and second transceivers being configured to perform clock and data recovery on the first and second electrical input signal to extract and re-modulate the first and second inbound data streams respectively as the first and second electrical transit signals conveying first and second transit data streams, configured to perform clock and data recovery on the second and first electrical transit signals to extract and re-modulate the second and first transit data streams as first and second outbound data streams conveyed by the first and second electrical output signals from the cable, and
~~The cable manufacturing method of claim 16, wherein the first and second transceivers are~~ each configured to employ fixed, cable-independent, equalization parameters for clock and data recovery on the respective electrical input signals and for generating the respective electrical output signals.

18. (Original) The cable manufacturing method of claim 17, wherein the first and second transceivers are each configured to employ cable-dependent equalization parameters for generating the first and second electrical transit signals and for clock and data recovery on the second and first electrical transit signals.

19. (Original) The cable manufacturing method of claim 18, wherein the first and second transceivers are each configured to adapt the cable-dependent equalization parameters during operation.

20. (Original) The cable manufacturing method of claim 18, wherein the first and second transceivers are each configured to use preset cable-dependent equalization parameters during operation, and wherein the method further comprises: testing an assembled cable to determine the cable-dependent equalization parameters.

REMARKS

Status of the Claims

Claims 1-20 were pending. Claims 1-2, 8-9, and 15-16 are canceled herein. Claims 3, 10, and 17 are amended. No new claims are added. Claims 3-7, 10-14, and 17-20 are now pending.

Rejections Under 35 USC § 102

Claims 1-2, 8-9, and 15-16 stand rejected under 35 USC § 102 as being anticipated by US9337993 ("Lugthart"). These claims have been canceled.

Allowable Subject Matter

Claims 3-7, 10-14, and 17-20 were objected to as being dependent upon rejected base claims, but indicated to be allowable if rewritten to correct this dependency while retaining the limitations of their base and any intervening claims. Claim 3, 10, and 17 have been amended accordingly, and applicant respectfully submits that the claims are now in condition for allowance.

No Disclaimer

Although alterations were made to the claims in the present application and/or characterizations of claim scope and the referenced art, no acquiescence, disclaimer, or estoppel is intended or should be inferred thereby. Nor should any estoppel or acquiescence be inferred from any statement of reasons for allowance by the examiner nor any failure by applicant to specifically comment thereon. Applicant does not concede that the previously pending claims are not patentable over the cited references, and expressly reserves the right to later submit additional or alternative arguments of patentability in support of the previous or pending claims. Amendments were only made to expedite prosecution of the application, and should not prejudice the future presentation or assertion of claims relating to the same or similar subject matter.

Conclusion

The examiner is encouraged to contact the undersigned attorney if an interview might prove helpful to the examination process.

Respectfully submitted,

/Dan Krueger/

2020-12-01

Daniel J. Krueger

Date

Reg. No. 42,771

713-449-9669

dan@rameyfirm.com

Attorney for Applicant

Ramey & Schwaller LLP
5020 Montrose Blvd # 800
Houston TX 77006
713-426-3923 x304

Electronic Acknowledgement Receipt	
EFS ID:	41260251
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	01-DEC-2020
Filing Date:	13-AUG-2019
Time Stamp:	14:05:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		C039RNF.pdf	146141	yes	8
			2658a35c9ae535e35857ecb9f9c722129f1a1005		

	Multipart Description/PDF files in .zip description		
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	Applicant Arguments/Remarks Made in an Amendment	7	8
	Amendment Copy Claims/Response to Suggested Claims	2	6
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	HA, Dac V
	Attorney Docket Number	20160.0039.NPUS00

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	1	20200280329	A1	2020-09-03	Lam et al		
	2	20200280458	A1	2020-09-03	Lam et al		
	3	20150334186	A1	2015-11-19	Chen		
	4	20140086264	A1	2014-03-27	Lusted		
	5	20140146833	A1	2014-05-29	Lusted		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		16539910	
	Filing Date		2019-08-13	
	First Named Inventor		Yattung LAM	
	Art Unit		2633	
	Examiner Name		HA, Dac V	
	Attorney Docket Number		20160.0039.NPUS00	

	6	20130343400	A1	2013-12-26	Lusted	
	7	20070237464	A1	2007-10-11	Aronson	

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FOREIGN PATENT DOCUMENTS

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	1	Notice of Allowance dated October 15, 2020 for U.S. Application 16/698,935	
	2	Supplemental Notice of Allowance dated November 6, 2020 for U.S. Application 16/698,935	

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	HA, Dac V
	Attorney Docket Number	20160.0039.NPUS00

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	HA, Dac V
	Attorney Docket Number	20160.0039.NPUS00

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Dan Krueger/	Date (YYYY-MM-DD)	2020-12-02
Name/Print	Daniel Krueger	Registration Number	42771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	41280100
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	02-DEC-2020
Filing Date:	13-AUG-2019
Time Stamp:	21:35:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SB08_SIDS.pdf	612228	no	5
			4cdfcea60d9032d3d7a10d17e975f32b45b93387		

Warnings:

Information:					
2	Other Reference-Patent/App/Search documents	2020-10-15_20160-0038-NPUS00_NOA_clt.pdf	419480	no	10
			3db5b4f279da020a06f5e1cefa721df2ac96c4bd8		
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3	Other Reference-Patent/App/Search documents	2020-11-06_16698935_Notice-Allowance_clt.pdf	457942	no	11
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NOTICE OF ALLOWANCE AND FEE(S) DUE

63467 7590 01/06/2021
Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

EXAMINER

HA, DAC V

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 01/06/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175

TITLE OF INVENTION: ACTIVE ETHERNET CABLE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$1000.00	\$200	04/06/2021

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

63467 7590 01/06/2021
Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

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.

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175

TITLE OF INVENTION: ACTIVE ETHERNET CABLE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$1000.00	\$200	04/06/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
HA, DAC V	2633	375-220000

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 03-09 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.

1 _____

2 _____

3 _____

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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

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

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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 _____

Typed or printed name _____

Registration No. _____



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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175
63467	7590	01/06/2021	EXAMINER	
Ramey & Schwaller, LLP			HA, DAC V	
5020 Montrose Blvd.			ART UNIT	
Suite 800			PAPER NUMBER	
Houston, TX 77006			2633	
DATE MAILED: 01/06/2021				

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.** Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/539,910	Applicant(s) LAM et al.	
	Examiner DAC V HA	Art Unit 2633	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/01/20.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 3-7, 10-14 and 17-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov**.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:
a) ☐ All b) ☐ Some *c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/DAC V HA/ Primary Examiner, Art Unit 2633	
---	--

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Allowable Subject Matter

2. Claims 3-7, 10-14, 17-20 are allowed.
3. The following is a statement of reasons for the indication of allowable subject matter:

Applicant amended the claims in according to the office action dated 10/29/20. Upon further consideration and comparison with prior art of record (closest reference – Lugthart et al. – US 9,337,993), applicant's REMARKS filed on 12/01/20 is agreed to. Thus, amended claims 3-7, 10-14, 17-20 are allowed over prior art of record.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAC V HA whose telephone number is (571)272-3040. The examiner can normally be reached on 7-3:30 M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Ahn can be reached on 571-272-3044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see [https://ppair-](https://ppair-my.uspto.gov/pair/PrivatePair)

[my.uspto.gov/pair/PrivatePair](https://ppair-my.uspto.gov/pair/PrivatePair). Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DAC V HA/
Primary Examiner, Art Unit 2633

Issue Classification 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

CPC						
Symbol					Type	Version
H04L		12		2801	F	2013-01-01
H04L		25		4917	I	2013-01-01
H04L		25		03885	I	2013-01-01

CPC Combination Sets					
Symbol				Type	Version

NONE (Assistant Examiner)		Total Claims Allowed: 14	
/DAC V HA/ Primary Examiner, Art Unit 2633 (Primary Examiner)		19 December 2020 (Date)	O.G. Print Claim(s) 1
			O.G. Print Figure 2

Issue Classification 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

INTERNATIONAL CLASSIFICATION			
CLAIMED			
H01R		13	52

NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE (Assistant Examiner) (Date)		Total Claims Allowed: 14	
/DAC V HA/ Primary Examiner, Art Unit 2633 (Primary Examiner) (Date)		19 December 2020 O.G. Print Claim(s) 1	O.G. Print Figure 2

Issue Classification 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	3	10	14												
2	4	11	17												
3	5	12	18												
4	6	13	19												
5	7	14	20												
6	10														
7	11														
8	12														
9	13														

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 14	
/DAC V HA/ Primary Examiner, Art Unit 2633 (Primary Examiner) _____ (Date) 19 December 2020		O.G. Print Claim(s) 1	O.G. Print Figure 2

<i>Search Notes</i> 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

CPC - Searched*		
Symbol	Date	Examiner
H04L 12/2801; H04L 25/4917; H04L 25/03885	03/06/2020	DH
Update	05/22/2020	DH
Update	10/22/2020	DH
Update	12/19/2020	DH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
BRS and Inventor's search	03/06/2020	DH
PLUS	03/06/2020	DH
NPL	03/06/2020	DH
Update	05/22/2020	DH
Supplemental IDS	09/25/2020	DH
Update	12/19/2020	DH

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<i>Search Notes</i> 	Application/Control No. 16/539,910	Applicant(s)/Patent Under Reexamination LAM et al.
	Examiner DAC V HA	Art Unit 2633

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	PGPUB	03/06/2020	DH
	Udpate	05/22/2020	DH
	Update	10/22/2020	DH
	Update	12/19/2020	DH

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	("9337993" "20200280329").pn.	US-PGPUB; USPAT	OR	ON	2020/12/19 08:59
L2	22	("9337993").URPN.	USPAT	OR	ON	2020/12/19 08:59
L3	2	("9742689").URPN.	USPAT	OR	ON	2020/12/19 10:00
L4	37	("20030048858" "20040139220" "20060244505" "20070046335" "20070195911" "20070252631" "20080175586" "20080304608" "20090154467" "20100258952" "20110299858" "20120082466" "20120155527" "20130229211" "20140043079" "20140191788" "20140362869" "20150028929" "20150071651" "6215793" "6603754" "6909980" "7095803" "7650526" "8013653" "8108710" "8286022" "8351559" "8451883" "8494038" "8532139" "8736321" "8855179" "9300444" "9337993" "9379878" "9571308").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/12/19 10:00
S1	6,018	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:46
S2	21	((yattung near1 lam) (baohua near1 chen)).in.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:46
S4	0	S2 and ethernet.clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:48
S5	2	S2 and cable.clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 16:48
S6	1,632	(ethernet near2 cable).ab,clm.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01
S7	1,501	S6 and (ethernet near2 cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01

S8	224	S7 and (ethernet near2 cable).ab.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:01
S9	45	S8 and ((ethernet near2 cable) same transceiv\$4)	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02
S10	6,018	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02
S11	3	S9 and S10	US-PGPUB; USPAT	OR	ON	2020/03/04 12:02
S12	42	S9 not S11	US-PGPUB; USPAT	OR	ON	2020/03/04 12:09
S13	158	S8 and ((ethernet near2 cable) with (coupl\$4 connect))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:15
S14	120	S13 not S9	US-PGPUB; USPAT	OR	ON	2020/03/04 12:16
S15	0	S14 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:17
S16	16	S14 and (ethernet near2 cable).ti.	US-PGPUB; USPAT	OR	ON	2020/03/04 12:19
S17	11	("2017/0346200").URPN.	USPAT	OR	ON	2020/03/04 12:21
S18	104	S14 not S16	US-PGPUB; USPAT	OR	ON	2020/03/04 12:23
S19	66	S8 not S13	US-PGPUB; USPAT	OR	ON	2020/03/04 12:33
S20	15	S19 and ((ethernet near2 cable) with (standard\$5))	US-PGPUB; USPAT	OR	ON	2020/03/04 12:34
S21	2	("9322704" "7401985").pn.	US-PGPUB; USPAT	OR	ON	2020/03/04 13:30
S22	77	("7401985").URPN.	USPAT	OR	ON	2020/03/04 13:31
S23	78	("20010035994" "20020018609" "20020044746" "20020049879" "20020063935" "20020114590"	US-PGPUB;	OR	ON	2020/03/04 13:31

		"20020136510" "20020149821" "20020159725" "20020160656" "20030016920" "20030021580" "20030034963" "20030208779" "20030223756" "20040008996" "20040076119" "20040141695" "20040184746" "20040208600" "20040263941" "20050036746" "20050053340" "20050063707" "20050063711" "20050078916" "20050105910" "20050105915" "20050180700" "20050238358" "20050249477" "20050286593" "20050286893" "20060008276" "20060036788" "20060045437" "20060049936" "20060067690" "20060077778" "20060083518" "20060088251" "20060093280" "20060142744" "4427879" "4768188" "4902092" "5337398" "5497187" "5515467" "5530787" "5631988" "5668419" "5732176" "5926303" "6036654" "6179627" "6217231" "6220873" "6267606" "6446867" "6458619" "6461059" "6478625" "6502997" "6540412" "6607307" "6758693" "6774348" "6793539" "6905257" "6914637" "6941395" "6952395" "6965722" "7065604" "7088518" "7162130" "7217022").PN.	USPAT; USOCR			
S24	1	S21 and (modulat\$5 clock\$4)	US- PGPUB; USPAT	OR	ON	2020/03/04 13:46
S25	381	cable.ab. and cable.clm. and (ethernet near1 port)	USPAT	OR	ON	2020/03/04 13:56
S26	372	S25 and (transceiv\$4 transmit\$4 receiv\$4)	USPAT	OR	ON	2020/03/04 13:56
S27	7	S26 and (cdr (clock near3 recover\$4))	US- PGPUB; USPAT	OR	ON	2020/03/04 13:56
S29	4	S27 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/04 13:57
S30	142	S26 and modulat\$4	US- PGPUB; USPAT	OR	ON	2020/03/04 13:57
S31	500	(active with ethernet with cable)	US- PGPUB; USPAT	OR	ON	2020/03/04 13:58

S32	7	S25 and S31	US-PGPUB; USPAT	OR	ON	2020/03/04 13:58
S33	217	S31 and (transceiv\$4 transmit\$4 receiv\$4)	USPAT	OR	ON	2020/03/04 13:59
S34	55	S33 and (ethernet near1 port)	USPAT	OR	ON	2020/03/04 13:59
S36	48	S34 not S32	US-PGPUB; USPAT	OR	ON	2020/03/04 14:01
S37	500	(active with ethernet with cable)	US-PGPUB; USPAT	OR	ON	2020/03/05 07:53
S38	200	S37 and modulat\$4	US-PGPUB; USPAT	OR	ON	2020/03/05 07:53
S39	11	S38 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/05 07:53
S41	8,639,810	s "37"(ethernet with cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S42	500	(active with ethernet with cable)	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S43	67	S42 and (ethernet with cable).clm.	US-PGPUB; USPAT	OR	ON	2020/03/05 16:32
S44	706	(ethernet with (link cable)) same (electrica\$4 near2 conduct\$4)	US-PGPUB; USPAT	OR	ON	2020/03/06 13:34
S45	458	S44 and (connect\$4 with (transceiv\$4 transmit\$4 receiv\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:34
S46	24	S45 and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S47	24	S46 and modulat\$4	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S48	6,020	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35
S49	0	S47 and S48	US-PGPUB; USPAT	OR	ON	2020/03/06 13:35

S50	81	S45 and (ethernet with (link cable)) .clm.	US-PGPUB; USPAT	OR	ON	2020/03/06 13:40
S51	75	S50 not S47	US-PGPUB; USPAT	OR	ON	2020/03/06 13:41
S52	50	S51 and (pair with (wire twist\$4 conduct\$4))	US-PGPUB; USPAT	OR	ON	2020/03/06 13:42
S53	24	("2014/0258742").URPN.	USPAT	OR	ON	2020/03/06 13:43
S54	244	g02b6/36.cpc.	USPAT	OR	ON	2020/03/06 13:56
S55	0	S44 and S54	USPAT	OR	ON	2020/03/06 13:56
S56	9	S54 and ethernet	USPAT	OR	ON	2020/03/06 13:56
S57	89	("20020031955" "20020048990" "20030031025" "20030157842" "20030199192" "20030222786" "20040038564" "20040160774" "20050037672" "20050224585" "20060134996" "20060162947" "20060232385" "20070105453" "20070116411" "20070190863" "20080020658" "20080122579" "20090042431" "20090269973" "20100079248" "20100098425" "20110043333" "20110116748" "20120058689" "20120064750" "20130052860" "20140035755" "20160020975" "20170293102" "3960428" "4761720" "4837488" "5159316" "5666453" "5741152" "5764043" "5888100" "6002331" "6080007" "6099345" "6244908" "6280232" "6394853" "6524128" "6532328" "6558204" "6577243" "6790096" "6798183" "6811445" "6975242" "7049937" "7080945" "7081808" "7168994" "7221284" "7335066" "7374458" "7547150" "7549886" "7556536" "7651361" "7760094" "7772975" "7782202" "7910833" "7910834" "7920764" "7940182" "7960648" "7965186" "7972183" "8043124" "8210755" "8264355" "8277260" "8465317" "8606972" "8611234" "8620123" "8702453" "8747141" "9196975"	US-PGPUB; USPAT; USOCR	OR	ON	2020/03/06 13:57

		"9230416" "9577904" "9810859" "9952258" "9995432").PN.				
S58	17	S57 and ethernet	USPAT	OR	ON	2020/03/06 13:57
S59	22	((yattung near1 lam) (baohua near1 chen)).in.	US-PGPUB; USPAT	OR	ON	2020/05/21 10:12
S60	0	S59 and ethernet.clm.	US-PGPUB; USPAT	OR	ON	2020/05/21 10:12
S61	2	S59 and cable.clm.	US-PGPUB; USPAT	OR	ON	2020/05/21 10:13
S62	25	("2014/0258742").URPN.	USPAT	OR	ON	2020/05/21 10:14
S63	0	("2018/0241579").URPN.	USPAT	OR	ON	2020/05/21 10:28
S64	0	("2016/0197434").URPN.	USPAT	OR	ON	2020/05/21 10:29
S65	0	("2016/0099861").URPN.	USPAT	OR	ON	2020/05/21 10:29
S66	6	("2010/0267283").URPN.	USPAT	OR	ON	2020/05/21 10:29
S67	2	("9337993" "20200280329").pn.	US-PGPUB; USPAT	OR	ON	2020/10/01 10:00
S68	2	(h04L12/2801 H04L25/4917 h04L25/03885).cpcc.	US-PGPUB; USPAT	OR	ON	2020/10/21 11:20
S69	2	("9337993" "20200280329").pn.	US-PGPUB; USPAT	OR	ON	2020/10/22 09:45
S70	1	S69 and (re-modulat\$5 remodulat\$4)	US-PGPUB; USPAT	OR	ON	2020/10/22 09:45
S71	2	S69 and ethernet	US-PGPUB; USPAT	OR	ON	2020/10/22 09:46
S72	2	("9337993" "20200280329").pn.	US-PGPUB; USPAT	OR	ON	2020/10/22 12:50
S73	2	S72 and ethernet	US-PGPUB; USPAT	OR	ON	2020/10/22 12:50

S74	2	S73 and interface	US-PGPUB; USPAT	OR	ON	2020/10/22 12:50
S75	2	S72 and equal\$6	US-PGPUB; USPAT	OR	ON	2020/10/22 13:23
S76	11,420	ethernet and (cdr (clock near3 recover\$4))	US-PGPUB; USPAT	OR	ON	2020/10/22 13:31
S77	300	S76 and (host\$4 same equal\$6)	US-PGPUB; USPAT	OR	ON	2020/10/22 13:32
S78	84	S77 and (equal\$6 with (fix\$4 known preset prestor\$4 independen\$4))	US-PGPUB; USPAT	OR	ON	2020/10/22 13:33
S79	6,257	(h04L12/2801 H04L25/4917 h04L25/03885).cpc.	US-PGPUB; USPAT	OR	ON	2020/10/22 13:33
S80	8	S78 and S79	US-PGPUB; USPAT	OR	ON	2020/10/22 13:33
S81	2	("9337993" "20200280329").pn.	US-PGPUB; USPAT	OR	ON	2020/12/19 08:18
S82	2	S81 and ethernet	US-PGPUB; USPAT	OR	ON	2020/12/19 08:18
S83	25	((yattung near1 lam) (baohua near1 chen)).in.	US-PGPUB; USPAT	OR	ON	2020/12/19 08:18
S84	4	S83 and cable.clm.	US-PGPUB; USPAT	OR	ON	2020/12/19 08:18
S85	7	("20200280329" "20200280458" "20150334186" "20140086264" "20140146833" "20130343400" "20070237464").pn.	US-PGPUB; USPAT	OR	ON	2020/12/19 08:22
S86	17	("2007/0237464").URPN.	USPAT	OR	ON	2020/12/19 08:24
S87	1,777	(ethernet near2 cable).ab,clm.	US-PGPUB; USPAT	OR	ON	2020/12/19 08:26
S88	1,632	S87 and (ethernet near2 cable).clm.	US-PGPUB; USPAT	OR	ON	2020/12/19 08:26

S89	244	S88 and (ethernet near2 cable).ab.	US-PGPUB; USPAT	OR	ON	2020/12/19 08:26
S90	48	S89 and ((ethernet near2 cable) same transceiv\$4)	US-PGPUB; USPAT	OR	ON	2020/12/19 08:26

12/19/2020 10:10:40 AM

C:\Users\dha\Documents\EAST\Workspace2\16539910.wsp

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	HA, Dac V
	Attorney Docket Number	20160.0039.NPUS00

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1	20200280329	A1	2020-09-03	Lam et al		
	2	20200280458	A1	2020-09-03	Lam et al		
	3	20150334186	A1	2015-11-19	Chen		
	4	20140086264	A1	2014-03-27	Lusted		
	5	20140146833	A1	2014-05-29	Lusted		

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16539910
Filing Date	2019-08-13
First Named Inventor	Yattung LAM
Art Unit	2633
Examiner Name	HA, Dac V
Attorney Docket Number	20160.0039.NPUS00

6	20130343400	A1	2013-12-26	Lusted
7	20070237464	A1	2007-10-11	Aronson

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Notice of Allowance dated October 15, 2020 for U.S. Application 16/698,935	
	2	Supplemental Notice of Allowance dated November 6, 2020 for U.S. Application 16/698,935	

If you wish to add additional non-patent literature document citation information please click the Add button.

EXAMINER SIGNATURE

Examiner Signature	/DAC V HA/	Date Considered	12/19/2020
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16539910
	Filing Date	2019-08-13
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	HA, Dac V
	Attorney Docket Number	20160.0039.NPUS00

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16539910
Filing Date	2019-08-13
First Named Inventor	Yattung LAM
Art Unit	2633
Examiner Name	HA, Dac V
Attorney Docket Number	20160.0039.NPUS00

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Dan Krueger/	Date (YYYY-MM-DD)	2020-12-02
Name/Print	Daniel Krueger	Registration Number	42771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Yattung LAM

U.S. Application No. 16/539,910

Filed: August 13, 2019

Title: Active Ethernet Cable

Atty. Docket No. 20160.0039.NPUS00

Confirmation No.: 8175

Examiner: HA, DAC V

Group Art Unit: 2633

SUBMISSION OF ISSUE FEE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

A review of the fee payment history in connection with the subject application indicates that the issue fee was paid on September 03, 2020 for \$1,000.00 prior to the USPTO fee increase, thus creating an outstanding shortage of \$200.00. Applicant respectfully submits the remaining \$200.00 issue fee as required. Please charge our deposit account for the \$200.00 issue fee set forth above. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 60-2539 (20160.0039.NPUS00).

Respectfully submitted,

Date: April 6, 2021

/Daniel J. Krueger/
Registration No. 42,771
Attorney for Applicant
Ramey & Schwaller, LLP
5020 Montrose Blvd, Suite 800
Houston, TX 77006
Tel 713-426-3923x304
docketing@rameyfirm.com

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

63467 7590 01/06/2021
Ramey & Schwaller, LLP
5020 Montrose Blvd.
Suite 800
Houston, TX 77006

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.

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Shanay Hines	(Typed or printed name)
/Shanay Hines/	(Signature)
April 6, 2021	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175

TITLE OF INVENTION: ACTIVE ETHERNET CABLE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$1000.00	\$200	04/06/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
HA, DAC V	2633	375-220000

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 03-09 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.

1 Ramey & Schwaller, LLP

2 Daniel J. Krueger

3

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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

Credo Technology Group Limited

Grand Cayman, Cayman Islands

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 60-2539

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 /Daniel J. Krueger/

Date April 6, 2021

Typed or printed name Daniel J. Krueger

Registration No. 42,771

Electronic Acknowledgement Receipt	
EFS ID:	42374523
Application Number:	16539910
International Application Number:	
Confirmation Number:	8175
Title of Invention:	ACTIVE ETHERNET CABLE
First Named Inventor/Applicant Name:	Yattung LAM
Customer Number:	63467
Filer:	Daniel Joseph Krueger/Shanay Hines
Filer Authorized By:	Daniel Joseph Krueger
Attorney Docket Number:	20160.0039.NPUS00
Receipt Date:	06-APR-2021
Filing Date:	13-AUG-2019
Time Stamp:	10:34:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2021-04-06_SubmissionIssueFe e.pdf	110449 4a404c278f51ed8df18bb19dbad75e1abb4 dafc7	no	1

Warnings:

Information:					
2	Issue Fee Payment (PTO-85B)	2021-04-06_16539910_Issue_Fee_20160-0039-NPUS00_.pdf	876642	no	1
			3f737e0731a795dff8efd2fb37e48f6361c26c2d		
Warnings:					
Information:					
Total Files Size (in bytes):			987091		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

PART B - FEE(S) TRANSMITTAL

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Commissioner for Patents
P.O. Box 1450
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63467 7590 01/06/2021
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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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Shanay Hines	(Typed or printed name)
/Shanay Hines/	(Signature)
April 6, 2021	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	08/13/2019	Yattung LAM	20160.0039.NPUS00	8175

TITLE OF INVENTION: ACTIVE ETHERNET CABLE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$1000.00	\$200	04/06/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
HA, DAC V	2633	375-220000

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 03-09 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.

1 Ramey & Schwaller, LLP

2 Daniel J. Krueger

3

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Credo Technology Group Limited

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

Grand Cayman, Cayman Islands

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

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

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 60-2539

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 /Daniel J. Krueger/

Date April 6, 2021

Typed or printed name Daniel J. Krueger

Registration No. 42,771



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/539,910	05/18/2021	11012252	20160.0039.NPUS00	8175

63467 7590 04/28/2021
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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 0 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):

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Baohua CHEN, Xiamen City, CHINA;

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