



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/228,910	05/25/2021	11013431	A0130.0090.C3	3620

95508 7590 05/05/2021

One LLP
4000 MacArthur Blvd.
East Tower, Suite 500
Newport Beach, CA 92660

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 161 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):

ABBOTT DIABETES CARE INC., Alameda, CA;
Wesley Scott Harper, Alameda, CA;

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3	3620
95508	7590	05/04/2021	EXAMINER	
One LLP 4000 MacArthur Blvd. East Tower, Suite 500 Newport Beach, CA 92660			LIN, JERRY	
			ART UNIT	PAPER NUMBER
			1631	
			NOTIFICATION DATE	DELIVERY MODE
			05/04/2021	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.

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR/ PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
16/228,910	12/21/2018	Harper, Wesley Scott	A0130.0090.C3

One LLP 4000 MacArthur Blvd. East Tower, Suite 500 Newport Beach, CA 92660		EXAMINER	
		JERRY LIN	
		ART UNIT	PAPER
		1631	20210430

DATE MAILED: _____

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Commissioner for Patents**Information Disclosure Statement**

Attached is a signed and initialed Information Disclosure Statement filed December 21, 2018 indicating that the references cited have been considered. On page 10, item 14, the document number for Blackwell, et al. has been corrected.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Lin whose telephone number is (571) 272-2561. The examiner can normally be reached on 5:30 am – 4:00 pm, Monday, Tuesday, Thursday, and Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Skowronek can be reached at (571) 272-9047. 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 <http://pair-direct.uspto.gov>. 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.

/JERRY LIN/
Primary Examiner, Art Unit 1631

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				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	1	of	21	Attorney Docket No: A0130.0090.C3	

US PATENT DOCUMENTS					
Examiner Initials*	Cite No.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		3,581,062	05-21-1971	Aston	
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EXAMINER

DATE CONSIDERED

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

PTO/SB/08 (09-08)

Approved for use through 10/31/2020. OMB 0651-0031

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

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>			<i>Complete if Known</i>		
			Application Number	To be assigned	
			Filing Date	December 21, 2018	
			First Named Inventor	Wesley Scott Harper	
			Art Unit	To be assigned	
			Examiner Name	To be assigned	
Sheet	19	of	21	Attorney Docket No: A0130.0090.C3	

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
		KAPLAN, S. M., "WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY", IEEE Press, 2004, pp. 141, 142, 548, 549.		
		LODWIG, V., et al., "Continuous Glucose Monitoring with Glucose Sensors: Calibration and Assessment Criteria", Diabetes Technology & Therapeutics, Vol. 5, No. 4, 2003, pp. 573-587.		
		LORTZ, J., et al., "What is Bluetooth? We Explain The Newest Short-Range Connectivity Technology", Smart Computing Learning Series, Wireless Computing, Vol. 8, Issue 5, 2002, pp. 72-74.		
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EXAMINER

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Substitute Disclosure Statement Form (PTO-1449)

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			Filing Date	December 21, 2018	
			First Named Inventor	Wesley Scott Harper	
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			Examiner Name	To be assigned	
Sheet	20	of	21	Attorney Docket No: A0130.0090.C3	

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
		SAKAKIDA, M., et al., "Development of ferrocene-mediated needle-type glucose sensor as a measure of true subcutaneous tissue glucose concentrations", Artificial Organs Today, Vol. 2, No. 2, 1992, pp. 145-158.		
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		SALEHI, C., et al., "A TELEMETRY-INSTRUMENTATION SYSTEM FOR LONG-TERM IMPLANTABLE GLUCOSE AND OXYGEN SENSORS", Analytical Letters, Vol. 29, No. 13, 1996, pp. 2289-2308.		
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		SHICHIRI, M., et al., "Glycaemic Control in Pancreatectomized Dogs with a Wearable Artificial Endocrine Pancreas", Diabetologia, Vol. 24, 1983, pp. 179-184.		
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		SHICHIRI, M., et al., "Membrane design for extending the long-life of an implantable glucose sensor", Diabetes Nutrition and Metabolism, Vol. 2, 1989, pp. 309-313.		
		SHICHIRI, M., et al., "Needle-type Glucose Sensor for Wearable Artificial Endocrine Pancreas", Implantable Sensors for Closed-Loop Prosthetic Systems, Chapter 15, 1985, pp. 197-210.		
		SHICHIRI, M., et al., "Telemetry Glucose Monitoring Device With Needle-Type Glucose Sensor: A Useful Tool for Blood Glucose Monitoring in Diabetic Individuals", Diabetes Care, Vol. 9, No. 3, 1986, pp. 298-301.		
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		THOMPSON, M., et al., "In Vivo Probes: Problems and Perspectives", Clinical Biochemistry, Vol. 19, 1986, pp. 255-261.		

EXAMINER

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				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	21	of	21	Attorney Docket No: A0130.0090.C3	

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, page(s), volume-issue number(s), publisher, city and/or country where published.			T ²
		TURNER, A.P.F., et al., "Diabetes Mellitus: Biosensors for Research and Management", Biosensors, Vol. 1, 1985, pp. 85-115.			
		UPDIKE, S. J., et al., "Principles of Long-term Fully Implanted Sensors with Emphasis on Radiotelemetric Monitoring of Blood Glucose from inside a Subcutaneous Foreign Body Capsule (FBC)", Biosensors in the Body: Continuous In vivo Monitoring, Chapter 4, 1997, pp. 117-137.			
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		WILSON, G. S., et al., "Progress toward the Development of an Implantable Sensor for Glucose", Clinical Chemistry, Vol. 38, No. 9, 1992, pp. 1613-1617.			

EXAMINER /JERRY LIN/

DATE CONSIDERED 04/30/2021

Substitute Disclosure Statement Form (PTO-1449)
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PART B - FEE(S) TRANSMITTAL

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95508 7590 01/13/2021
One LLP
4000 MacArthur Blvd.
East Tower, Suite 500
Newport Beach, CA 92660

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3	3620

TITLE OF INVENTION: METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

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	\$0.00	\$1200	04/13/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
LIN, JERRY	1631	702-019000

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

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. ONE LLP

2.

3.

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

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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)

ABBOTT DIABETES CARE INC.

Alameda, CA

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☐ 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 /Glen Liu/ Date April 12, 2021
Typed or printed name Glen Liu Registration No. 75,058

Electronic Patent Application Fee Transmittal				
Application Number:		16228910		
Filing Date:		21-Dec-2018		
Title of Invention:		METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING		
First Named Inventor/Applicant Name:		Wesley Scott Harper		
Filer:		Glen Liu/Alana Fredericks		
Attorney Docket Number:		A0130.0090.C3		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1200

Electronic Acknowledgement Receipt

EFS ID:	42424730
Application Number:	16228910
International Application Number:	
Confirmation Number:	3620
Title of Invention:	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING
First Named Inventor/Applicant Name:	Wesley Scott Harper
Customer Number:	95508
Filer:	Glen Liu/Alana Fredericks
Filer Authorized By:	Glen Liu
Attorney Docket Number:	A0130.0090.C3
Receipt Date:	12-APR-2021
Filing Date:	21-DEC-2018
Time Stamp:	14:07:54
Application Type:	Utility under 35 USC 111(a)

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Payment was successfully received in RAM	\$ 1200
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			125bcd3b5f852c50b0e921ee91fd014e7f6dd994		
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EXAMINER

LIN, JERRY

ART UNIT

PAPER NUMBER

1631

DATE MAILED: 01/13/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3	3620

TITLE OF INVENTION: METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

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	\$0.00	\$1200	04/13/2021

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.

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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.

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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.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3	3620

TITLE OF INVENTION: METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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EXAMINER	ART UNIT	CLASS-SUBCLASS
LIN, JERRY	1631	702-019000

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

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(A) NAME OF ASSIGNEE

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☐ 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
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3	3620
95508	7590	01/13/2021	EXAMINER	
One LLP 4000 MacArthur Blvd. East Tower, Suite 500 Newport Beach, CA 92660			LIN, JERRY	
			ART UNIT	PAPER NUMBER
			1631	

DATE MAILED: 01/13/2021

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. 16/228,910	Applicant(s) Harper, Wesley Scott	
	Examiner JERRY LIN	Art Unit 1631	AIA (FITF) Status No

-- 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 the reply filed December 14, 2020.
☐ 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 43-62. 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) 2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____. 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material ____. 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.	5. ☐ Examiner's Amendment/Comment 6. ☐ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____.
---	---

/JERRY LIN/
Primary Examiner, Art Unit 1631

<i>Search Notes</i> 	Application/Control No. 16/228,910	Applicant(s)/Patent Under Reexamination Harper, Wesley Scott
	Examiner JERRY LIN	Art Unit 1631

CPC - Searched*		
Symbol	Date	Examiner
A61B5/14532, G16H40/40, A61B5/1473, A61B5/1495, G01D18/00, G01N31/22, G01N33/66	12/30/2020	JL

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
702	19	12/30/2020	JL

* 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
See Printout	12/30/2020	JL
Inventor search in PALM	12/30/2020	JL

--	--

<i>Search Notes</i> 	Application/Control No. 16/228,910	Applicant(s)/Patent Under Reexamination Harper, Wesley Scott
	Examiner JERRY LIN	Art Unit 1631

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
A61B5	14532	12/30/2020	JL
G16H40	40	12/30/2020	JL
A61B5	1473	12/30/2020	JL
A61B5	1495	12/30/2020	JL
G01D18	00	12/30/2020	JL
G01N31	22	12/30/2020	JL
G01N33	66	12/30/2020	JL
702	19	12/30/2020	JL

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Issue Classification 	Application/Control No. 16/228,910	Applicant(s)/Patent Under Reexamination Harper, Wesley Scott
	Examiner JERRY LIN	Art Unit 1631

CPC						
Symbol					Type	Version
A61B	/	5	/	14532	F	2013-01-01
A61B	/	5	/	1473	I	2013-01-01
A61B	/	5	/	1495	I	2013-01-01
G16H	/	40	/	40	I	2018-01-01
G01D	/	18	/	00	I	2013-01-01
G01N	/	31	/	22	I	2013-01-01
G01N	/	33	/	66	I	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/JERRY LIN/ Primary Examiner, Art Unit 1631 (Primary Examiner) _____ (Date) 30 December 2020		O.G. Print Claim(s) None	O.G. Print Figure None

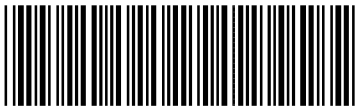
<i>Issue Classification</i> 	Application/Control No. 16/228,910	Applicant(s)/Patent Under Reexamination Harper, Wesley Scott
	Examiner JERRY LIN	Art Unit 1631

INTERNATIONAL CLASSIFICATION			
CLAIMED			
A61B5/145	/	5	/ 145
NON-CLAIMED			
/	/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
702	19

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/JERRY LIN/ Primary Examiner, Art Unit 1631 (Primary Examiner)	30 December 2020 (Date)	O.G. Print Claim(s) None	O.G. Print Figure None

Issue Classification 	Application/Control No. 16/228,910	Applicant(s)/Patent Under Reexamination Harper, Wesley Scott
	Examiner JERRY LIN	Art Unit 1631

☒ 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

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/JERRY LIN/ Primary Examiner, Art Unit 1631 (Primary Examiner) _____ (Date) 30 December 2020		O.G. Print Claim(s) None	O.G. Print Figure None

WEST Search History for Application 16228910

Creation Date: 2020123014:53

Prior Art Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
9310203.pn. or 8483967.pn. or 10194844.pn.	PGPB, USPT	3	OR	YES		08-17-2020
20090033482.pn. or 20090018424.pn.	PGPB, USPT	2	OR	YES		08-17-2020
early same signal same attenuation	PGPB, USPT	1151	OR	YES		08-17-2020
(early same signal same attenuation) same sensor	PGPB, USPT	177	OR	YES		08-17-2020
(early same signal same attenuation same sensor) same (analyte or glucose)	PGPB, USPT	115	OR	YES		08-17-2020
(early same signal same attenuation same sensor) and (output or display)	PGPB, USPT	168	OR	YES		08-17-2020
(early same signal same attenuation same sensor same (analyte or glucose)) and (output or display)	PGPB, USPT	113	OR	YES		08-17-2020
(early same signal same attenuation same sensor same (analyte or glucose) and (output or display)) and time	PGPB, USPT	113	OR	YES		08-17-2020
A61B5/14532.cpc. or G16H40/40.cpc. or A61B5/1473.cpc. or A61B5/1495.cpc. or G01D18/00.cpc. or G01N31/22.cpc. or G01N33/66.cpc.	PGPB, USPT	25385	OR	YES		08-17-2020
(A61B5/14532.cpc. or G16H40/40.cpc. or A61B5/1473.cpc. or A61B5/1495.cpc. or G01D18/00.cpc. or G01N31/22.cpc. or G01N33/66.cpc.) and (early same signal same attenuation)	PGPB, USPT	127	OR	YES		08-17-2020
A61B5/14532.cpc. and G16H40/40.cpc. and A61B5/1473.cpc. and A61B5/1495.cpc. and G01D18/00.cpc. and G01N31/22.cpc. and G01N33/66.cpc.	PGPB, USPT	7	OR	YES		08-17-2020
signal same attenuation	PGPB, USPT,	202555	OR	YES		12-30-2020

	EPAB, JPAB, DWPI					
(signal same attenuation) same early	PGPB, USPT, EPAB, JPAB, DWPI	1229	OR	YES		12-30-2020
(signal same attenuation same early) same (sensor)	PGPB, USPT, EPAB, JPAB, DWPI	204	OR	YES		12-30-2020
(signal same attenuation same early same (sensor)) same (analyte or glucose)	PGPB, USPT, EPAB, JPAB, DWPI	131	OR	YES		12-30-2020
A61B5/14532.cpc. or G16H40/40.cpc. or A61B5/1473.cpc. or G01N31/22.cpc. or G01N33/66.cpc.	PGPB, USPT, EPAB, JPAB, DWPI	37788	OR	YES		12-30-2020
(A61B5/14532.cpc. or G16H40/40.cpc. or A61B5/1473.cpc. or G01N31/22.cpc. or G01N33/66.cpc.) or A61B5/1495.cpc. or G01D18/00.cpc.	PGPB, USPT, EPAB, JPAB, DWPI	41731	OR	YES		12-30-2020
(A61B5/14532.cpc. or G16H40/40.cpc. or A61B5/1473.cpc. or G01N31/22.cpc. or G01N33/66.cpc. or A61B5/1495.cpc. or G01D18/00.cpc.) and (signal same attenuation)	PGPB, USPT, EPAB, JPAB, DWPI	1900	OR	YES		12-30-2020
(A61B5/14532.cpc. or G16H40/40.cpc. or A61B5/1473.cpc. or G01N31/22.cpc. or G01N33/66.cpc. or A61B5/1495.cpc. or G01D18/00.cpc.) and (signal same attenuation same early)	PGPB, USPT, EPAB, JPAB, DWPI	150	OR	YES		12-30-2020



Transcript ON

2020_0082_Transcript

History

CAS Lexicon

Database

Multiple Files

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FILE 'COMPUSCIENCE' ENTERED AT 14:54:08 ON 30 DEC 2020
COPYRIGHT (c) 2020 FACHINFORMATIONSZENTRUM KARLSRUHE (FIZ
KARLSRUHE)

=> s signal and attenuation

L1 32825 SIGNAL AND ATTENUATION

=> s l1 and sensor

L2 953 L1 AND SENSOR

=> s l2 and (analyte or glucose)

L3 69 L2 AND (ANALYTE OR GLUCOSE)

=> dup rem l3

PROCESSING COMPLETED FOR L3

L4 53 DUP REM L3 (16 DUPLICATES REMOVED)

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(FILE 'HOME' ENTERED AT 14:53:52 ON 30 DEC 2020)

FILE 'MEDLINE, EMBASE, BIOSIS, COMPUSCIENCE' ENTERED AT
14:54:08 ON 30
DEC 2020

L1 32825 S SIGNAL AND ATTENUATION

L2 953 S L1 AND SENSOR

L3 69 S L2 AND (ANALYTE OR GLUCOSE)

L4 53 DUP REM L3 (16 DUPLICATES REMOVED)

=>

< => enter command

Submit



Draw

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Session

Entered HOME 14:53:52 ON 30 DEC 20

Entered Multiple files 14:54:08 ON 30 DEC 20

L1 32825 S SIGNAL AND
ATTENUATION



..

L2 953 S L1 AND SENSOR



..

L3 69 S L2 AND (ANALYTE OR
GLUCOSE)



..

L4 53 DUP REM L3 (16
DUPLICATES REMOVED)



..

Bibliographic Data

Application No: 16/228,910

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged:

/JERRY LIN/

Examiner's Signature

Initials

Title:

METHODS AND SYSTEMS FOR EARLY SIGNAL
ATTENUATION DETECTION AND PROCESSING

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/21/2018	702	1631	A0130.0090.C3
RULE			

APPLICANTS

ABBOTT DIABETES CARE INC., Alameda, CA, UNITED STATES

INVENTORS

Wesley Scott Harper, Alameda, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 15061774 03/04/2016 PAT 10194844

15061774 is a CON of 13925694 06/24/2013 PAT 9310230

13925694 is a CON of 12769635 04/28/2010 PAT 8483967

12769635 has PRO of 61173600 04/29/2009

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

01/07/2019

STATE OR COUNTRY

UNITED STATES

ADDRESS

One LLP
4000 MacArthur Blvd.
East Tower, Suite 500
Newport Beach, CA 92660
UNITED STATES

FILING FEE RECEIVED

\$2,080

Application Number * 16/228,910 *	Application/Control No. 16/228,910	Applicant(s)/Patent under Reexamination Harper, Wesley Scott	
	Examiner LIN, JERRY	Art Unit 1631	
Document Code - DISQ		Internal Document - DO NOT MAIL	

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed: <u>14 December 2020</u>	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
/FELICIA D ROBERTS/ Technology Center: <u>OPLC</u> Telephone: <u>(571)272-0550</u> <u>4 TDs approved with this filing date</u>

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/228,910		Filing Date 12/21/2018		☐ 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), (i), 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(i))		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	12/14/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 20	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	
		(Column 1)		(Column 2)	(Column 3)				
AMENDMENT		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.						LIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/ANGELA D JOHNSON/			
*** 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.

**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**

Docket Number (Optional)

A0130.0090.C3

In re Application of: Wesley Scott Harper

Application No.: 16/228,910

Filed: December 21, 2018

For: METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

The applicant, ABBOTT DIABETES CARE INC., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 9,310,230 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;

is held unenforceable;

is found invalid by a court of competent jurisdiction;

is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;

has all claims canceled by a reexamination certificate;

is reissued; or

is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

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

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 75,058

/Glen Liu/

Signature

December 14, 2020

Date

Glen Liu

Typed or printed name

Agent

Title

949-432-4443

Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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.

This collection of information is required by 37 CFR 1.321. 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.

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.
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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.

**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**

Docket Number (Optional)

A0130.0090.C3

In re Application of: Wesley Scott Harper

Application No.: 16/228,910

Filed: December 21, 2018

For: METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

The applicant, ABBOTT DIABETES CARE INC., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 10,194,844 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;

is held unenforceable;

is found invalid by a court of competent jurisdiction;

is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;

has all claims canceled by a reexamination certificate;

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2. ☒ The undersigned is an attorney or agent of record. Reg. No. 75,058

/Glen Liu/ December 14, 2020
Signature Date

Glen Liu
Typed or printed name

Agent 949-432-4443
Title Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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Docket Number (Optional)

A0130.0090.C3

In re Application of: Wesley Scott Harper

Application No.: 16/228,910

Filed: December 21, 2018

For: METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

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/Glen Liu/

December 14, 2020

Signature

Date

Glen Liu

Typed or printed name

Agent

949-432-4443

Title

Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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Electronic Patent Application Fee Transmittal

Application Number:	16228910			
Filing Date:	21-Dec-2018			
Title of Invention:	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING			
First Named Inventor/Applicant Name:	Wesley Scott Harper			
Filer:	Glen Liu/Alana Fredericks			
Attorney Docket Number:	A0130.0090.C3			
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(\$)
Extension - 1 month with \$0 paid	1251	1	220	220
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	1814	4	170	680
Total in USD (\$)				900

Electronic Acknowledgement Receipt

EFS ID:	41376432
Application Number:	16228910
International Application Number:	
Confirmation Number:	3620
Title of Invention:	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING
First Named Inventor/Applicant Name:	Wesley Scott Harper
Customer Number:	95508
Filer:	Glen Liu/Alana Fredericks
Filer Authorized By:	Glen Liu
Attorney Docket Number:	A0130.0090.C3
Receipt Date:	14-DEC-2020
Filing Date:	21-DEC-2018
Time Stamp:	14:47:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$900
RAM confirmation Number	E2020BDE47585266
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		9368USC3_A0130_090_C3_Response_to_NFOA_dated_8_21_20.pdf	110904	yes	7
			dfb29b661027d24125411b464f6af9ba6bde8a4d		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	5	
	Applicant Arguments/Remarks Made in an Amendment		6	7	
Warnings:					
Information:					
2	Terminal Disclaimer Filed	9368USC3_A0130_0090_C3_Terminal_Disclaimer_Patent.pdf	169592	no	2
			78a3c1a73e925c0204fc9c17e294787c41f55b35		
Warnings:					
Information:					
3	Terminal Disclaimer Filed	9368USC3_A0130_0090_C3_Terminal_Disclaimer_Patent2.pdf	160287	no	2
			416100b9a223ef6b9422482d335eb7eac91021d9		
Warnings:					
Information:					
4	Terminal Disclaimer Filed	9368USC3_A0130_0090_C3_Terminal_Disclaimer_Patent3.pdf	160349	no	2
			ba41cbd03cfedc9ddddddee11d070ab6e41b5af708		
Warnings:					
Information:					
5	Terminal Disclaimer Filed	9368USC3_A0130_0090_C3_Terminal_Disclaimer_Patent4.pdf	160347	no	2
			f267cfc0382851e7d67120f1ac47e4c94f18086e		

Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	32619	no	2
			a638dd5dac005f858183b04cf43b0ed161af0d26		
Warnings:					
Information:					
Total Files Size (in bytes):				794098	
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.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Wesley Scott Harper

Application No.: 16/228,910

Confirmation No.: 3620

Filed: December 21, 2018

Art Unit: 1631

For: METHOD AND SYSTEMS FOR EARLY
SIGNAL ATTENUATION DETECTION AND
PROCESSING

Examiner: Jerry Lin

RESPONSE

EFS Web
Commissioner for Patents

INTRODUCTORY COMMENTS

In response to the Non-Final Office Action mailed August 21, 2020, please consider the following remarks.

Listing of the Claims beginning on page 2 of this paper; and

Remarks beginning on page 6 of this paper.

LISTING OF THE CLAIMS

This listing of claims replaces all previous versions of the claims in the application.

1-42. (Cancelled)

43. (Previously Presented) A method for processing analyte related sensor signals in an analyte monitoring system, the method comprising:

receiving, by one or more processors of the analyte monitoring system, the analyte related sensor signals from an analyte sensor configured to sense an analyte level;

monitoring for an early signal attenuation condition based on the analyte related sensor signals;

in response to detecting the early signal attenuation condition, temporarily preventing an output of analyte related data;

storing, in a memory, the analyte related sensor signals received during the early signal attenuation condition;

processing the analyte related sensor signals received during the early signal attenuation condition; and

waiting a predetermined period of time after the detection of the early signal attenuation condition, then outputting the analyte related data.

44. (Previously Presented) The method of claim 43, wherein the early signal attenuation condition comprises one or more analyte related data values being outside a predetermined analyte related data value range.

45. (Previously Presented) The method of claim 43, wherein the early signal attenuation condition comprises a rate of change value based on the analyte related sensor signals exceeding a predetermined rate of change threshold.

46. (Previously Presented) The method of claim 43, further comprising wirelessly transmitting, by the data processing and transmitter unit, the analyte related data to a receiver unit of the analyte monitoring system.

47. (Previously Presented) The method of claim 46, wherein wirelessly transmitting the analyte related data comprises transmitting according to a Bluetooth communication protocol.

48. (Previously Presented) The method of claim 46, wherein temporarily preventing the output of the analyte related data includes temporarily preventing display of the analyte related data on a display of the receiver unit.

49. (Previously Presented) The method of claim 43, wherein the one or more processors and the memory are disposed within a data processing and transmitter unit of the analyte monitoring system.

50. (Previously Presented) The method of claim 43, wherein the one or more processors and the memory are disposed within a receiver unit of the analyte monitoring system.

51. (Previously Presented) The method of claim 43, wherein processing the analyte related sensor signals comprises applying a correction to the analyte related data.

52. (Previously Presented) The method of claim 51, wherein the correction is a retrospective correction.

53. (Previously Presented) The method of claim 43, wherein storing the analyte related sensor signals received during the early signal attenuation condition includes storing time information associated with the early signal attenuation condition.

54. (Previously Presented) The method of claim 43, wherein the analyte sensor is a glucose sensor.

55. (Previously Presented) An analyte monitoring system comprising:
an analyte sensor;
one or more processors; and
a memory coupled with the one or more processors, the memory storing instructions that, when executed by the one or more processors, cause the one or more processors to:
monitor analyte related sensor signals received from the analyte sensor for an early signal attenuation condition;
in response to detecting the early signal attenuation condition, temporarily prevent an output of analyte related data;
store, in the memory, the analyte related sensor signals received during the early signal attenuation condition;
process the analyte related sensor signals received during the early signal attenuation condition; and
wait a predetermined period of time after the detection of the early signal attenuation condition, then output the analyte related data.
56. (Previously Presented) The analyte monitoring system of claim 55, wherein the early signal attenuation condition comprises one or more analyte related data values being outside a predetermined analyte related data value range.
57. (Previously Presented) The analyte monitoring system of claim 55, wherein the early signal attenuation condition comprises a rate of change value based on the analyte related sensor signals exceeding a predetermined rate of change threshold.
58. (Previously Presented) The analyte monitoring system of claim 55, wherein the instructions, when executed by the one or more processors, further cause the one or more processors to wirelessly transmit, according to a Bluetooth communication protocol, the analyte related data to a receiver unit of the analyte monitoring system.

59. (Previously Presented) The analyte monitoring system of claim 55, wherein the one or more processors and the memory are disposed within a data processing and transmitter unit of the analyte monitoring system.

60. (Previously Presented) The analyte monitoring system of claim 55, wherein the one or more processors and the memory are disposed within a receiver unit of the analyte monitoring system.

61. (Previously Presented) The analyte monitoring system of claim 55, wherein the instructions, when executed by the one or more processors, further cause the one or more processors to apply a correction to the analyte related data.

62. (Previously Presented) The analyte monitoring system of claim 55, wherein the instructions, when executed by the one or more processors, further cause the one or more processors to store time information associated with the early signal attenuation condition.

REMARKS

Reconsideration of the rejections set forth in the Office Action mailed August 21, 2020, is respectfully requested. Claims 43-62 are currently pending. For the reasons set forth below, Applicants respectfully submit that all pending claims are allowable.

DOUBLE PATENTING

Claims 43-62 were rejected on the ground of non-statutory obviousness-type double patenting over claims 1-20 of U.S. Patent No. 9,310,230. Claims 43-62 were also rejected on the ground of non-statutory obviousness-type double patenting over claims 1-22 of U.S. Patent No. 8,483,967. Claims 43-62 were also rejected on the ground of non-statutory obviousness-type double patenting over claims 1-18 of U.S. Patent No. 10,194,844. Claims 43-62 were provisionally rejected on the ground of obviousness-type double patenting over claims 23-52 of co-pending application No. 16/905,276, which issued as U.S. Patent No. 10,820,842 on November 3, 2020.

Without conceding the propriety of these rejections and solely to advance prosecution, Applicants file herewith terminal disclaimers over the patents listed above. Thus, Applicants respectfully request withdrawal of the rejections.

CONCLUSION

The right is reserved to pursue claims to any subject matter supported by the disclosure of this application in one or more continuation and/or divisional applications at a later time, including the subject matter of any previously pending claims regardless of whether those claims were amended or cancelled herein. This may entail the pursuit of broader and/or narrower claims, and/or subject matter that was previously relinquished by virtue of argument or amendment.

It is respectfully submitted that all claims are in allowable form. In the event that the Examiner deems that a discussion would be helpful in advancing prosecution, the Examiner is invited to call the undersigned at (949) 432-9993. The USPTO is hereby authorized to charge any outstanding fees to Deposit Account No. 50-5201.

Dated: December 14, 2020

Respectfully submitted,

Electronic signature: /Glen Liu/
Glen Liu

Registration No.: 75,058
ONE LLP
4000 MacArthur Blvd.
East Tower, Suite 500
Newport Beach, CA 92660
Attorney for Applicant

**TERMINAL DISCLAIMER TO OBIATE A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**

Docket Number (Optional)

A0130.0090.C3

In re Application of: Wesley Scott Harper

Application No.: 16/228,910

Filed: December 21, 2018

For: METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

The applicant, ABBOTT DIABETES CARE INC., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 8,483,967 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;

is held unenforceable;

is found invalid by a court of competent jurisdiction;

is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;

has all claims canceled by a reexamination certificate;

is reissued; or

is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

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

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 75,058

/Glen Liu/

Signature

December 14, 2020

Date

Glen Liu

Typed or printed name

Agent

Title

949-432-4443

Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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.

This collection of information is required by 37 CFR 1.321. 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.

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.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3

CONFIRMATION NO. 3620

POA ACCEPTANCE LETTER



95508
One LLP
4000 MacArthur Blvd.
East Tower, Suite 500
Newport Beach, CA 92660

Date Mailed: 12/07/2020

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/03/2020.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/megga/

POWER OF ATTORNEY TO PROSECUTE BEFORE THE USPTO

By Assignee

ABBOTT DIABETES CARE INC., assignee of the application(s) for United States Letters Patent identified in the attached statement under 37 CFR 3.73(c), does revoke all powers of attorney previously given and hereby appoints as its attorneys and/or agents, with full power of substitution and revocation, to prosecute this application and transact all business in the United States Patent and Trademark Office, and in countries other than the United States, and to do all things necessary or appropriate therefor before any competent International Authorities in connection with any international patent application(s) corresponding to the above-identified application, all of the registered practitioners identified by Customer Number 95508.

ONE LLP
4000 MacArthur Blvd.,
East Tower, Suite 500
Newport Beach, CA 92660
(949)-502-2870

The undersigned, also hereby authorizes and empowers all of the registered practitioners associated with Customer Number 95508 to sign statements under 37 CFR 3.73(b) on behalf of the undersigned to establish the undersigned's right to take actions in applications for United States Letters Patent.

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to the address associated with Customer Number 95508.

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

Full Name of Assignee: ABBOTT DIABETES CARE INC.	
Post Office Address: 1420 Harbor Bay Parkway, Alameda, CA 94502	
Signature of Declarant or Assignee: 	Date: 18-JUN-25
Full Name of Declarant: Susan Tall	
If Other Than Assignee:	
Title of Declarant: Senior Counsel, Patents & Trademarks	
Address of Declarant: 1420 Harbor Bay Parkway, Alameda, CA 94502	

Electronic Acknowledgement Receipt

EFS ID:	41289087
Application Number:	16228910
International Application Number:	
Confirmation Number:	3620
Title of Invention:	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING
First Named Inventor/Applicant Name:	Wesley Scott Harper
Customer Number:	95508
Filer:	Glen Liu/Alana Fredericks
Filer Authorized By:	Glen Liu
Attorney Docket Number:	A0130.0090.C3
Receipt Date:	03-DEC-2020
Filing Date:	21-DEC-2018
Time Stamp:	16:11:46
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	Assignee showing of ownership per 37 CFR 3.73	A0130_0090_C3_373Form.pdf	99315	no	3
			28fd581efedd77fa506485719b2e214d2dc bdb4c		

Warnings:

Information:					
2	Power of Attorney	Abbott_US_POA.pdf	195275	no	1
			0f313a77b2b660f04e3b7ddc795affde7278b9e0		
Warnings:					
Information:					
Total Files Size (in bytes):				294590	
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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: Wesley Scott HarperApplication No./Patent No.: 16/228,910Filed/Issue Date: 12/21/2018Titled: METHOD AND SYSTEM FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSINGABBOTT DIABETES CARE INC., 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 052964, Frame 0472, 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.

/Glen Liu/

Signature

Glen Liu

Printed or Typed Name

12/3/2020

Date

75,058

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.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3	3620
95508	7590	08/21/2020	EXAMINER	
One LLP 4000 MacArthur Blvd. East Tower, Suite 500 Newport Beach, CA 92660			LIN, JERRY	
			ART UNIT	PAPER NUMBER
			1631	
			NOTIFICATION DATE	DELIVERY MODE
			08/21/2020	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):

IPdocketing@onellp.com
PAIRgroup@onellp.com
onellpdocketing@onellp.com

Office Action Summary	Application No. 16/228,910	Applicant(s) Harper, Wesley Scott	
	Examiner JERRY LIN	Art Unit 1631	AIA (FITF) Status No

-- 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 3 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 24 July 2020.
☐ 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) 43-62 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 43-62 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 ____ 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 12/21/2018.
- 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 4) ☐ Other: ____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Status of the Claims

Claims 43-62 are under examination.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed

determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

3. Claims 43-62 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 9,310,230. Although the claims at issue are not identical, they are not patentably distinct from each other. The instant claims differ from the U.S. Patent in that the instant claims recite "early signal attenuation", whereas the U.S. Patent recites an "adverse condition". However, an early signal attenuation may be interpreted as a form of an adverse condition effecting an analyte monitoring system. Thus, the subject matter of the instant claims is encompassed by the scope of the U.S. Patent. The instant claims are not patentably distinct from the U.S. Patent.

4. Claims 43-62 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 8,483,967. Although the claims at issue are not identical, they are not patentably distinct from each other. The instant claims differ from the U.S. Patent in that the instant claims recite "early signal attenuation", whereas the U.S. Patent recites an "adverse condition". However, an early signal attenuation may be interpreted as a form of an adverse condition effecting an analyte monitoring system. Thus, the subject matter of the instant claims is encompassed by the scope of the U.S. Patent. The instant claims are not patentably distinct from the U.S. Patent.

5. Claims 43-62 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 10,194,844. Although the claims at issue are not identical, they are not patentably distinct from each other. The instant claims differ from the U.S. Patent in that the instant claims do not recite that the monitoring system is in a user's body or that the sensor is disabled. However, the limitations of the instant claims encompass embodiments where the monitoring system is in a user's a body and where the sensor is disabled (i.e. preventing an output of analyte related data).

Thus, the subject matter of the instant claims encompasses the scope of the U.S. Patent. The instant claims are not patentably distinct from the U.S. Patent.

6. Claim 43-62 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claim 23-52 of copending Application No. 16/905276 (reference application). Although the claims at issue are not identical, they are not patentably distinct from each other. The instant claims differ from the U.S. Patent in that the instant claims recite “early signal attenuation”, whereas the reference application recites a “failure mode condition”. However, an early signal attenuation may be interpreted as a form of a failure mode condition effecting an analyte monitoring system. Thus, the subject matter of the instant claims is encompassed by the scope of the U.S. Patent. The instant claims are not patentably distinct from the U.S. Patent. This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Examiner's Note:

The closest prior art is Hayter et al. U.S. 2009/0033482 A1. While Hayter et al. teach disabling the sensor and preventing the output of faulty data, Hayter et al. do not teach waiting a predetermined period of time after the detection of the early signal attenuation condition.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JERRY LIN whose telephone number is (571)272-2561. The examiner can normally be reached on M-F, 7am-3:30pm.

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, Karl Skowronek can be reached on (571) 272-9047. 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.

/JERRY LIN/
Primary Examiner, Art Unit 1631

<i>Search Notes</i> 	Application/Control No. 16/228,910	Applicant(s)/Patent Under Reexamination Harper, Wesley Scott
	Examiner JERRY LIN	Art Unit 1631

CPC - Searched*		
Symbol	Date	Examiner
A61B5/14532, G16H40/40, A61B5/1473, A61B5/1495, G01D18/00, G01N31/22, G01N33/66	08/17/2020	JL

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
See Printout	08/17/2020	JL
Inventor search in PALM	08/17/2020	JL

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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WEST Search History for Application 16228910

Creation Date: 2020081710:26

Prior Art Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
9310203.pn. or 8483967.pn. or 10194844.pn.	PGPB, USPT	3	OR	YES		08-17-2020
20090033482.pn. or 20090018424.pn.	PGPB, USPT	2	OR	YES		08-17-2020
early same signal same attenuation	PGPB, USPT	1151	OR	YES		08-17-2020
(early same signal same attenuation) same sensor	PGPB, USPT	177	OR	YES		08-17-2020
(early same signal same attenuation same sensor) same (analyte or glucose)	PGPB, USPT	115	OR	YES		08-17-2020
(early same signal same attenuation same sensor) and (output or display)	PGPB, USPT	168	OR	YES		08-17-2020
(early same signal same attenuation same sensor same (analyte or glucose)) and (output or display)	PGPB, USPT	113	OR	YES		08-17-2020
(early same signal same attenuation same sensor same (analyte or glucose) and (output or display)) and time	PGPB, USPT	113	OR	YES		08-17-2020
A61B5/14532.cpc. or G16H40/40.cpc. or A61B5/1473.cpc. or A61B5/1495.cpc. or G01D18/00.cpc. or G01N31/22.cpc. or G01N33/66.cpc.	PGPB, USPT	25385	OR	YES		08-17-2020
(A61B5/14532.cpc. or G16H40/40.cpc. or A61B5/1473.cpc. or A61B5/1495.cpc. or G01D18/00.cpc. or G01N31/22.cpc. or G01N33/66.cpc.) and (early same signal same attenuation)	PGPB, USPT	127	OR	YES		08-17-2020
A61B5/14532.cpc. and G16H40/40.cpc. and A61B5/1473.cpc. and A61B5/1495.cpc. and G01D18/00.cpc. and G01N31/22.cpc. and G01N33/66.cpc.	PGPB, USPT	7	OR	YES		08-17-2020

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				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	1	of	21	Attorney Docket No: A0130.0090.C3	

US PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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		3,926,760	12-16-1975	Allen, et al.	
		3,949,388	04-06-1976	Fuller	
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Sheet	2	of	21	Attorney Docket No: A0130.0090.C3	

US PATENT DOCUMENTS

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US PATENT DOCUMENTS					
Examiner Initials*	Cite No.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.L/

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				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
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				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	19	of	21	Attorney Docket No: A0130.0090.C3	

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
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			Examiner Name	To be assigned	
Sheet	20	of	21	Attorney Docket No: A0130.0090.C3	

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
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				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	21	of	21	Attorney Docket No: A0130.0090.C3	

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Wesley Scott Harper

Application No.: 16/228,910

Confirmation No.: 3620

Filed: December 21, 2018

Art Unit: 1631

For: METHOD AND SYSTEMS FOR EARLY
SIGNAL ATTENUATION DETECTION AND
PROCESSING

Examiner: Jerry Lin

SECOND PRELIMINARY AMENDMENT

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INTRODUCTORY COMMENTS

Prior to examination on the merits, please see the following:

Amendments to the Claims beginning on page 2 of this paper; and

Remarks beginning on page 6 of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all previous versions of the claims in the application.

1-42. (Cancelled)

43. (New) A method for processing analyte related sensor signals in an analyte monitoring system, the method comprising:

- receiving, by one or more processors of the analyte monitoring system, the analyte related sensor signals from an analyte sensor configured to sense an analyte level;
- monitoring for an early signal attenuation condition based on the analyte related sensor signals;
- in response to detecting the early signal attenuation condition, temporarily preventing an output of analyte related data;
- storing, in a memory, the analyte related sensor signals received during the early signal attenuation condition;
- processing the analyte related sensor signals received during the early signal attenuation condition; and
- waiting a predetermined period of time after the detection of the early signal attenuation condition, then outputting the analyte related data.

44. (New) The method of claim 43, wherein the early signal attenuation condition comprises one or more analyte related data values being outside a predetermined analyte related data value range.

45. (New) The method of claim 43, wherein the early signal attenuation condition comprises a rate of change value based on the analyte related sensor signals exceeding a predetermined rate of change threshold.

46. (New) The method of claim 43, further comprising wirelessly transmitting, by the data processing and transmitter unit, the analyte related data to a receiver unit of the analyte monitoring system.

47. (New) The method of claim 46, wherein wirelessly transmitting the analyte related data comprises transmitting according to a Bluetooth communication protocol.

48. (New) The method of claim 46, wherein temporarily preventing the output of the analyte related data includes temporarily preventing display of the analyte related data on a display of the receiver unit.

49. (New) The method of claim 43, wherein the one or more processors and the memory are disposed within a data processing and transmitter unit of the analyte monitoring system.

50. (New) The method of claim 43, wherein the one or more processors and the memory are disposed within a receiver unit of the analyte monitoring system.

51. (New) The method of claim 43, wherein processing the analyte related sensor signals comprises applying a correction to the analyte related data.

52. (New) The method of claim 51, wherein the correction is a retrospective correction.

53. (New) The method of claim 43, wherein storing the analyte related sensor signals received during the early signal attenuation condition includes storing time information associated with the early signal attenuation condition.

54. (New) The method of claim 43, wherein the analyte sensor is a glucose sensor.

55. (New) An analyte monitoring system comprising:
an analyte sensor;
one or more processors; and
a memory coupled with the one or more processors, the memory storing instructions that, when executed by the one or more processors, cause the one or more processors to:
monitor analyte related sensor signals received from the analyte sensor for an early signal attenuation condition;
in response to detecting the early signal attenuation condition, temporarily prevent an output of analyte related data;
store, in the memory, the analyte related sensor signals received during the early signal attenuation condition;
process the analyte related sensor signals received during the early signal attenuation condition; and
wait a predetermined period of time after the detection of the early signal attenuation condition, then output the analyte related data.

56. (New) The analyte monitoring system of claim 55, wherein the early signal attenuation condition comprises one or more analyte related data values being outside a predetermined analyte related data value range.

57. (New) The analyte monitoring system of claim 55, wherein the early signal attenuation condition comprises a rate of change value based on the analyte related sensor signals exceeding a predetermined rate of change threshold.

58. (New) The analyte monitoring system of claim 55, wherein the instructions, when executed by the one or more processors, further cause the one or more processors to wirelessly transmit, according to a Bluetooth communication protocol, the analyte related data to a receiver unit of the analyte monitoring system.

59. (New) The analyte monitoring system of claim 55, wherein the one or more processors and the memory are disposed within a data processing and transmitter unit of the analyte monitoring system.

60. (New) The analyte monitoring system of claim 55, wherein the one or more processors and the memory are disposed within a receiver unit of the analyte monitoring system.

61. (New) The analyte monitoring system of claim 55, wherein the instructions, when executed by the one or more processors, further cause the one or more processors to apply a correction to the analyte related data.

62. (New) The analyte monitoring system of claim 55, wherein the instructions, when executed by the one or more processors, further cause the one or more processors to store time information associated with the early signal attenuation condition.

REMARKS

Examination of new claims 43-62 is respectfully requested. Claims 23-42 have been canceled without prejudice and claims 1-22 remain cancelled without prejudice. Support for the new claims can be found, for example, at paragraphs [0052] to [0058], and [0067], as well as Figures 4 and 5, the original claims, and elsewhere throughout the application as filed. No new matter has been introduced.

All citations to claim support are purely for the benefit of the Examiner. It is stressed that the citations are only examples and in no way constitute an exhaustive recitation of all written and depicted support for the claims. Additional support can be found elsewhere, including citations from both the specification and figures that are not stated, as well as the knowledge of those of ordinary skill in the art. These citations in no way constitute a disclaimer that the claim covers only that subject matter which is cited herein and in no way define the inventive subject matter as being only that which is cited herein.

The right is reserved to pursue claims to any subject matter supported by the disclosure of this application in one or more continuation and/or divisional applications at a later time, including the subject matter of any previously pending claims regardless of whether those claims were amended or cancelled herein. This may entail the pursuit of broader and/or narrower claims, and/or subject matter that was previously relinquished by virtue of argument or amendment.

It is respectfully submitted that all claims are in allowable form. In the event that the Examiner deems that a discussion would be helpful in advancing prosecution, the Examiner is invited to call the undersigned at (949) 432-9993. The USPTO is hereby authorized to charge any outstanding fees to Deposit Account No. 50-5201.

Dated: July 24, 2020

Respectfully submitted,

Electronic signature: /Glen Liu/
Glen Liu

Registration No.: 75,058
ONE LLP
4000 MacArthur Blvd.
East Tower, Suite 500
Newport Beach, CA 92660
Attorney for Applicant

Electronic Acknowledgement Receipt

EFS ID:	40100692
Application Number:	16228910
International Application Number:	
Confirmation Number:	3620
Title of Invention:	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING
First Named Inventor/Applicant Name:	Wesley Scott Harper
Customer Number:	95508
Filer:	Glen Liu/Alana Fredericks
Filer Authorized By:	Glen Liu
Attorney Docket Number:	A0130.0090.C3
Receipt Date:	24-JUL-2020
Filing Date:	21-DEC-2018
Time Stamp:	15:58:38
Application Type:	Utility under 35 USC 111(a)

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/228,910		Filing Date 12/21/2018		☐ 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(i))		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		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				
		(Column 1)	(Column 2)	(Column 3)						
AMENDMENT	07/24/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)		
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	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	x \$460 =		0		
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	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		0		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LDRC				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/EVA V GILLIS/				
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3

CONFIRMATION NO. 3620

95508
One LLP
4000 MacArthur Blvd.
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Newport Beach, CA 92660

PUBLICATION NOTICE



OC000000109736231

Title:METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

Publication No.US-2019-0216373-A1

Publication Date:07/18/2019

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.

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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
16/228,910	12/21/2018	3791	1880	A0130.0090.C3	20	2

CONFIRMATION NO. 3620

UPDATED FILING RECEIPT

95508

One LLP

4000 MacArthur Blvd.

East Tower, Suite 500

Newport Beach, CA 92660



00000000107208194

Date Mailed: 04/09/2019

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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**

Inventor(s)

Wesley Scott Harper, Alameda, CA;

Applicant(s)

ABBOTT DIABETES CARE INC., Alameda, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/061,774 03/04/2016 PAT 10194844
which is a CON of 13/925,694 06/24/2013 PAT 9310230
which is a CON of 12/769,635 04/28/2010 PAT 8483967
which claims benefit of 61/173,600 04/29/2009

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

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: 01/07/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/228,910**

Projected Publication Date: 07/18/2019

Non-Publication Request: No

Early Publication Request: No

Title

METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

Preliminary Class

600

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

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/228,910				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR 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			N/A	300			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760			
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *			OR	x 100 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *				x 460 =	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			
							0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
			TOTAL			TOTAL	1720			
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	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.										

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Wesley Scott Harper et al.

Application No.: 16/228,910

Confirmation No.: 3620

Filed: December 21, 2018

Art Unit: 3791

For: METHOD AND SYSTEMS FOR EARLY
SIGNAL ATTENUATION DETECTION AND
PROCESSING

Examiner: Not yet assigned

PRELIMINARY AMENDMENT

EFS Web
Commissioner for Patents

INTRODUCTORY COMMENTS

Prior to examination on the merits, please see the following:

Amendments to the Claims beginning on page 2 of this paper; and

Remarks beginning on page 7 of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all previous versions of the claims in the application.

1-22. (Cancelled)

23. (New) A method of backfilling one or more sensor data gaps in an analyte monitoring system comprising one or more processors and an analyte sensor, the method comprising:

detecting, with the one or more processors, a failure mode condition, wherein the failure mode condition causes the one or more sensor data gaps to be outputted to a display of the analyte monitoring system;

storing sensor data received from the analyte sensor for a time period associated with the failure mode condition; and

in response to a correction of the failure mode condition,

processing, with the one or more processors, the stored sensor data for the time period associated with the failure mode condition, and

outputting the processed stored sensor data to the display of the analyte monitoring system such that the one or more sensor data gaps are at least partially filled by the processed stored sensor data.

24. (New) The method of claim 23, wherein the failure mode condition comprises signal errors associated with a transmitter unit of the analyte monitoring system or a receiver unit of the analyte monitoring system.

25. (New) The method of claim 23, wherein the failure mode condition comprises one or more of an inability to calibrate the sensor, a system malfunction, or a sensor dislodgement.

26. (New) The method of claim 23, wherein the failure mode condition comprises one or more of a sensor data value being outside a predetermined sensor data value range, a rate of

change of one or more sensor data values being above a predetermined rate-of-change threshold, or a temperature measurement outside a predetermined temperature range.

27. (New) The method of claim 23, further comprising, in response to the correction of the failure mode condition, receiving the stored sensor data for the time period associated with the failure mode condition.

28. (New) The method of claim 23, wherein outputting the processed stored sensor data to the display of the analyte monitoring system occurs immediately after the stored sensor data is processed.

29. (New) The method of claim 23, further comprising, in response to the correction of the failure mode condition, waiting a predetermined period of time before outputting the processed stored sensor data to the display of the analyte monitoring system.

30. (New) The method of claim 23, wherein processing the stored sensor data is performed by one or more processors of a transmitter unit of the analyte monitoring system.

31. (New) The method of claim 23, wherein processing the stored sensor data is performed by one or more processors of a receiver unit of the analyte monitoring system.

32. (New) The method of claim 23, wherein storing sensor data received from the analyte sensor includes storing time information associated with the failure mode condition.

33. (New) The method of claim 23, further comprising:
receiving current sensor data from the analyte sensor;
outputting a first graphical representation to the display of the analyte monitoring system, wherein the first graphical representation includes the current sensor data and the one or more sensor data gaps associated with the failure mode condition.

34. (New) The method of claim 33, wherein outputting the processed stored sensor data to the display of the analyte monitoring system comprises outputting a second graphical representation to the display of the analyte monitoring system, wherein the second graphical representation comprises the processed stored sensor data, and wherein the one or more sensor data gaps associated with the failure mode condition are at least partially filled in the second graphical representation.

35. (New) An analyte monitoring system comprising:
an analyte sensor;
one or more processors; and
a memory device for storing instructions which, when executed by the one or more processors, causes the one or more processors to:
detect a failure mode condition, wherein the failure mode condition causes one or more sensor data gaps to be outputted to a display of the analyte monitoring system,
store sensor data received from the analyte sensor for a time period associated with the failure mode condition, and
in response to a correction of the failure mode condition,
process the stored sensor data for the time period associated with the failure mode condition, and
output the processed stored sensor data to the display of the analyte monitoring system such that the one or more sensor data gaps are at least partially filled by the processed stored sensor data.

36. (New) The system of claim 35, wherein the failure mode condition comprises signal errors associated with a transmitter unit of the analyte monitoring system or a receiver unit of the analyte monitoring system.

37. (New) The system of claim 35, wherein the memory device stores instructions which, when executed by the one or more processors, further causes the one or more processors to

wait a predetermined period of time before outputting the processed stored sensor data to the display of the analyte monitoring system.

38. (New) The system of claim 35, further comprising a transmitter unit, and wherein the memory device stores instructions which, when executed by the one or more processors of the transmitter unit, further causes the one or more processors of the transmitter unit to, in response to the correction of the failure mode condition, process the stored sensor data for the time period associated with the failure mode condition.

39. (New) The system of claim 35, further comprising a receiver unit, and wherein the memory device stores instructions which, when executed by the one or more processors of the receiver unit, further causes the one or more processors of the receiver unit to, in response to the correction of the failure mode condition, process the stored sensor data for the time period associated with the failure mode condition.

40. (New) The system of claim 35, wherein the memory device stores instructions which, when executed by the one or more processors, further causes the one or more processors to store time information associated with the failure mode condition.

41. (New) The system of claim 35, further comprising a receiver unit configured to receive current sensor data,

and wherein the memory device stores instructions which, when executed by the one or more processors of the receiver unit, further causes the one or more processors of the receiver unit to output a first graphical representation to the display of the analyte monitoring system,

and wherein the first graphical representation comprises the current sensor data and the one or more sensor data gaps associated with the failure mode condition.

42. (New) The system of claim 41, wherein the memory device stores instructions which, when executed by the one or more processors of the receiver unit, further causes the one or

more processors of the receiver unit to output a second graphical representation to the display of the analyte monitoring system,

wherein the second graphical representation comprises the processed stored sensor data, and wherein the one or more sensor data gaps associated with the failure mode condition are at least partially filled in the second graphical representation.

REMARKS

Claims 23-42 are pending and claims 1-22 have been cancelled without prejudice. Support for the new claims can be found, e.g., in paragraphs [0052] to [0086], Figures 4 to 6, 7A, and 7B, and elsewhere throughout the application as filed. No new matter has been introduced. Examination of these new claims is respectfully requested.

All citations to claim support are purely for the benefit of the Examiner. It is stressed that the citations are only examples and in no way constitute an exhaustive recitation of all written and depicted support for the claims. Additional support can be found elsewhere, including citations from both the specification and figures that are not stated, as well as the knowledge of those of ordinary skill in the art. These citations in no way constitute a disclaimer that the claim covers only that subject matter which is cited herein and in no way define the inventive subject matter as being only that which is cited herein.

Cancellation of the claims is made without prejudice and solely to advance prosecution of this application and are not intended as a disavowal of any subject matter. Accordingly, by this response, Applicants do not concede that previously pending claims are not patentable.

The right is reserved to pursue claims to any subject matter supported by the disclosure of this application in one or more continuation and/or divisional applications at a later time, including the subject matter of any previously pending claims regardless of whether those claims were amended or cancelled herein. This may entail the pursuit of broader and/or narrower claims, and/or subject matter that was previously relinquished by virtue of argument or amendment.

It is respectfully submitted that all claims are in allowable form. In the event that the Examiner deems that a discussion would be helpful in advancing prosecution, the Examiner is invited to call the undersigned at (949) 444-5970. The USPTO is hereby authorized to charge any outstanding fees to Deposit Account No. 50-5201.

Dated: April 4, 2019

Respectfully submitted,

Electronic signature: /Mark Stirrat/

Mark Stirrat

Registration No.: 50,756

ONE LLP

4000 MacArthur Blvd.

East Tower, Suite 500

Newport Beach, CA 92660

Attorney for Applicant

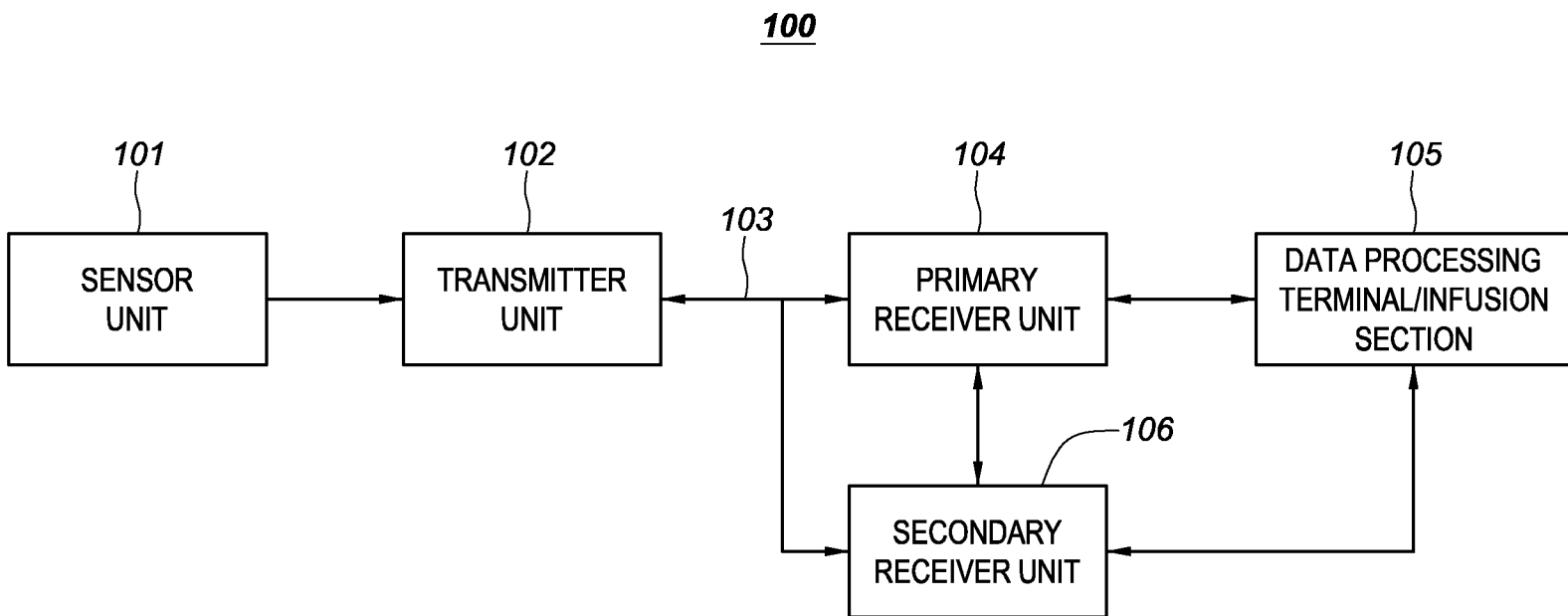


FIG. 1

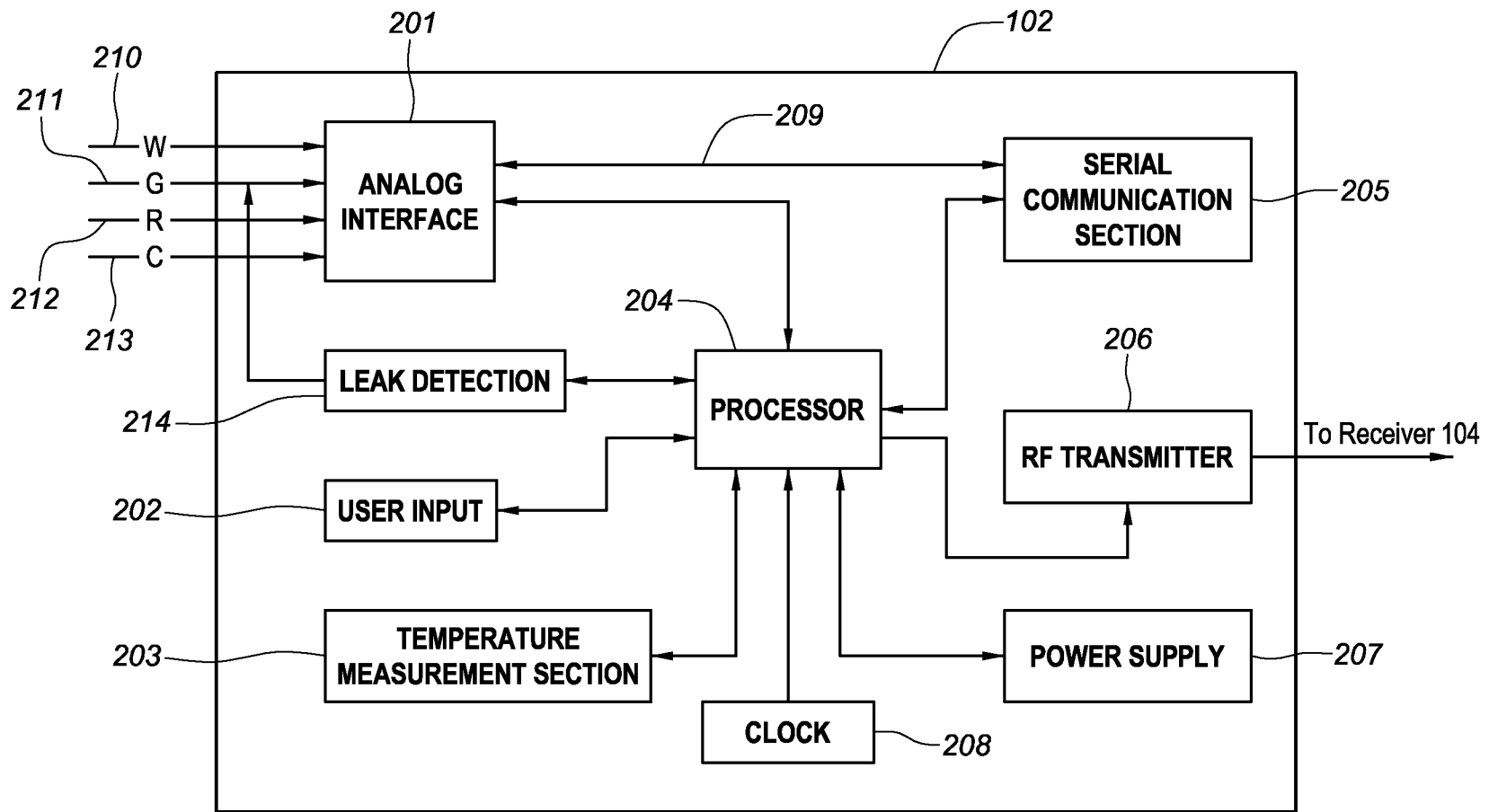


FIG. 2

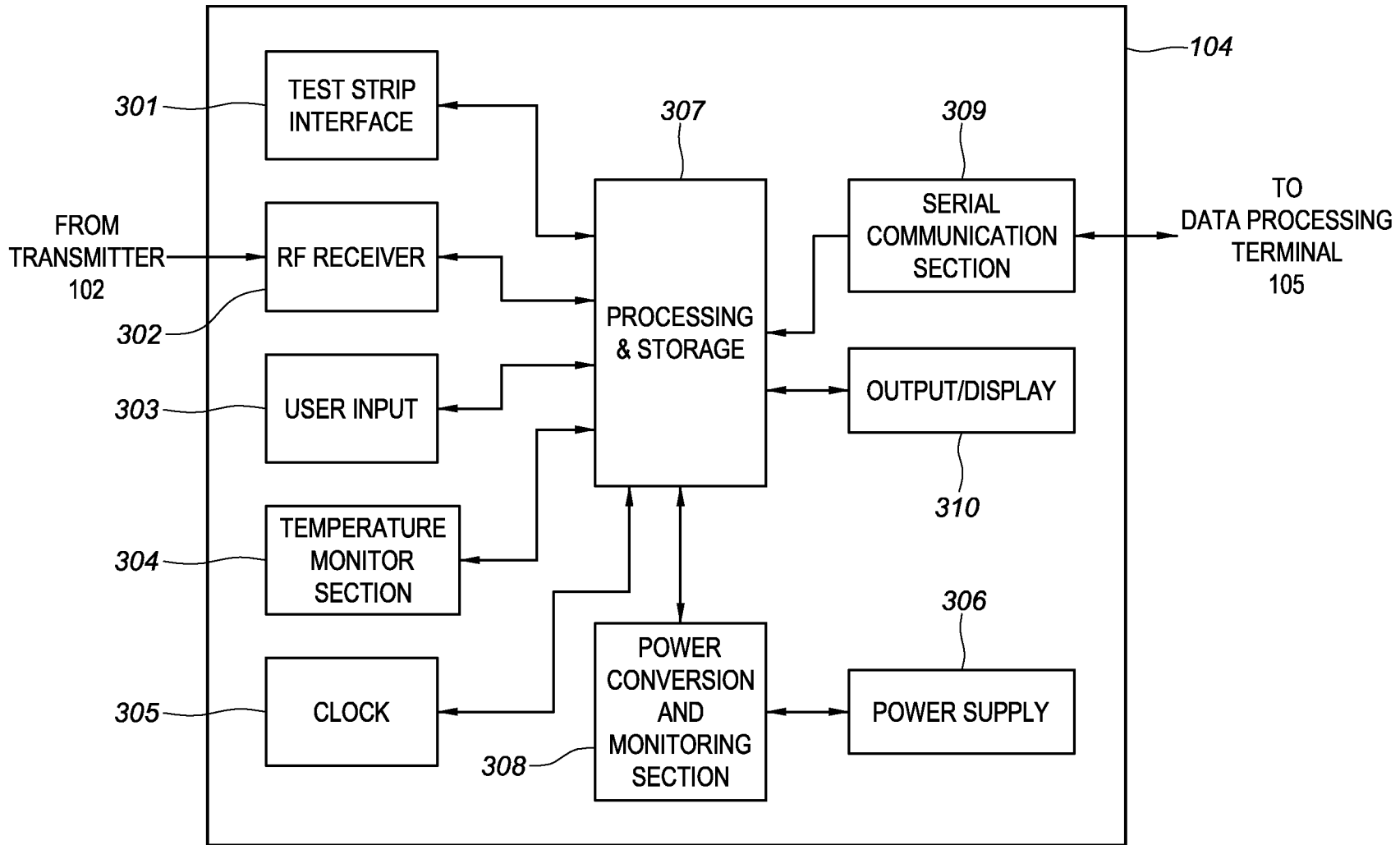
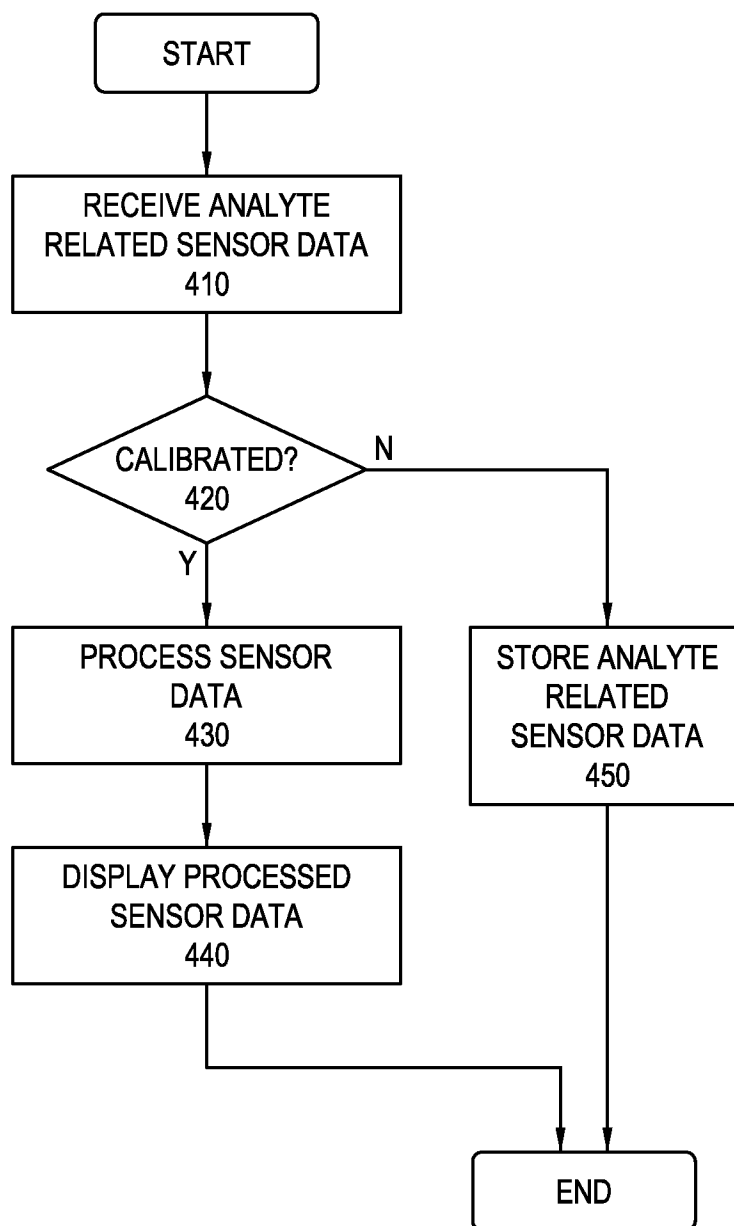
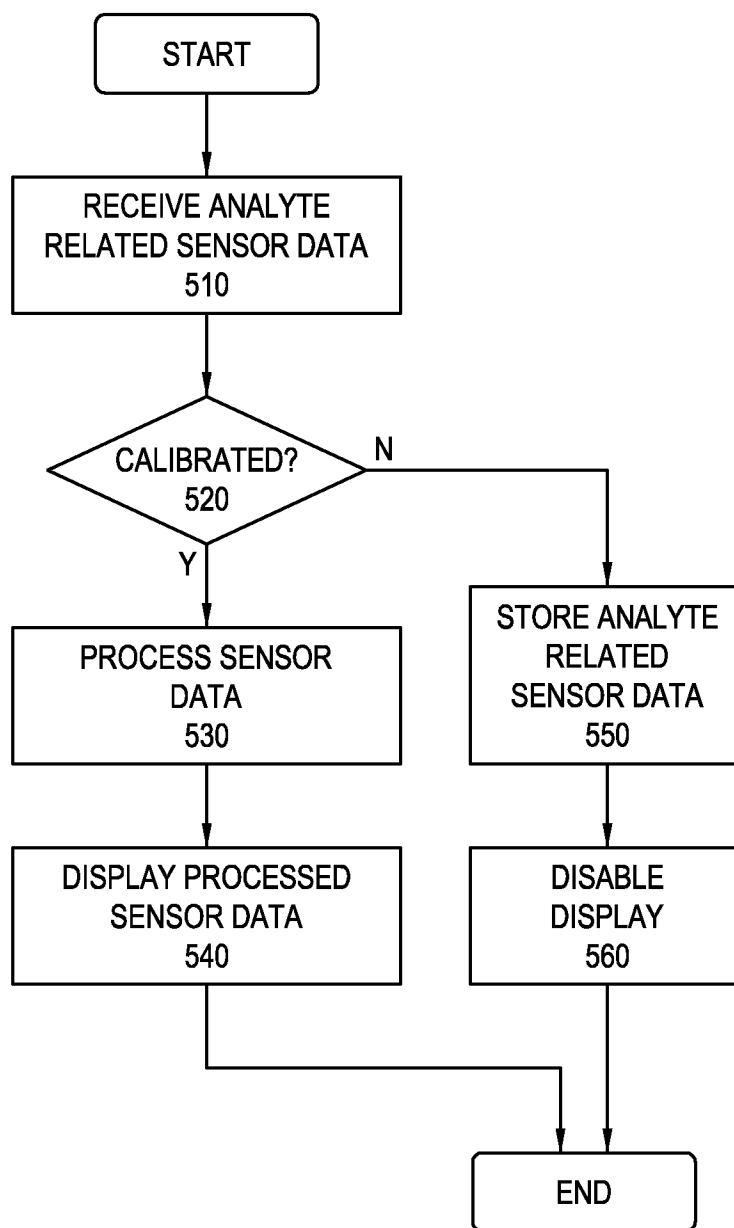
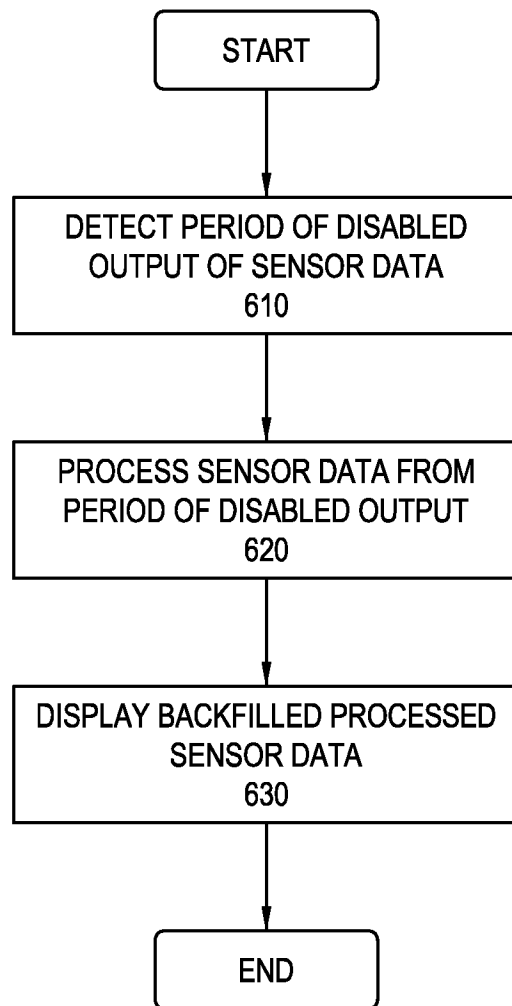


FIG. 3

**FIG. 4**

**FIG. 5**

**FIG. 6**



Electronic Patent Application Fee Transmittal

Application Number:	16228910			
Filing Date:	21-Dec-2018			
Title of Invention:	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING			
First Named Inventor/Applicant Name:	Wesley Scott Harper			
Filer:	Mark Andrew Stirrat/Alana Fredericks			
Attorney Docket Number:	A0130.0090.C3			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	1051	1	160	160
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	1251	1	200	200
Miscellaneous:				
Total in USD (\$)				2080

Electronic Acknowledgement Receipt

EFS ID:	35602438
Application Number:	16228910
International Application Number:	
Confirmation Number:	3620
Title of Invention:	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING
First Named Inventor/Applicant Name:	Wesley Scott Harper
Customer Number:	95508
Filer:	Mark Andrew Stirrat/Alana Fredericks
Filer Authorized By:	Mark Andrew Stirrat
Attorney Docket Number:	A0130.0090.C3
Receipt Date:	04-APR-2019
Filing Date:	21-DEC-2018
Time Stamp:	15:20:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$2080
RAM confirmation Number	040519INTEFSW15204100
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		9368USC3_A0130_0090_C3_Preliminary_Amendment.pdf	149300	yes	8
			abdc99f8820e0c953e64b2bbb6f3ecbccb2ae183		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	8	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	9368USC3_A0130_0090_C3_Replacement_Figures.pdf	144097	no	7
			1c233507600910c7fc05aaf2703c8de97ed10359		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	39051	no	2
			304c5f061a9e35200682615bfbdd50943b9e80a3		
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Total Files Size (in bytes):			332448		

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/228,910		Filing Date 12/21/2018		☐ 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(i))		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	04/04/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	x \$100 =		0		
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	x \$460 =		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		
		(Column 1)	(Column 2)	(Column 3)						
AMENDMENT		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.						LDRC				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/EVA V GILLIS/				
*** 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.



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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/228,910	12/21/2018	Wesley Scott Harper	A0130.0090.C3

CONFIRMATION NO. 3620

FORMALITIES LETTER



95508
One LLP
4000 MacArthur Blvd.
East Tower, Suite 500
Newport Beach, CA 92660

Date Mailed: 01/09/2019

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 7A-7B.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

- Additional claim fees of \$ **200** as an undiscounted entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.

The surcharge is due for any one of:

- late submission of the basic filing fee, search fee, or examination fee,
- late submission of inventor's oath or declaration,
- filing an application that does not contain at least one claim on filing, or
- submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. No entity status discount is in effect. If applicant is qualified for small entity status, a written assertion of small entity status must be submitted to establish small entity status. (See 37 CFR 1.27). If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ **300** basic filing fee.
- \$ **160** surcharge.
- \$ **660** search fee.
- \$ **760** examination fee.
- \$ **200** for **2** total claims over 20.
- \$ **(0)** previous unapplied payment amount.
- \$ **2080** TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at
(571) 272-4000 or **(571) 272-4200** or **1-888-786-0101**.

/bgonzalez/



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 NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/228,910	12/21/2018	3791	0.00	A0130.0090.C3	22	3

CONFIRMATION NO. 3620

FILING RECEIPT



0000000104926299

95508
One LLP
4000 MacArthur Blvd.
East Tower, Suite 500
Newport Beach, CA 92660

Date Mailed: 01/09/2019

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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**

Inventor(s)

Wesley Scott Harper, Alameda, CA;

Applicant(s)

ABBOTT DIABETES CARE INC., Alameda, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/061,774 03/04/2016
which is a CON of 13/925,694 06/24/2013 PAT 9310230
which is a CON of 12/769,635 04/28/2010 PAT 8483967
which claims benefit of 61/173,600 04/29/2009

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

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: 01/07/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/228,910**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

Title

METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

Preliminary Class

600

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.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

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 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).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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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 U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop 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 16/228,910				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR 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			N/A	300			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760			
TOTAL CLAIMS (37 CFR 1.16(j))	22 minus 20 =	*				x 100 =	200			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 460 =	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			
			TOTAL			TOTAL	1920			
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x =			x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =			x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x =			x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =			x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			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.										

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.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	1	of	21	Attorney Docket No: A0130.0090.C3	

US PATENT DOCUMENTS					
Examiner Initials*	Cite No.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		3,581,062	05-21-1971	Aston	
		3,926,760	12-16-1975	Allen, et al.	
		3,949,388	04-06-1976	Fuller	
		4,036,749	07-19-1977	Anderson	
		4,055,175	10-25-1977	Clemens, et al.	
		4,129,128	12-12-1978	McFarlane	
		4,245,634	01-20-1981	Albisser, et al.	
		4,327,725	05-04-1982	Cortese, et al.	
		4,344,438	08-17-1982	Schultz	
		4,349,728	09-14-1982	Phillips, et al.	
		4,425,920	01-17-1984	Bourland, et al.	
		4,441,968	04-10-1984	Emmer, et al.	
		4,464,170	08-07-1984	Clemens, et al.	
		4,478,976	10-23-1984	Goertz, et al.	
		4,494,950	01-22-1985	Fischell	
		4,509,531	04-09-1985	Ward	
		4,527,240	07-02-1985	Kvitash	
		4,538,616	09-03-1985	Rogoff	
		4,619,793	10-28-1986	Lee	
		4,671,288	06-09-1987	Gough	
		4,703,756	11-03-1987	Gough, et al.	
		4,731,726	03-15-1988	Allen, III	
		4,749,985	06-07-1988	Corsberg	
		4,757,022	07-12-1988	Shults, et al.	
		4,759,828	07-26-1988	Young, et al.	
		4,777,953	10-18-1988	Ash, et al.	
		4,779,618	10-25-1988	Mund, et al.	
		4,847,785	07-11-1989	Stephens	
		4,854,322	08-08-1989	Ash, et al.	
		4,890,620	01-02-1990	Gough	
		4,925,268	05-15-1990	Iyer, et al.	
		4,953,552	09-04-1990	DeMarzo	
		4,986,271	01-22-1991	Wilkins	
		4,995,402	02-26-1991	Smith, et al.	
		5,000,180	03-19-1991	Kuypers, et al.	
		5,002,054	03-26-1991	Ash, et al.	
		5,019,974	05-28-1991	Beckers	
		5,050,612	09-24-1991	Matsumura	
		5,051,688	09-24-1991	Murase, et al.	

EXAMINER

DATE CONSIDERED

Substitute Disclosure Statement Form (PTO-1449)
 * EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	2	of	21	Attorney Docket No: A0130.0090.C3	

US PATENT DOCUMENTS					
Examiner Initials*	Cite No.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,055,171	10-08-1991	Peck	
		5,082,550	01-21-1992	Rishpon, et al.	
		5,106,365	04-21-1992	Hernandez	
		5,122,925	06-16-1992	Inpyon	
		5,135,004	08-04-1992	Adams, et al.	
		5,165,407	11-24-1992	Wilson, et al.	
		5,202,261	04-13-1993	Musho, et al.	
		5,210,778	05-11-1993	Massart	
		5,228,449	07-20-1993	Christ, et al.	
		5,231,988	08-03-1993	Wernicke, et al.	
		5,246,867	09-21-1993	Lakowicz, et al.	
		5,251,126	10-05-1993	Kahn, et al.	
		5,262,035	11-16-1993	Gregg, et al.	
		5,262,305	11-16-1993	Heller, et al.	
		5,264,104	11-23-1993	Gregg, et al.	
		5,264,105	11-23-1993	Gregg, et al.	
		5,279,294	01-18-1994	Anderson, et al.	
		5,285,792	02-15-1994	Sjoquist, et al.	
		5,293,877	03-15-1994	O'Hara, et al.	
		5,299,571	04-05-1994	Mastrototaro	
		5,320,725	06-14-1994	Gregg, et al.	
		5,322,063	06-21-1994	Allen, et al.	
		5,340,722	08-23-1994	Wolfbeis, et al.	
		5,342,789	08-30-1994	Chick, et al.	
		5,356,786	10-18-1994	Heller, et al.	
		5,360,404	11-01-1994	Novacek, et al.	
		5,372,427	12-13-1994	Padovani, et al.	
		5,379,238	01-03-1995	Stark	
		5,384,547	01-24-1995	Lynk, et al.	
		5,390,671	02-21-1995	Lord, et al.	
		5,391,250	02-21-1995	Cheney, II, et al.	
		5,394,877	03-03-1995	Orr, et al.	
		5,402,780	04-04-1995	Faasse, Jr.	
		5,408,999	04-25-1995	Singh, et al.	
		5,410,326	04-25-1995	Goldstein	
		5,411,647	05-02-1995	Johnson, et al.	
		5,431,160	07-11-1995	Wilkins	
		5,431,921	07-11-1995	Thombre	
		5,462,645	10-31-1995	Albery, et al.	

EXAMINER

DATE CONSIDERED

Substitute Disclosure Statement Form (PTO-1449)
 * EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	3	of	21	Attorney Docket No: A0130.0090.C3	

US PATENT DOCUMENTS					
Examiner Initials*	Cite No.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,472,317	12-05-1995	Field, et al.	
		5,489,414	02-06-1996	Schreiber, et al.	
		5,497,772	03-12-1996	Schulman, et al.	
		5,507,288	04-16-1996	Bocker, et al.	
		5,509,410	04-23-1996	Hill, et al.	
		5,514,718	05-07-1996	Lewis, et al.	
		5,531,878	07-02-1996	Vadgama, et al.	
		5,552,997	09-03-1996	Massart	
		5,568,806	10-29-1996	Cheney, II, et al.	
		5,569,186	10-29-1996	Lord, et al.	
		5,582,184	12-10-1996	Erickson, et al.	
		5,586,553	12-24-1996	Halili, et al.	
		5,593,852	01-14-1997	Heller, et al.	
		5,601,435	02-11-1997	Quv	
		5,609,575	03-11-1997	Larson, et al.	
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		5,665,222	09-09-1997	Heller, et al.	
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		5,748,103	05-05-1998	Flach, et al.	
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US PATENT DOCUMENTS					
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		6,958,705	10-25-2005	Lebel, et al.	
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		7,171,274	01-30-2007	Starkweather, et al.	
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				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
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US PATENT DOCUMENTS					
Examiner Initials*	Cite No.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		2001/0037060	11-01-2001	Thompson, et al.	
		2001/0037366	11-01-2001	Webb, et al.	
		2001/0047604	12-06-2001	Valiulis	
		2002/0019022	02-14-2002	Dunn, et al.	
		2002/0054320	05-09-2002	Ogino	
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		2002/0106709	08-08-2002	Potts, et al.	
		2002/0111832	08-15-2002	Judge	
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		2002/0133107	09-19-2002	Darcey	
		2002/0147135	10-10-2002	Schnell	
		2002/0161288	10-31-2002	Shin, et al.	
		2002/0788748	12-12-2002	Blackwell, et al.	
		2003/0005464	01-02-2003	Gropper, et al.	
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		2003/0028089	02-06-2003	Galley, et al.	
		2003/0060692	03-27-2003	Ruchti, et al.	
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		2005/0251033	11-10-2005	Scarantino, et al.	
		2005/0277912	12-15-2005	John	
		2006/0001538	01-05-2006	Kraft, et al.	
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		2007/0078818	04-05-2007	Zvitz, et al.	
		2007/0093786	04-26-2007	Goldsmith, et al.	
		2007/0149875	06-28-2007	Ouyang, et al.	
		2007/0173706	07-26-2007	Neinast, et al.	
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		2007/0255321	11-01-2007	Gerber, et al.	
		2007/0255348	11-01-2007	Holtzclaw	
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		2008/0009692	01-10-2008	Stafford	
		2008/0033254	02-07-2008	Karnath, et al.	
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		2008/0208025	08-28-2008	Shults, et al.	

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		2008/0214918	09-04-2008	Brister, et al.	
		2008/0228051	09-18-2008	Shults, et al.	
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		2008/0234943	09-25-2008	Ray, et al.	
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		2010/0160759	06-24-2010	Celentano, et al.	
		2010/0168538	07-01-2010	Keenan, et al.	
		2010/0168540	07-01-2010	Karnath, et al.	
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		2010/0168543	07-01-2010	Karnath, et al.	
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		2011/0028816	02-03-2011	Simpson, et al.	

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				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	17	of	21	Attorney Docket No: A0130.0090.C3	

US PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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		2011/0077490	03-31-2011	Simpson, et al.	
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		2011/0178461	07-21-2011	Chong, et al.	
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		2012/0165626	06-28-2012	Irina, et al.	
		2012/0165640	06-28-2012	Galley, et al.	
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.	Foreign Patent Document Country Code-Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		EP-0098592	01-18-1984	Fujisawa Pharmaceutical Co., Ltd.		
		EP-0127958	12-12-1984	Genetics International, Inc.		
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		WO-00/59370	10-12-2000	Cambridge University, Technical Services Limited		
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		WO-03/82091	10-09-2003	Inverness Medical Limited		
		WO-2008/001366	01-03-2008	Endo-Rhythm Ltd.		

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				Application Number	To be assigned
				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	18	of	21	Attorney Docket No: A0130.0090.C3	

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
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				Application Number	To be assigned
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				First Named Inventor	Wesley Scott Harper
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				Examiner Name	To be assigned
Sheet	19	of	21	Attorney Docket No: A0130.0090.C3	

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				Filing Date	December 21, 2018
				First Named Inventor	Wesley Scott Harper
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				Examiner Name	To be assigned
Sheet	20	of	21	Attorney Docket No: A0130.0090.C3	

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Page 165 of 212

Electronic Acknowledgement Receipt

EFS ID:	34666534
Application Number:	16228910
International Application Number:	
Confirmation Number:	3620
Title of Invention:	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING
First Named Inventor/Applicant Name:	Wesley Scott Harper
Customer Number:	95508
Filer:	Mark Andrew Stirrat/Alana Fredericks
Filer Authorized By:	Mark Andrew Stirrat
Attorney Docket Number:	A0130.0090.C3
Receipt Date:	21-DEC-2018
Filing Date:	
Time Stamp:	09:56:56
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	Application Data Sheet	9368USC3_A0130_0090_C3_A DS.pdf	1503609 a560166e98544e8ccd630beb4bfccec8b76f6 75de	no	6

Warnings:

Information:					
2		9368USC3_A0130_0090_C3_Specification.pdf	203052	yes	25
			edf6c93b6c6cc2e368d55203b910847159fe77c5		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Abstract		25	25	
	Claims		21	24	
	Specification		1	20	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	9368USC3_A0130_0090_C3_Figures.pdf	135148	no	7
			fb177d70654ea8bd546972e9329119c79da88535		
Warnings:					
Information:					
4	Oath or Declaration filed	9368USC3_A0130_0090_C3_Declaration.pdf	174454	no	2
			2fb25719d5d6d97b52e10f7d14299a1a3253a22c		
Warnings:					
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5	Transmittal Letter	9368USC3_A0130_0090_C3_IDS_Transmittal.pdf	94961	no	4
			636309ae26aa2221fd7a74476264fb591c8ef07d		
Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	9368USC3_A0130_0090_C3_IDS_1449.pdf	378167	no	21
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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.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	A0130.0090.C3
		Application Number	
Title of Invention	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING		
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.)
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Inventor Information:

Inventor	1				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Wesley	Scott	Harper			
Residence Information (Select One) • US Residency Non US Residency Active US Military Service						
City	Alameda	State/Province	CA	Country of Residence	US	
Mailing Address of Inventor:						
Address 1	15 Ferro Court					
Address 2						
City	Alameda	State/Province	CA			
Postal Code	94502	Country	US			
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Correspondence Information:

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Email Address	ipdocketing@onellp.com	Add Email	Remove Email

Application Information:

Title of the Invention	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING		
Attorney Docket Number	A0130.0090.C3	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	A0130.0090.C3
		Application Number	
Title of Invention	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING		

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	95508		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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.

Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
	Continuation of	15061774	2016-03-04		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15061774	Continuation of	13925694	2013-06-24	9310230	2016-04-12
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13925694	Continuation of	12769635	2010-04-28	8483967	2013-07-09
Prior Application Status	Expired	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
12769635	non provisional of	61173600	2009-04-29		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	A0130.0090.C3
		Application Number	
Title of Invention	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING		

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(d). 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(h)(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).

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
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.

Authorization to Permit Access:

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	A0130.0090.C3
		Application Number	
Title of Invention	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING		

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Name of the Deceased or Legally Incapacitated Inventor :		
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	A0130.0090.C3
		Application Number	
Title of Invention	METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING		

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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.
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.

ABSTRACT OF THE DISCLOSURE

Provided are methods and apparatus for receiving sensor data from an analyte sensor of a sensor monitoring system, processing the received sensor data with time corresponding calibration data, outputting the processed sensor data, detecting one or more adverse conditions associated with the sensor monitoring system, disabling the output of the sensor data during the adverse condition time period, determining that the one or more detected adverse conditions is no longer present in the sensor monitoring system, retrieving the sensor data during the adverse condition time period, processing the retrieved sensor data during the adverse condition time period, and outputting the processed retrieved sensor data.

WHAT IS CLAIMED IS:

1. A method, comprising:
receiving sensor data from an analyte sensor of a sensor monitoring system;
processing the received sensor data with time corresponding calibration data;
outputting the processed sensor data;
detecting one or more adverse conditions associated with the sensor monitoring system;
disabling the output of the sensor data during an adverse condition time period;
determining that the one or more detected adverse conditions is no longer present in the sensor monitoring system;
retrieving the sensor data during the adverse condition time period;
processing the retrieved sensor data during the adverse condition time period; and
outputting the processed retrieved sensor data.
2. The method of claim 1, wherein outputting the processed sensor data includes displaying the sensor data in one or more of a graphical, numerical, pictorial, audible, vibratory, or one or more combinations thereof.
3. The method of claim 1, wherein the one or more detected adverse conditions includes one or more of a sensor instability condition, a calibration failure condition, or a monitoring system failure condition.
4. The method of claim 3, wherein the sensor instability condition includes one or more of an early signal attenuation condition of the sensor, sensor mis-position error, sensor communication error, temperature measurement outside a predetermined range, or a combination thereof.
5. The method of claim 3, wherein the calibration failure condition includes one or more of an analyte level exceeding a predetermined threshold, a rate of change of analyte level exceeding a predetermined threshold, a signal error associated with the reference data, a data unavailability condition, or a combination thereof.

6. The method of claim 1 including storing the processed sensor data with the associated time information based on the analyte level detection time by the sensor.

7. A method, comprising:
detecting a condition unsuitable for calibration of an analyte sensor for a predetermined time period;
disabling output of information associated with the analyte sensor;
determining a successful calibration of the analyte sensor;
retrieving one or more parameters associated with the successful calibration;
processing sensor data during the time period of disabled output of information with the one or more parameters associated with the successful calibration; and
displaying the processed sensor data for the time period of disabled information output.

8. The method of claim 7, wherein the sensor data is analyte concentration data.

9. The method of claim 8, wherein the analyte concentration data includes blood glucose concentration data.

10. The method of claim 7, wherein the sensor data is processed in substantially real-time.

11. The method of claim 7, wherein the condition unsuitable for calibration includes one or more of a failure mode of a sensor, sensor data outside a predetermined acceptable range, a rate of change of sensor data above a predetermined level, a requirement for calibration of a sensor, a temperature measurement outside a predetermined range, or any combination thereof.

12. The method of claim 7, wherein the processed sensor data for the time period of disabled information output is displayed substantially immediately upon processing.

13. The method of claim 7, wherein the processed sensor data for the time period of

disabled information output is displayed only after waiting a predetermined period of time.

14. An apparatus, comprising:
 - an interface configured to receive sensor data;
 - a first memory configured to store the received sensor data;
 - a processor coupled to the memory and configured to process the stored sensor data;
 - a second memory coupled to the processor and configured to store the processed sensor data; and
 - a display unit coupled to the second memory and configured to display the processed sensor data;wherein the processor is further configured to:
 - detect a condition unsuitable for calibration of a sensor for a predetermined time period;
 - disable display of processed sensor data;
 - determine a successful calibration of the sensor; retrieve one or more parameters associated with the successful calibration;
 - process the sensor data during the time period of disabled display of sensor data with the one or more parameters associated with the successful calibration; and
 - display the processed sensor data for the time period of disabled information output.
15. The apparatus of claim 14, wherein the sensor is an analyte sensor.
16. The apparatus of claim 15, wherein the analyte sensor is a glucose sensor.
17. The apparatus of claim 15, wherein the sensor data corresponds to analyte concentration data.
18. The apparatus of claim 17, wherein the analyte concentration data includes blood glucose concentration data.

19. The apparatus of claim 14 configured to process and display the sensor data substantially in real-time.

20. The apparatus of claim 14, wherein the condition unsuitable for calibration includes one or more of a failure mode of a sensor, sensor data outside a predetermined acceptable range, a rate of change of sensor data above a predetermined level, a requirement for calibration of a sensor, a temperature measurement outside a predetermined range, or any combination thereof.

21. The apparatus of claim 14, wherein the display unit is configured to display the processed sensor data for the time period of disabled information output substantially immediately upon processing the sensor data.

22. The apparatus of claim 14, wherein the display unit is configured to display the processed sensor data for the time period of disabled information output only after waiting a predetermined period of time.

METHODS AND SYSTEMS FOR EARLY SIGNAL ATTENUATION DETECTION AND PROCESSING

RELATED APPLICATIONS

[0001] The present application is a continuation of U.S. Patent Application No. 15/061,774, filed March 4, 2016, which is a continuation of U.S. Patent Application No. 13/925,694, filed June 24, 2013, now U.S. Patent No. 9,310,230, which is a continuation of U.S. Patent Application No. 12/769,635, filed April 28, 2010, now U.S. Patent No. 8,483,967, which claims the benefit of U.S. Provisional Patent Application No. 61/173,600, filed April 29, 2009, the disclosures of all of which are incorporated herein by reference in their entireties for all purposes.

BACKGROUND

[0002] Analyte, e.g., glucose monitoring systems including continuous and discrete monitoring systems generally include a small, lightweight battery powered and microprocessor controlled system which is configured to detect signals proportional to the corresponding measured glucose levels using an electrometer. RF signals may be used to transmit the collected data. One aspect of certain analyte monitoring systems include a transcutaneous or subcutaneous analyte sensor configuration which is, for example, at least partially positioned through the skin layer of a subject whose analyte level is to be monitored. The sensor may use a two or three-electrode (work, reference and counter electrodes) configuration driven by a controlled potential (potentiostat) analog circuit connected through a contact system.

[0003] An analyte sensor may be configured so that a portion thereof is placed under the skin of the patient so as to contact analyte of the patient, and another portion or segment of the analyte sensor may be in communication with the transmitter unit. The transmitter unit may be configured to transmit the analyte levels detected by the sensor over a wireless communication link such as an RF (radio frequency) communication link to a receiver/monitor unit. The receiver/monitor unit may perform data analysis, among other functions, on the received analyte levels to generate information pertaining to the monitored analyte levels.

SUMMARY

[0004] Devices and methods for analyte monitoring, e.g., glucose monitoring, and/or therapy management system including, for example, medication infusion device are provided.

Embodiments include transmitting information from a first location to a second, e.g., using a telemetry system such as RF telemetry. Systems herein include continuous analyte monitoring systems, discrete analyte monitoring system, and therapy management systems.

[0005] Embodiments include receiving sensor data from an analyte sensor of a sensor monitoring system, processing the received sensor data with time corresponding calibration data, outputting the processed sensor data, detecting one or more adverse conditions associated with the sensor monitoring system, disabling the output of the sensor data during a adverse condition time period, determining that the one or more detected adverse conditions is no longer present in the sensor monitoring system, retrieving the sensor data during the adverse condition time period, processing the retrieved sensor data during the adverse condition time period, and outputting the processed retrieved sensor data.

[0006] Embodiments include detecting a condition unsuitable for calibration of an analyte sensor for a predetermined time period, disabling output of information associated with the analyte sensor, determining a successful calibration of the analyte sensor, retrieving one or more parameters associated with the successful calibration, processing sensor data during the time period of disabled output of information with the one or more parameters associated with the successful calibration, and displaying the processed sensor data for the time period of disabled information output.

[0007] Embodiments include an interface configured to receive sensor data, a first memory configured to store the received sensor data, a processor coupled to the memory and configured to process the stored sensor data, a second memory coupled to the processor and configured to store the processed sensor data, and a display unit coupled to the second memory and configured to display the processed sensor data, where the processor is further configured to detect a condition unsuitable for calibration of a sensor for a predetermined time period, disable display of processed sensor data, determine a successful calibration of the sensor, retrieve one or more parameters associated with the successful calibration, process the sensor data during the time period of disabled display of sensor data with the one or more parameters associated with the

successful calibration, and display the processed sensor data for the time period of disabled information output.

[0008] These and other objects, features and advantages of the present disclosure will become more fully apparent from the following detailed description of the embodiments, the appended claims and the accompanying drawings.

INCORPORATION BY REFERENCE

[0009] The following patents, applications and/or publications are incorporated herein by reference for all purposes: U.S. Patent Nos. 4,545,382; 4,711,245; 5,262,035; 5,262,305; 5,264,104; 5,320,715; 5,509,410; 5,543,326; 5,593,852; 5,601,435; 5,628,890; 5,820,551; 5,822,715; 5,899,855; 5,918,603; 6,071,391; 6,103,033; 6,120,676; 6,121,009; 6,134,461; 6,143,164; 6,144,837; 6,161,095; 6,175,752; 6,270,455; 6,284,478; 6,299,757; 6,338,790; 6,377,894; 6,461,496; 6,503,381; 6,514,460; 6,514,718; 6,540,891; 6,560,471; 6,579,690; 6,591,125; 6,592,745; 6,600,997; 6,605,200; 6,605,201; 6,616,819; 6,618,934; 6,650,471; 6,654,625; 6,676,816; 6,730,200; 6,736,957; 6,746,582; 6,749,740; 6,764,581; 6,773,671; 6,881,551; 6,893,545; 6,932,892; 6,932,894; 6,942,518; 7,167,818; and 7,299,082; U.S. Published Application Nos. 2004/0186365; 2005/0182306; 2007/0056858; 2007/0068807; 2007/0227911; 2007/0233013; 2008/0081977; 2008/0161666; and 2009/0054748; U.S. Patent Application Nos. 11/831,866; 11/831,881; 11/831,895; 12/102,839; 12/102,844; 12/102,847; 12/102,855; 12/102,856; 12/152,636; 12/152,648; 12/152,650; 12/152,652; 12/152,657; 12/152,662; 12/152,670; 12/152,673; 12/363,712; 12/131,012; 12/242,823; 12/363,712; 12/393,921; 12/495,709; 12/698,124; 12/699,653; 12/699,844; 12/714,439; 12/761,372; and 12/761,387 and U.S. Provisional Application Nos. 61/230,686 and 61/227,967.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 illustrates a block diagram of a data monitoring and management system for practicing one or more embodiments of the present disclosure;

FIG. 2 is a block diagram of the transmitter unit of the data monitoring and management system shown in FIG. 1 in accordance with one embodiment of the present disclosure;

[0012] FIG. 3 is a block diagram of the receiver/monitor unit of the data monitoring and management system shown in FIG. 1 in accordance with one embodiment of the present disclosure;

[0013] FIG. 4 illustrates analyte sensor data processing in accordance with one embodiment of the present disclosure;

[0014] FIG. 5 illustrates analyte sensor data processing in accordance with one embodiment of the present disclosure;

[0015] FIG. 6 illustrates backfilling gaps in sensor data in one embodiment of the present disclosure; and

[0016] FIGS. 7A and 7B illustrate backfill of gaps of a period of uncalibrated sensor data in one embodiment.

DETAILED DESCRIPTION

[0017] Before the present disclosure is described in additional detail, it is to be understood that this disclosure is not limited to particular embodiments described, as such may, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting, since the scope of the present disclosure will be limited only by the appended claims.

[0018] Where a range of values is provided, it is understood that each intervening value, to the tenth of the unit of the lower limit unless the context clearly dictates otherwise, between the upper and lower limit of that range and any other stated or intervening value in that stated range, is encompassed within the disclosure. The upper and lower limits of these smaller ranges may independently be included in the smaller ranges is also encompassed within the disclosure, subject to any specifically excluded limit in the stated range. Where the stated range includes one or both of the limits, ranges excluding either or both of those included limits are also included in the disclosure.

[0019] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this disclosure belongs. Although any methods and materials similar or equivalent to those described herein can also be used in the practice or testing of the present disclosure, the preferred methods and materials are now described. All publications mentioned herein are incorporated herein by reference to disclose and describe the methods and/or materials in connection with which the publications are cited.

[0020] It must be noted that as used herein and in the appended claims, the singular forms "a",

“an”, and “the” include plural referents unless the context clearly dictates otherwise.

[0021] The publications discussed herein are provided solely for their disclosure prior to the filing date of the present application. Nothing herein is to be construed as an admission that the present disclosure is not entitled to antedate such publication by virtue of prior disclosure.

Further, the dates of publication provided may be different from the actual publication dates which may need to be independently confirmed.

[0022] As will be apparent to those of skill in the art upon reading this disclosure, each of the individual embodiments described and illustrated herein has discrete components and features which may be readily separated from or combined with the features of any of the other several embodiments without departing from the scope or spirit of the present disclosure.

[0023] The figures shown herein are not necessarily drawn to scale, with some components and features being exaggerated for clarity.

[0024] As described in further detail below, in accordance with the various embodiments of the present disclosure, there is provided a method and system for positioning a controller unit within a transmission range for close proximity communication, transmitting one or more predefined close proximity commands, and receiving a response packet in response to the transmitted one or more predefined close proximity commands. For example, in one aspect, close proximity communication includes short range wireless communication between communication components or devices, where the communication range is limited to about 10 inches or less, about 5 inches or less, or about 2 inches or less, or other suitable, short range or distance between the devices. The close proximity wireless communication in certain embodiments includes a bi-directional communication where a command sending communication device, when positioned within the short communication range or in close proximity to the command receiving communication device, is configured to transmit one or more commands to the command receiving communication device (for example, when a user activates or actuates a transmit command button or switch). In response, the command receiving communication device may be configured to perform one or more routines associated with the received command, and/or return or send back a response data packet or signal to the command sending communication device. Example of such functions and or commands may include, but not limited to activation of certain functions or routines such as analyte related data processing, and the like.

[0025] FIG. 1 illustrates a data monitoring and management system such as, for example, analyte

(e.g., glucose) monitoring system 100 in accordance with one embodiment of the present disclosure. The subject invention is further described primarily with respect to a glucose monitoring system for convenience and such description is in no way intended to limit the scope of the invention. It is to be understood that the analyte monitoring system may be configured to monitor a variety of analytes, e.g., lactate, and the like.

[0026] Analytes that may be monitored include, for example, acetyl choline, amylase, bilirubin, cholesterol, chorionic gonadotropin, creatine kinase (e.g., CK-MB), creatine, DNA, fructosamine, glucose, glutamine, growth hormones, hormones, ketones, lactate, peroxide, prostate-specific antigen, prothrombin, RNA, thyroid stimulating hormone, and troponin. The concentration of drugs, such as, for example, antibiotics (e.g., gentamicin, vancomycin, and the like), digitoxin, digoxin, drugs of abuse, theophylline, and warfarin, may also be monitored. More than one analyte may be monitored by a single system, e.g. a single analyte sensor.

[0027] The analyte monitoring system 100 includes a sensor unit 101, a data processing and transmitter unit 102 coupleable to the sensor unit 101, and a primary receiver unit 104 which is configured to communicate with the data processing and transmitter unit 102 via a bi-directional communication link 103. The primary receiver unit 104 may be further configured to transmit data to a data processing terminal 105 for evaluating the data received by the primary receiver unit 104. Moreover, the data processing terminal 105 in one embodiment may be configured to receive data directly from the data processing and transmitter unit 102 via a communication link which may optionally be configured for bi-directional communication. Accordingly, data processing and transmitter unit 102 and/or receiver unit 104 may include a transceiver.

[0028] Also shown in FIG. 1 is an optional secondary receiver unit 106 which is operatively coupled to the communication link and configured to receive data transmitted from the data processing and transmitter unit 102. Moreover, as shown in the Figure, the secondary receiver unit 106 is configured to communicate with the primary receiver unit 104 as well as the data processing terminal 105. Indeed, the secondary receiver unit 106 may be configured for bi-directional wireless communication with each or one of the primary receiver unit 104 and the data processing terminal 105. As discussed in further detail below, in one embodiment of the present disclosure, the secondary receiver unit 106 may be configured to include a limited number of functions and features as compared with the primary receiver unit 104. As such, the secondary receiver unit 106 may be configured substantially in a smaller compact housing or

embodied in a device such as a wrist watch, pager, mobile phone, PDA, for example.

Alternatively, the secondary receiver unit 106 may be configured with the same or substantially similar functionality as the primary receiver unit 104. The receiver unit may be configured to be used in conjunction with a docking cradle unit, for example for one or more of the following or other functions: placement by bedside, for re-charging, for data management, for night time monitoring, and/or bi-directional communication device.

[0029] In one aspect sensor unit 101 may include two or more sensors, each configured to communicate with data processing and transmitter unit 102. Furthermore, while only one, data processing and transmitter unit 102, communication link 103, and data processing terminal 105 are shown in the embodiment of the analyte monitoring system 100 illustrated in FIG. 1.

However, it will be appreciated by one of ordinary skill in the art that the analyte monitoring system 100 may include one or more sensors, multiple transmitter units 102, communication links 103, and data processing terminals 105. Moreover, within the scope of the present disclosure, the analyte monitoring system 100 may be a continuous monitoring system, or semi-continuous, or a discrete monitoring system. In a multi-component environment, each device is configured to be uniquely identified by each of the other devices in the system so that communication conflict is readily resolved between the various components within the analyte monitoring system 100.

[0030] In one embodiment of the present disclosure, the sensor unit 101 is physically positioned in or on the body of a user whose analyte level is being monitored. The sensor unit 101 may be configured to continuously sample the analyte level of the user and convert the sampled analyte level into a corresponding data signal for transmission by the data processing and transmitter unit 102. In certain embodiments, the data processing and transmitter unit 102 may be physically coupled to the sensor unit 101 so that both devices are integrated in a single housing and positioned on the user's body. The data processing and transmitter unit 102 may perform data processing such as filtering and encoding on data signals and/or other functions, each of which corresponds to a sampled analyte level of the user, and in any event data processing and transmitter unit 102 transmits analyte information to the primary receiver unit 104 via the communication link 103. Examples of such integrated sensor and transmitter units can be found in, among others, U.S. Patent Application No. 12/698,124, incorporated herein by reference.

[0031] In one embodiment, the analyte monitoring system 100 is configured as a one-way RF

communication path from the data processing and transmitter unit 102 to the primary receiver unit 104. In such embodiment, the data processing and transmitter unit 102 transmits the sampled data signals received from the sensor unit 101 without acknowledgement from the primary receiver unit 104 that the transmitted sampled data signals have been received. For example, the data processing and transmitter unit 102 may be configured to transmit the encoded sampled data signals at a fixed rate (e.g., at one minute intervals) after the completion of the initial power on procedure. Likewise, the primary receiver unit 104 may be configured to detect such transmitted encoded sampled data signals at predetermined time intervals. Alternatively, the analyte monitoring system 100 may be configured with a bi-directional RF (or otherwise) communication between the data processing and transmitter unit 102 and the primary receiver unit 104.

[0032] Additionally, in one aspect, the primary receiver unit 104 may include two sections. The first section is an analog interface section that is configured to communicate with the data processing and transmitter unit 102 via the communication link 103. In one embodiment, the analog interface section may include an RF receiver and an antenna for receiving and amplifying the data signals from the data processing and transmitter unit 102, which are thereafter, demodulated with a local oscillator and filtered through a band-pass filter. The second section of the primary receiver unit 104 is a data processing section which is configured to process the data signals received from the data processing and transmitter unit 102 such as by performing data decoding, error detection and correction, data clock generation, and data bit recovery.

[0033] In operation, upon completing the power-on procedure, the primary receiver unit 104 is configured to detect the presence of the data processing and transmitter unit 102 within its range based on, for example, the strength of the detected data signals received from the data processing and transmitter unit 102 and/or a predetermined transmitter identification information. Upon successful synchronization with the corresponding data processing and transmitter unit 102, the primary receiver unit 104 is configured to begin receiving from the data processing and transmitter unit 102 data signals corresponding to the user's detected analyte level. More specifically, the primary receiver unit 104 in one embodiment is configured to perform synchronized time hopping with the corresponding synchronized data processing and transmitter unit 102 via the communication link 103 to obtain the user's detected analyte level.

[0034] Referring again to FIG. 1, the data processing terminal 105 may include a personal

computer, a portable computer such as a laptop or a handheld device (e.g., personal digital assistants (PDAs)), and the like, each of which may be configured for data communication with the receiver via a wired or a wireless connection. Additionally, the data processing terminal 105 may further be connected to a data network (not shown) for storing, retrieving and updating data corresponding to the detected analyte level of the user.

[0035] Within the scope of the present disclosure, the data processing terminal 105 may include an infusion device such as an insulin infusion pump (external or implantable) or the like, which may be configured to administer insulin to patients, and which may be configured to communicate with the receiver unit 104 for receiving, among others, the measured analyte level. Alternatively, the receiver unit 104 may be configured to integrate or otherwise couple to an infusion device therein so that the receiver unit 104 is configured to administer insulin therapy to patients, for example, for administering and modifying basal profiles, as well as for determining appropriate boluses for administration based on, among others, the detected analyte levels received from the data processing and transmitter unit 102.

[0036] Additionally, the data processing and transmitter unit 102, the primary receiver unit 104 and the data processing terminal 105 may each be configured for bi-directional wireless communication such that each of the data processing and transmitter unit 102, the primary receiver unit 104 and the data processing terminal 105 may be configured to communicate (that is, transmit data to and receive data from) with each other via the wireless communication link 103. More specifically, the data processing terminal 105 may in one embodiment be configured to receive data directly from the data processing and transmitter unit 102 via the communication link 103, where the communication link 103, as described above, may be configured for bi-directional communication.

[0037] In this embodiment, the data processing terminal 105 which may include an insulin pump, may be configured to receive the analyte signals from the data processing and transmitter unit 102, and thus, incorporate the functions of the receiver 104 including data processing for managing the patient's insulin therapy and analyte monitoring. In one embodiment, the communication link 103 may include one or more of an RF communication protocol, an infrared communication protocol, a Bluetooth® enabled communication protocol, an 802.11x wireless communication protocol, or an equivalent wireless communication protocol which would allow secure, wireless communication of several units (for example, per HIPPA requirements) while

avoiding potential data collision and interference.

[0038] FIG. 2 is a block diagram of the transmitter of the data monitoring and detection system shown in FIG. 1 in accordance with one embodiment of the present disclosure. Referring to the Figure, the data processing and transmitter unit 102 in one embodiment includes an analog interface 201 configured to communicate with the sensor unit 101 (FIG. 1), a user input 202, and a temperature measurement section 203, each of which is operatively coupled to a transmitter processor 204 such as a central processing unit (CPU). As can be seen from FIG. 2, there are provided four contacts, three of which are electrodes--work electrode (W) 210, guard contact (G) 211, reference electrode (R) 212, and counter electrode (C) 213, each operatively coupled to the analog interface 201 of the data processing and transmitter unit 102 for connection to the sensor unit 101 (FIG. 1). In one embodiment, each of the work electrode (W) 210, guard contact (G) 211, reference electrode (R) 212, and counter electrode (C) 213 may be made using a conductive material that is either printed or etched or ablated, for example, such as carbon which may be printed, or a metal such as a metal foil (e.g., gold) or the like, which may be etched or ablated or otherwise processed to provide one or more electrodes. Fewer or greater electrodes and/or contact may be provided in certain embodiments.

[0039] Further shown in FIG. 2 are a transmitter serial communication section 205 and an RF transmitter 206, each of which is also operatively coupled to the transmitter processor 204. Moreover, a power supply 207 such as a battery is also provided in the data processing and transmitter unit 102 to provide the necessary power for the data processing and transmitter unit 102. In certain embodiments, the power supply 207 also provides the power necessary to power the sensor 101. In other embodiments, the sensor is a self-powered sensor, such as the sensor described in U.S. patent application Ser. No. 12/393,921, incorporated herein by reference. Additionally, as can be seen from the Figure, clock 208 is provided to, among others, supply real time information to the transmitter processor 204.

[0040] In one embodiment, a unidirectional input path is established from the sensor unit 101 (FIG. 1) and/or manufacturing and testing equipment to the analog interface 201 of the data processing and transmitter unit 102, while a unidirectional output is established from the output of the RF transmitter 206 of the data processing and transmitter unit 102 for transmission to the primary receiver unit 104. In this manner, a data path is shown in FIG. 2 between the aforementioned unidirectional input and output via a dedicated link 209 from the analog

interface 201 to serial communication section 205, thereafter to the processor 204, and then to the RF transmitter 206. As such, in one embodiment, via the data path described above, the data processing and transmitter unit 102 is configured to transmit to the primary receiver unit 104 (FIG. 1), via the communication link 103 (FIG. 1), processed and encoded data signals received from the sensor unit 101 (FIG. 1). Additionally, the unidirectional communication data path between the analog interface 201 and the RF transmitter 206 discussed above allows for the configuration of the data processing and transmitter unit 102 for operation upon completion of the manufacturing process as well as for direct communication for diagnostic and testing purposes.

[0041] As discussed above, the transmitter processor 204 is configured to transmit control signals to the various sections of the data processing and transmitter unit 102 during the operation of the data processing and transmitter unit 102. In one embodiment, the transmitter processor 204 also includes a memory (not shown) for storing data such as the identification information for the data processing and transmitter unit 102, as well as the data signals received from the sensor unit 101. The stored information may be retrieved and processed for transmission to the primary receiver unit 104 under the control of the transmitter processor 204. Furthermore, the power supply 207 may include a commercially available battery, which may be a rechargeable battery.

[0042] In certain embodiments, the data processing and transmitter unit 102 is also configured such that the power supply section 207 is capable of providing power to the transmitter for a minimum of about three months of continuous operation, e.g., after having been stored for about eighteen months such as stored in a low-power (non-operating) mode. In one embodiment, this may be achieved by the transmitter processor 204 operating in low power modes in the non-operating state, for example, drawing no more than approximately 1 μ A of current. Indeed, in one embodiment, a step during the manufacturing process of the data processing and transmitter unit 102 may place the data processing and transmitter unit 102 in the lower power, non-operating state (i.e., post-manufacture sleep mode). In this manner, the shelf life of the data processing and transmitter unit 102 may be significantly improved. Moreover, as shown in FIG. 2, while the power supply unit 207 is shown as coupled to the processor 204, and as such, the processor 204 is configured to provide control of the power supply unit 207, it should be noted that within the scope of the present disclosure, the power supply unit 207 is configured to

provide the necessary power to each of the components of the data processing and transmitter unit 102 shown in FIG. 2.

[0043] Referring back to FIG. 2, the power supply section 207 of the data processing and transmitter unit 102 in one embodiment may include a rechargeable battery unit that may be recharged by a separate power supply recharging unit (for example, provided in the receiver unit 104) so that the data processing and transmitter unit 102 may be powered for a longer period of usage time. Moreover, in one embodiment, the data processing and transmitter unit 102 may be configured without a battery in the power supply section 207, in which case the data processing and transmitter unit 102 may be configured to receive power from an external power supply source (for example, a battery) as discussed in further detail below.

[0044] Referring yet again to FIG. 2, the temperature measurement section 203 of the data processing and transmitter unit 102 is configured to monitor the temperature of the skin near the sensor insertion site. The temperature reading is used to adjust the analyte readings obtained from the analog interface 201. In certain embodiments, the RF transmitter 206 of the transmitter unit 102 may be configured for operation in the frequency band of approximately 315 MHz to approximately 322 MHz, for example, in the United States. In certain embodiments, the RF transmitter 206 of the transmitter unit 102 may be configured for operation in the frequency band of approximately 400 MHz to approximately 470 MHz. Further, in one embodiment, the RF transmitter 206 is configured to modulate the carrier frequency by performing Frequency Shift Keying and Manchester encoding. In one embodiment, the data transmission rate is about 19,200 symbols per second, with a minimum transmission range for communication with the primary receiver unit 104.

[0045] Referring yet again to FIG. 2, also shown is a leak detection circuit 214 coupled to the guard electrode (G) 211 and the processor 204 in the transmitter unit 102 of the data monitoring and management system 100. The leak detection circuit 214 in accordance with one embodiment of the present disclosure may be configured to detect leakage current in the sensor unit 101 to determine whether the measured sensor data are corrupt or whether the measured data from the sensor 101 is accurate. Exemplary analyte systems that may be employed are described in, for example, U.S. Patent Nos. 6,134,461, 6,175,752, 6,121,611, 6,560,471, 6,746,582, and elsewhere, the disclosure of each of which are incorporated by reference for all purposes.

[0046] FIG. 3 is a block diagram of the receiver/monitor unit of the data monitoring and management system shown in FIG. 1 in accordance with one embodiment of the present disclosure. Referring to FIG. 3, the primary receiver unit 104 includes an analyte test strip, e.g., blood glucose test strip, interface 301, an RF receiver 302, an input 303, a temperature monitor section 304, and a clock 305, each of which is operatively coupled to a receiver processor 307. As can be further seen from the Figure, the primary receiver unit 104 also includes a power supply 306 operatively coupled to a power conversion and monitoring section 308. Further, the power conversion and monitoring section 308 is also coupled to the receiver processor 307. Moreover, also shown are a receiver serial communication section 309, and an output 310, each operatively coupled to the receiver processor 307.

[0047] In one embodiment, the test strip interface 301 includes a glucose level testing portion to receive a manual insertion of a glucose test strip, and thereby determine and display the glucose level of the test strip on the output 310 of the primary receiver unit 104. This manual testing of glucose may be used to calibrate the sensor unit 101 or otherwise. The RF receiver 302 is configured to communicate, via the communication link 103 (FIG. 1) with the RF transmitter 206 of the transmitter unit 102, to receive encoded data signals from the transmitter unit 102 for, among others, signal mixing, demodulation, and other data processing. The input 303 of the primary receiver unit 104 is configured to allow the user to enter information into the primary receiver unit 104 as needed. In one aspect, the input 303 may include one or more keys of a keypad, a touch-sensitive screen, or a voice-activated input command unit. The temperature monitor section 304 is configured to provide temperature information of the primary receiver unit 104 to the receiver processor 307, while the clock 305 provides, among others, real time information to the receiver processor 307.

[0048] Each of the various components of the primary receiver unit 104 shown in FIG. 3 is powered by the power supply 306 which, in one embodiment, includes a battery. Furthermore, the power conversion and monitoring section 308 is configured to monitor the power usage by the various components in the primary receiver unit 104 for effective power management and to alert the user, for example, in the event of power usage which renders the primary receiver unit 104 in sub-optimal operating conditions. An example of such sub-optimal operating condition may include, for example, operating the vibration output mode (as discussed below) for a period of time thus substantially draining the power supply 306 while the processor 307 (thus, the

primary receiver unit 104) is turned on. Moreover, the power conversion and monitoring section 308 may additionally be configured to include a reverse polarity protection circuit such as a field effect transistor (FET) configured as a battery activated switch.

[0049] The serial communication section 309 in the primary receiver unit 104 is configured to provide a bi-directional communication path from the testing and/or manufacturing equipment for, among others, initialization, testing, and configuration of the primary receiver unit 104. Serial communication section 104 can also be used to upload data to a computer, such as time-stamped blood glucose data. The communication link with an external device (not shown) can be made, for example, by cable, infrared (IR) or RF link. The output 310 of the primary receiver unit 104 is configured to provide, among others, a graphical user interface (GUI) such as a liquid crystal display (LCD) for displaying information. Additionally, the output 310 may also include an integrated speaker for outputting audible signals as well as to provide vibration output as commonly found in handheld electronic devices, such as mobile telephones presently available. In a further embodiment, the primary receiver unit 104 also includes an electro-luminescent lamp configured to provide backlighting to the output 310 for output visual display in dark ambient surroundings.

[0050] Referring back to FIG. 3, the primary receiver unit 104 in one embodiment may also include a storage section such as a programmable, non-volatile memory device as part of the processor 307, or provided separately in the primary receiver unit 104, operatively coupled to the processor 307. The processor 307 may be configured to synchronize with a transmitter, e.g., using Manchester decoding or the like, as well as error detection and correction upon the encoded data signals received from the transmitter unit 102 via the communication link 103.

[0051] Periodic calibration of the sensor unit 101 (FIG. 1) of an analyte monitoring system 100, in some embodiments, may be required for accurate calculation of a user's analyte level.

Calibration, in some aspects, is used to ensure the analyte related data signals received at a transmitter unit 102 (and further transmitted to a receiver unit, such as the primary receiver unit 104) are correctly converted to corresponding analyte levels. Exemplary calibration protocols, routines and techniques are described, for example, in U.S. Patent No. 7,299,082, U.S. Patent Application No. 11/537,991 filed Oct. 2, 2006, U.S. Patent Application No. 12/363,706 filed January 30, 2009 and in U.S. Patent Application No. 12/363,712 filed January 30, 2009, the disclosures of each of which are herein incorporated by reference for all purposes.

[0052] There are time periods where the sensor characteristics or the user's physiological condition renders the condition unsuitable for a sensor calibration event. For example, the sensor may be configured for periodic calibration, such as, after 2 hours after insertion, 10 hours after insertion, 12 hours after insertion, 24 hours after insertion, 48 hours after insertion, or 72 hours after insertion, or one or more combinations thereof. If a predetermined calibration event is triggered but a successful calibration does not result, after a certain time period (for example, a predetermined grace period during which to calibrate), the receiver unit may no longer display the monitored and processed glucose information.

[0053] Other conditions may also result in rendering the condition unsuitable for sensor calibration including, but not limited to, detection of a failure mode of a sensor, sensor data values being outside a predetermined range, rate of change of sensor data values being above a predetermined threshold, a temperature measurement outside a predetermined range, or any combination thereof.

[0054] FIG. 4 illustrates analyte sensor data processing in accordance with one embodiment of the present disclosure. Referring to FIG. 4, a transmitter unit 102 (FIG. 1) in operational contact with a sensor 101 receives analyte related sensor data (410) corresponding to a measured level of a biological fluid of the user. For example, the sensor 101 (FIG. 1) may be an analyte sensor configured to detect and measure the concentration of an analyte in a biological fluid, such as the blood of a user. Upon receipt of the analyte related sensor data, the transmitter unit 102 further transmits the analyte related sensor data to a receiver unit, such as primary receiver unit 104 (FIG. 1). It is to be noted that the reference to analyte related sensor data herein and throughout specification includes, for example, current signal received from the analyte sensor, as well as the current signal which has undergone predetermined data processing routines including, for example, filtering, clipping, digitizing, and/or encoding, and/or any other further processing and/or conditioning. In one aspect, the primary receiver unit 104 determines whether the sensor is calibrated and is in acceptable condition for further data processing (420). When sensor related conditions are unsuitable for calibration, the analyte related sensor data is stored (450) in a memory, for example, in the primary receiver unit 104.

[0055] Referring still to FIG. 4, if the sensor data is calibrated and in condition for further data processing, the sensor data is further processed (430) and output for display (440) to a user on a display unit 310 (FIG. 3) of the primary receiver unit 104. In one embodiment, the display of the

processed sensor data comprises a graphical representation of the processed sensor data. In other embodiments, the processed sensor data may be displayed as numerical values, visual indicators, auditory outputs, or combinations thereof. In one aspect, the processing routine described in conjunction with FIG. 4 is performed or executed in, for example, the transmitter unit 102, the secondary receiver unit 106 (FIG. 1), or the data processing terminal 105 (FIG. 1) of the analyte monitoring system 100 (FIG. 1) based on analyte data received from the sensor 101.

[0056] FIG. 5 illustrates analyte sensor data processing in accordance with one embodiment of the present disclosure. Referring to FIG. 5, in one embodiment, transmitter unit 102 (FIG. 1) receives analyte related sensor data (510) from a sensor 101 (FIG. 1). Upon receipt of the analyte related sensor data, the transmitter unit 102 transmits the analyte related sensor data (or processed, digitized, and/or filtered signals) to the primary receiver unit 104 (FIG. 1). The primary receiver unit 104 is configured to determine if calibration of the sensor data is suitable--that is, whether the conditions necessary for sensor calibration are met (520).

[0057] Still referring to FIG. 5, if it is determined that the sensor 101 is not calibrated or calibration condition for calibrating the sensor 101 is not met, in one aspect, the primary receiver unit stores the analyte related sensor data in a memory (550) and temporarily disables display of the sensor data (560) to the user (for example, if a calibration event has not occurred and the calibration grace period has expired). On the other hand, if the sensor 101 is calibrated, the sensor data is processed (530) by the primary receiver unit 104 and the processed sensor data is output to the user (540), for example via a display unit 310 (FIG. 3) of the primary receiver unit 104. In one aspect, the processing routine described in conjunction with FIG. 5 is performed or executed in, for example, the transmitter unit 102, the secondary receiver unit 106, or the data processing terminal 105 of the analyte monitoring system 100 based on analyte data received from the sensor 101 (FIG. 1).

[0058] In one aspect, the display or output of processed sensor data may be disabled if a required calibration event is unsuccessful over a permitted time period (for example, including a predetermined grace period measured from the scheduled calibration). Thereafter, upon successful calibration, the system resumes display of the processed and calibrated analyte sensor data. However, there may be a time period or a gap in the output display during which the necessary calibration did not occur in a timely manner. For example, as shown in FIG. 7A, if sensor data is displayed as a graphical display, during time periods where the analyte monitoring

system 100 was not properly calibrated, analyte related sensor data was not processed and/or displayed, resulting in a gap in the graphical display.

[0059] FIG. 6 illustrates backfilling gaps in sensor data in one embodiment of the present disclosure. Referring to FIG. 6, when a scheduled calibration event fails and the associated grace period for calibration does not occur, the output display of the processed, calibrated sensor data is disabled (610). Referring to FIG. 6, once the system recovers after a successful calibration event, the calibrated sensor data is once again displayed (and stored). Furthermore, in one aspect, based on the parameters associated with the successful calibration, the previously unprocessed data during the display time out period may be retrieved (for example, the previously stored analyte related sensor signals during this period) and processed using calibration data, such as a sensitivity ratio for conversion of analyte related sensor data to analyte levels. For example, in one aspect, the subset of analyte related sensor data that were previously unprocessed or uncalibrated due to unsuccessful contemporaneous calibration may be processed using, for example, calibration data such as the sensitivity ratio determined from the most recent successful calibration event, and thereafter, the gap in output display illustrating the processed and calibrated signals may be filled.

[0060] In one aspect, once successful calibration of the sensor data occurs, the calibration parameters from this calibration event may be used to process the sensor data during the period of disabled output or display (620). Upon successful processing of the sensor data during the period of disabled output, the processed sensor data during this time period is backfilled, or the gap in the processed continuous sensor data are filled in the display (630). By way of an example, FIGS. 7A and 7B illustrate the replacement of a period of unprocessed sensor data with corresponding backfilled processed sensor data, in one embodiment.

[0061] In one embodiment, the backfilled processed sensor data is displayed immediately upon calculation. In another embodiment, the backfilled processed sensor data is not displayed immediately, but rather, after waiting a predetermined period of time. The backfilled processed sensor data may not be displayed immediately to avoid possible unnecessary or incorrect action by a user in response to the backfilled processed sensor data. In this manner, in one aspect, the user or a healthcare provider may be provided with a continuous set of analyte data from the analyte monitoring system without any gaps in the processed signals for further analysis and/or therapy management.

[0062] In this manner, in accordance with the embodiments of the present disclosure, gaps in monitored analyte levels using an analyte monitoring system due to, for example, inability to promptly calibrate the sensor, system malfunction, sensor dislodging, signal errors associated with the sensor, transmitter unit, receiver unit, and the like, or any other variables or parameters that result in the inability of the analyte monitoring system to display or output the real-time monitored analyte level, may be retrospectively filled or reprocessed so that the data gap is closed and the continuously monitored analyte level does not have any or substantially missing data. That is, in embodiments of the present disclosure, upon correction or rectification of the condition or conditions/parameters which resulted in the analyte monitoring system disabling the output results associated with the monitored real time analyte levels, the parameters associated with the correction or rectification may be used to retrospectively correct or process data or signals so that the missing gaps in analyte related data may be processed and backfilled.

[0063] In this manner, advantageously, in aspects of the present disclosure, additional robustness may be provided to the user and/or the healthcare provider to improve therapy or health management decisions.

[0064] In one embodiment, a method may include receiving sensor data from an analyte sensor of a sensor monitoring system, processing the received sensor data with time corresponding calibration data, outputting the processed sensor data, detecting one or more adverse conditions associated with the sensor monitoring system, disabling the output of the sensor data during an adverse condition time period, determining that the one or more detected adverse conditions is no longer present in the sensor monitoring system, retrieving the sensor data during the adverse condition time period, processing the retrieved sensor data during the adverse condition time period, and outputting the processed retrieved sensor data.

[0065] In one aspect, outputting the processed sensor data may include displaying the sensor data in one or more of a graphical, numerical, pictorial, audible, vibratory, or one or more combinations thereof.

[0066] The one or more detected adverse conditions may include one or more of a sensor instability condition, a calibration failure condition, or a monitoring system failure condition.

[0067] The sensor instability condition may include one or more of an early signal attenuation condition of the sensor, sensor misposition error, sensor communication error, temperature measurement outside a predetermined range, or a combination thereof.

[0068] The calibration failure condition may include one or more of an analyte level exceeding a predetermined threshold, a rate of change of analyte level exceeding a predetermined threshold, a signal error associated with the reference data, a data unavailability condition, or a combination thereof.

[0069] Furthermore, the method may include storing the processed sensor data with the associated time information based on the analyte level detection time by the sensor.

[0070] In another embodiment, a method may include detecting a condition unsuitable for calibration of an analyte sensor for a predetermined time period, disabling output of information associated with the analyte sensor, determining a successful calibration of the analyte sensor, retrieving one or more parameters associated with the successful calibration, processing sensor data during the time period of disabled output of information with the one or more parameters associated with the successful calibration, and displaying the processed sensor data for the time period of disabled information output.

[0071] The sensor data may be analyte concentration data.

[0072] The analyte concentration data may include blood glucose concentration data.

[0073] The sensor data may be processed in substantially real-time.

[0074] The condition unsuitable for calibration may include one or more of a failure mode of a sensor, sensor data outside a predetermined acceptable range, a rate of change of sensor data above a predetermined level, a requirement for calibration of a sensor, a temperature measurement outside a predetermined range, or any combination thereof.

[0075] The processed sensor data for the time period of disabled information output may be displayed substantially immediately upon processing.

[0076] The processed sensor data for the time period of disabled information output may be displayed only after waiting a predetermined period of time.

[0077] In another embodiment, an apparatus may include an interface configured to receive sensor data, a first memory configured to store the received sensor data, a processor coupled to the memory and configured to process the stored sensor data, a second memory coupled to the processor and configured to store the processed sensor data, and a display unit coupled to the second memory and configured to display the processed sensor data, wherein the processor is further configured to detect a condition unsuitable for calibration of a sensor for a predetermined time period, disable display of processed sensor data, determine a successful calibration of the

sensor, retrieve one or more parameters associated with the successful calibration, process the sensor data during the time period of disabled display of sensor data with the one or more parameters associated with the successful calibration, and display the processed sensor data for the time period of disabled information output.

[0078] The sensor may be an analyte sensor.

[0079] The analyte sensor may be a glucose sensor.

[0080] The sensor data may correspond to analyte concentration data.

[0081] The analyte concentration data may include blood glucose concentration data.

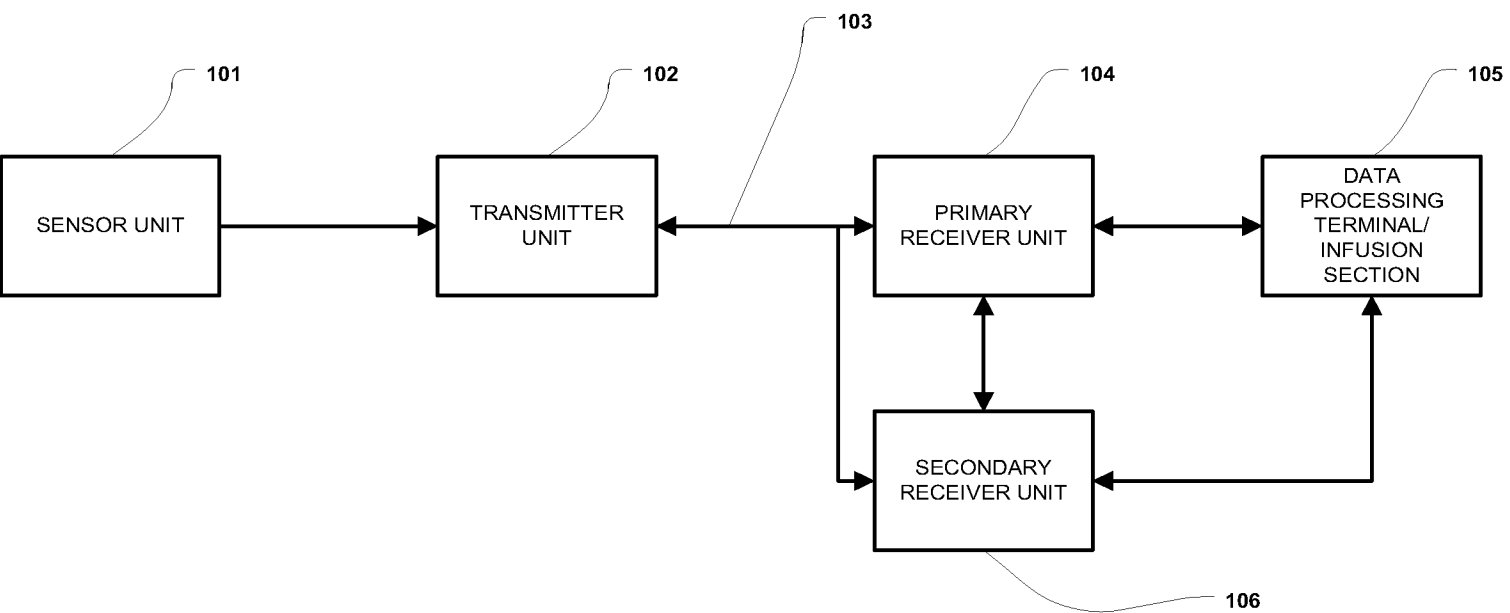
[0082] Furthermore, the apparatus may be configured to process and display the sensor data substantially in real-time.

[0083] In one aspect, the condition unsuitable for calibration may include one or more of a failure mode of a sensor, sensor data outside a predetermined acceptable range, a rate of change of sensor data above a predetermined level, a requirement for calibration of a sensor, a temperature measurement outside a predetermined range, or any combination thereof.

[0084] The display unit may be configured to display the processed sensor data for the time period of disabled information output substantially immediately upon processing the sensor data.

[0085] The display unit may be configured to display the processed sensor data for the time period of disabled information output only after waiting a predetermined period of time.

[0086] Various other modifications and alterations in the structure and method of operation of this invention will be apparent to those skilled in the art without departing from the scope and spirit of the invention. Although the invention has been described in connection with specific preferred embodiments, it should be understood that the invention as claimed should not be unduly limited to such specific embodiments. It is intended that the following claims define the scope of the present disclosure and that structures and methods within the scope of these claims and their equivalents be covered thereby.



100

FIGURE 1

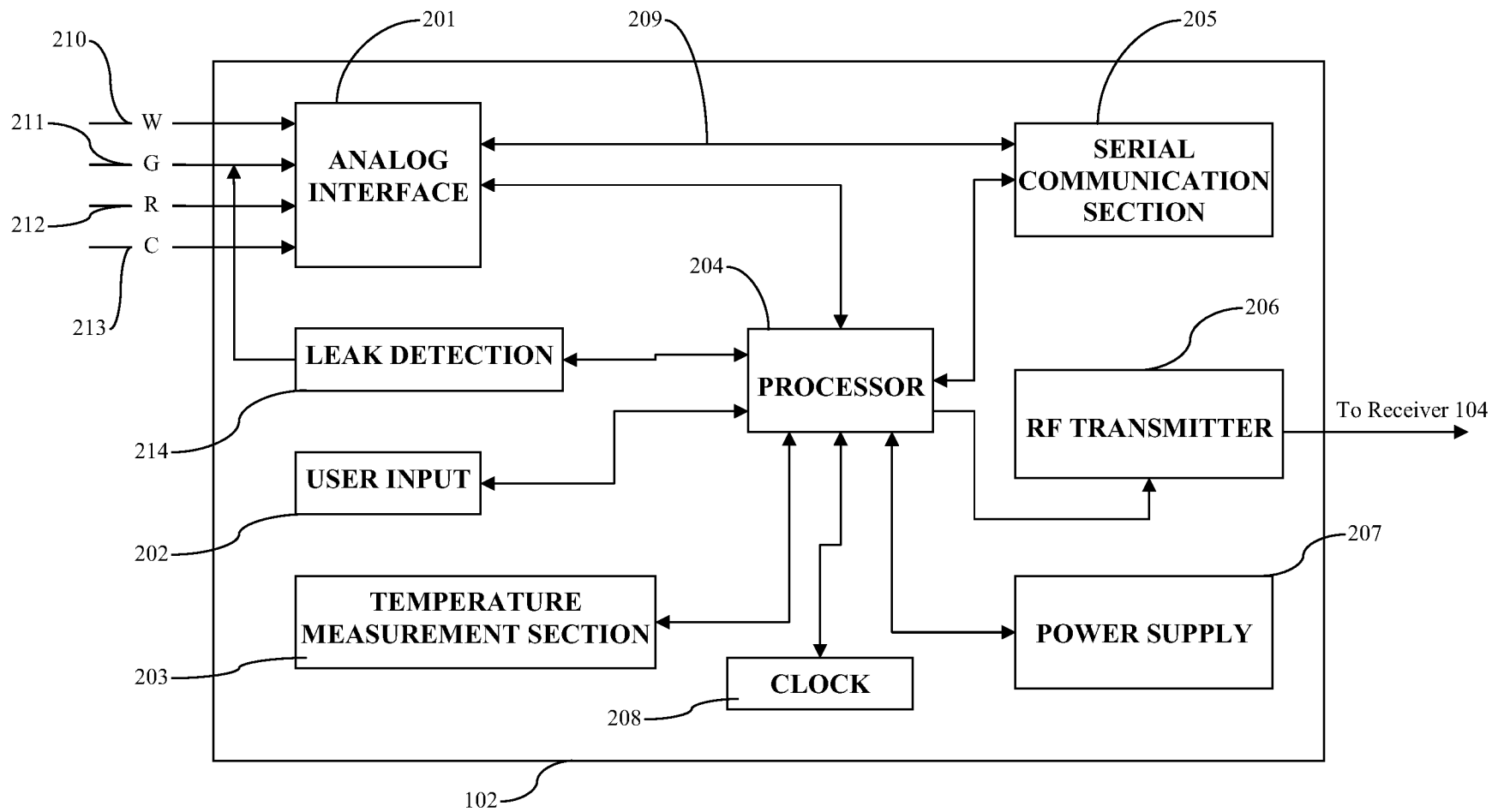


FIGURE 2

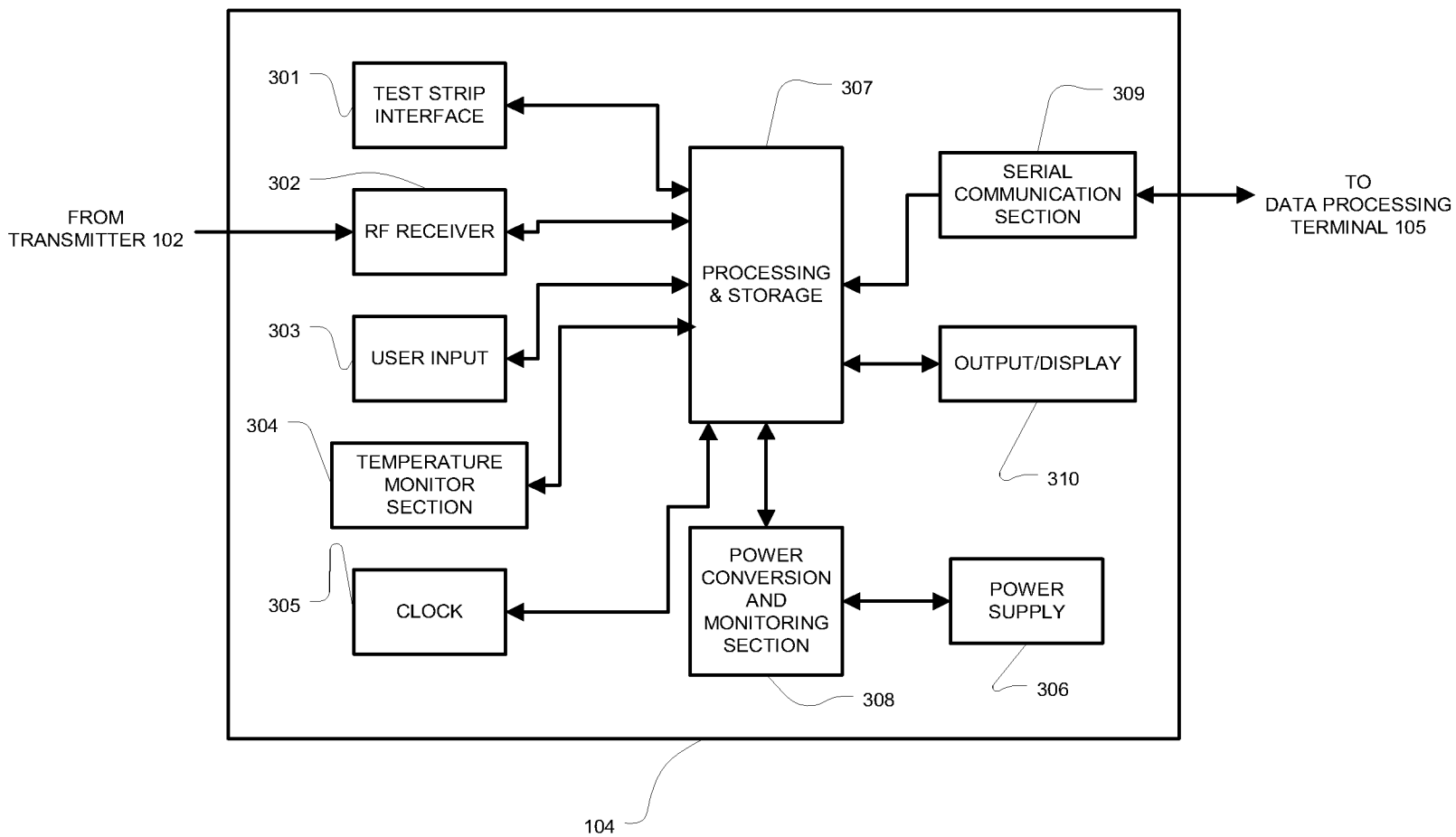
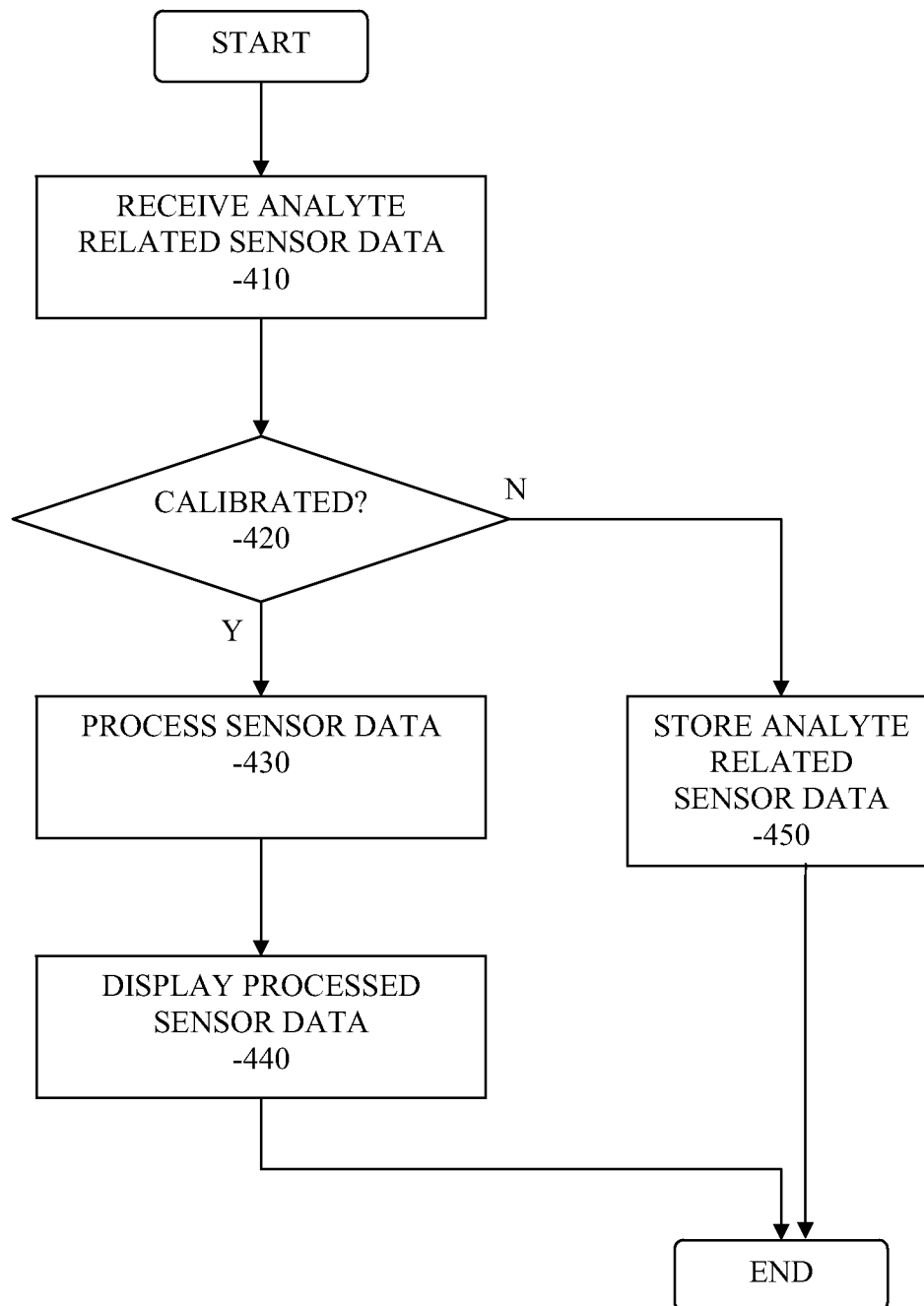
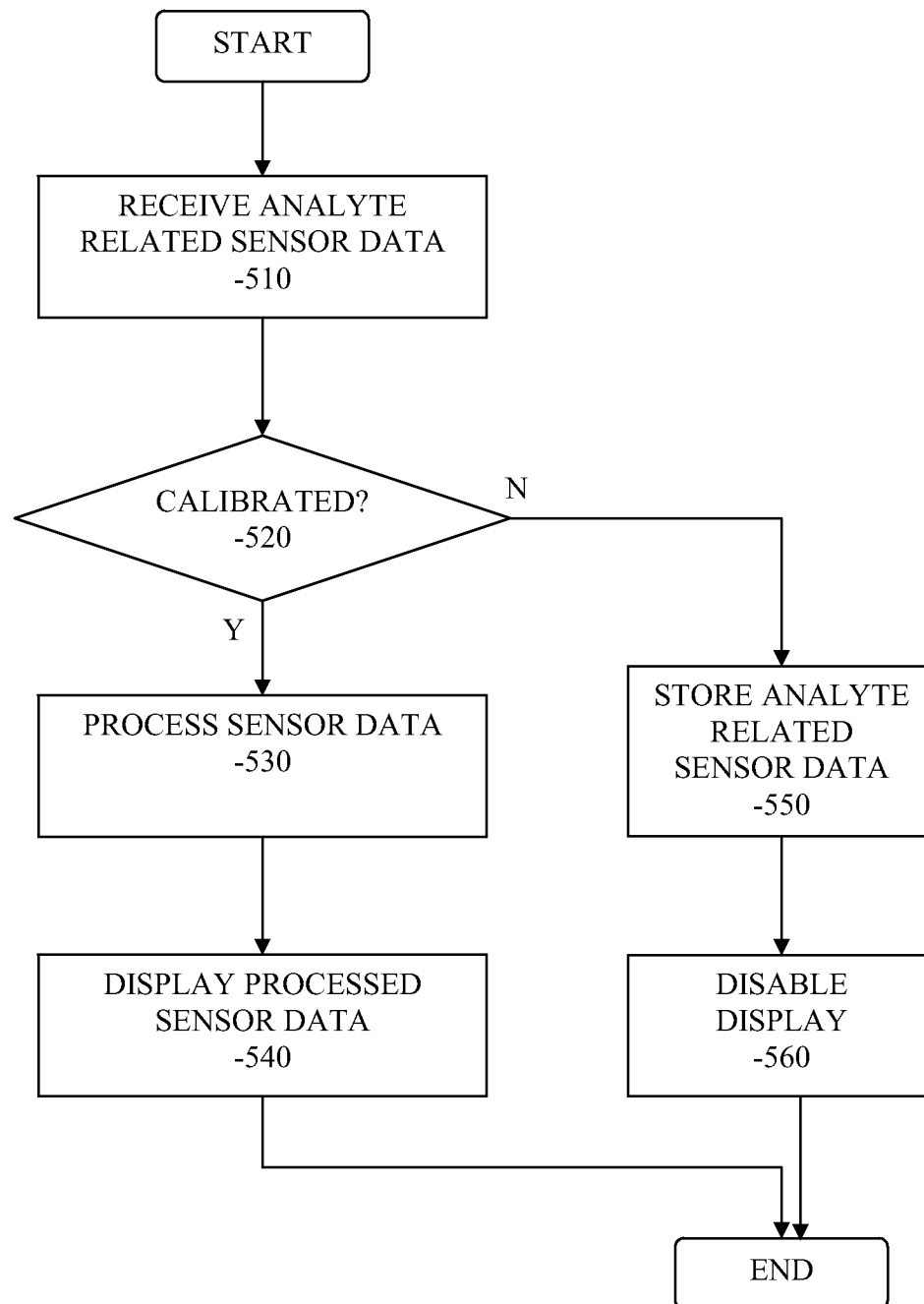
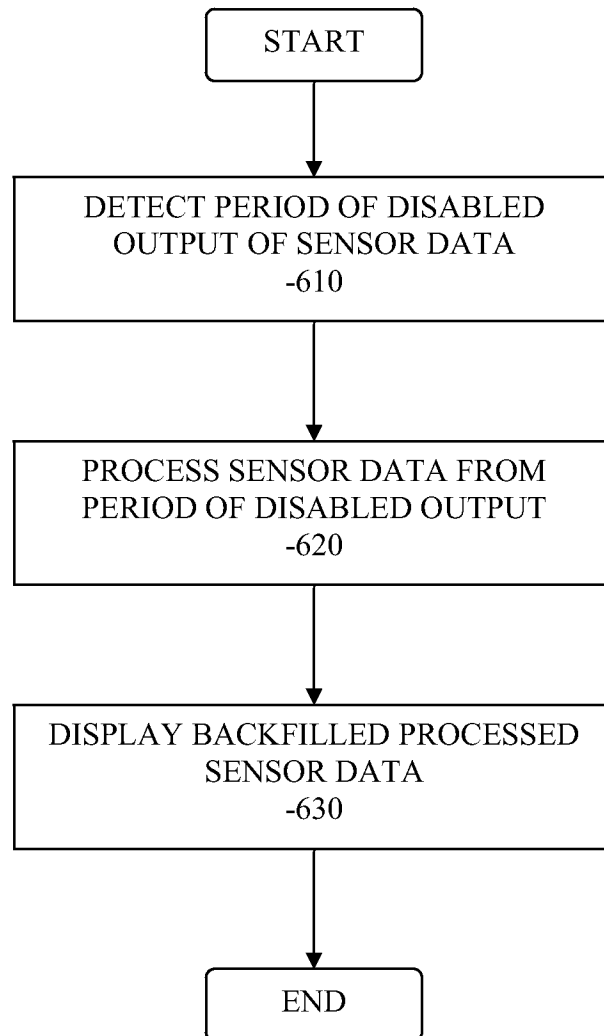
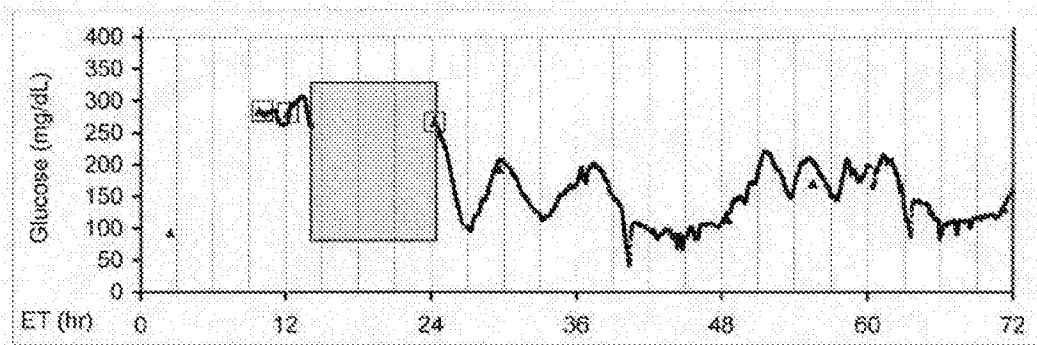
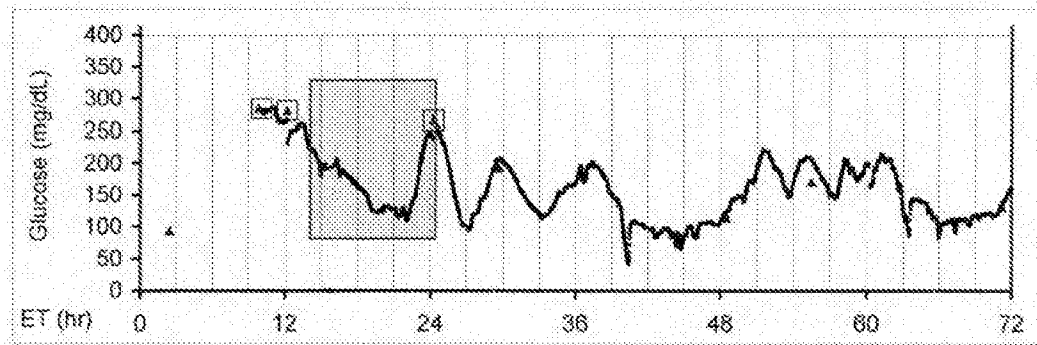


FIGURE 3

**FIGURE 4**

**FIGURE 5**

**FIGURE 6**

**FIGURE 7A****FIGURE 7B**

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)		Attorney Docket Number	TS-02-180C01
		First Named Inventor	Wesley Scott Harper
☐ Declaration Submitted With Initial Filing OR ☒ Declaration Submitted After Initial Filing (surcharge (37 CFR 1.16(f)) required)		COMPLETE IF KNOWN	
		Application Number	13/925,694
		Filing Date	June 24, 2013
		Art Unit	1631
		Examiner Name	Not Yet Assigned

Method and System for Providing Real Time Analyte Sensor Calibration with Retrospective Backfill

(Title of the Invention)

As a below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application,

OR

☒ United States Application Number or PCT International application number 13/925,694
 filed on June 24, 2013

The above-identified application was made or authorized to be made by me.

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

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[Page 1 of 2]

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LEGAL NAME OF SOLE OR FIRST INVENTOR:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Wesley Scott Harper			
Inventor's Signature		Date (Optional)	
		31 Jul 2013	
Residence: City	State	Country	
Alameda	CA	US	
Mailing Address			
15 Ferro Court			
City	State	Zip	Country
Alameda	CA	94502	US
☐ Additional inventors are being named on the _____ supplemental sheet(s) PTO/AIA/10 attached hereto			

(Page 2 of 2)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Wesley Scott Harper

Application No.: Not yet assigned

Confirmation No.: Not yet assigned

Filed: December 21, 2018

Art Unit: Not yet assigned

For: METHODS AND SYSTEMS FOR EARLY
SIGNAL ATTENUATION DETECTION AND
PROCESSING

Examiner: Not yet assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

EFS Web
Commissioner for Patents

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

Timing of Filing of the Information Disclosure Statement:

- ☒ This IDS is being filed before the First Office Action.
- ☐ This IDS is being filed after the issuance of the First Office Action but before the issuance of a Final Office Action.
- ☐ This IDS is being filed after the issuance of a Final Office Action, Ex Parte Quayle Action or Notice of Allowance but before the payment of the Issue Fee.

Certifications:

If checked, the undersigned makes the following statement(s):

☐ Statement under 37 CFR § 1.97(e):

☐ Each item of information contained in this 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 this information disclosure statement; or

☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.

☐ Statement Under 37 C.F.R. § 1.704(d):

Each item of information contained in this information disclosure statement was cited a counterpart application less than thirty days prior to the filing of this information disclosure statement.

Fee Required by 37 C.F.R. § 1.97(c)(2) or 1.97(d)(2):

☐ If checked, the fee of \$180.00 set forth in 37 C.F.R. §1.17(p).

Copies of Information:

In accordance with 37 C.F.R. §1.98(a), the following are enclosed:

☒ A legible copy of each document (or relevant portion thereof) cited in the attached PTO/SB/08, except for U.S. patent and U.S. published applications.

- ☒ With respect to any information which is not in English, a concise explanation of the relevance, as it is presently understood by the individual designated in § 1.56(c) most knowledgeable about the content of the information, is attached.

This concise explanation is provided by way of:

☒ A translation of the relevant portions of the non-English language information;

☐ A statement explaining the relevant portions of the non-English language information;

☐ A copy [and where not in the English language, a translation] of at least the relevant portion(s) of the communication from _____ in which the information was cited; or

☐ This information is contained in the specification of the present application.

☒ In accordance with 37 C.F.R. 1.98(d), copies of the cited documents are not enclosed as they were provided in application Serial Nos. 12/769,635, filed April 28, 2010, and 13/925,694, filed June 24, 2013, which the present application relies upon for an earlier effective filing date under 35 U.S.C. 120.

Materiality:

Whether or not the information and references disclosed in this Information Disclosure Statement is “material” pursuant to 37 CFR 1.56, this submission is not intended to constitute an admission that any patent, publication or other information referred to therein is “prior art” for this invention unless specifically designated as such.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

Dated: December 21, 2018

Respectfully submitted,

Electronic signature: /Mark Stirrat/

Mark Stirrat

Registration No.: 50,756

ONE LLP

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Attorney for Applicants