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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

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

Secrecy Order 37 CFR 5.2:

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

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Teemu		Haverinen	

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Inventor 3 Remove

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Prefix	Given Name	Middle Name	Family Name	Suffix
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Prefix	Given Name	Middle Name	Family Name	Suffix
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Residence Information (Select One) US Residency ◉ Non US Residency Active US Military Service

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All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

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

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

Customer Number	93582		
Email Address	ptomail@gziplaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF		
Attorney Docket Number	MDJN.3277.USC2	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	6	**Suggested Figure for Publication (if any)**	

Filing By Reference:

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

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

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

Publication Information:

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

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

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
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Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	93582		

Domestic Benefit/National Stage Information:

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

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	14826360	2015-08-14

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

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

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

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

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

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Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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Applicant Information:

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

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Oura Health Oy		
Mailing Address Information For Applicant:			
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Address 2			
City	Oulu	**State/Province**	
Country	FI	Postal Code	90590
Phone Number		Fax Number	
Email Address			

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Assignee Information including Non-Applicant Assignee Information:

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Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

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If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

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Signature:

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

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

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

Signature	/gcz44004/			Date (YYYY-MM-DD)	2017-12-08
First Name	Geza	Last Name	Ziegler	Registration Number	44004

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Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

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

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

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

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.

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WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

CROSS-REFERENCE TO RELATED APPLICATION

[001] This application is a continuation of, claims priority to and the benefit of, U.S. Patent Application Serial No. 14/826,360, filed 14 August 2015, status pending, the disclosure of which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[002] The present disclosure relates generally to a wearable electronic device; and more specifically, to a wearable electronic device for analysing and processing of biological signals and a method for manufacturing such wearable electronic device.

BACKGROUND

[003] Recent consumer's interest in personal health has led to a variety of personal health monitoring devices being offered in the market. For example, wearable electronic devices for monitoring personal health are well known in the art. The wearable electronic devices are measurement devices that can be worn on finger, wrist or any other body part. Generally, such devices include electronic elements, such as flexible printed circuit board, processor, sensor, battery and the like, which enable measurement and/or analysis of different physiological parameters, such as heart beat, corresponding to a user.

[004] Typically, these wearable devices are designed in a way such that it is water proof and provides a smooth skin contact to the wearer. A known way to make these devices waterproof is to have a two part cover, for the electronic elements, which are connected to each other for enclosing the electronic elements therewithin. For example, the two parts can be connected together using attachment means, such as screws or clips. Further, a sealing material, such as

Petitioner Samsung Ex-1004, 0010

o-ring, is provided between the two parts while connecting the two parts for making the connection water proof. However, such water proof arrangement for the wearable devices makes their structure configuration complex due to the involvement of various components such as the first cover, the second cover, the o-ring and the screws. Further, this may lead to manufacturing defects since the components are made with small tolerances. For example, the wearable electronic devices may be subjected to manufacturing errors, such as too much tightening or loosening of one or more screws, which may lead to non-waterproof sealant. Moreover, an inner surface (contacting the user's skin) of such devices should be free from any cavity or depression (for example, grooves for screws) which may get deposited with dirt. Additionally, the inner surface should be smooth and provide good adherence with the user's skin when worn in the finger, wrist or any other body part.

[005] Therefore, in light of the foregoing discussion, there exists a need to overcome the aforementioned drawbacks of the conventional wearable electronic device.

SUMMARY

[006] The present disclosure seeks to provide a wearable electronic device, particularly, for analysing and processing of biological signals.

[007] The present disclosure also seeks to provide a method for manufacturing a wearable electronic device for analysing and processing of biological signals.

[008] In one aspect, an embodiment of the present disclosure provides a wearable electronic device comprising:

- a molded body part made of a moldable ceramic material, having an inner surface and an outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part,
- an electronic part arranged in said cavity, which electronic part has a thickness that is less than the depth of the cavity, and
- a coating made of a moldable filler material on the inner surface of the body part, covering the electronic part and the cavity.

[009] In another aspect, an embodiment of the present disclosure provides a method for manufacturing a wearable electronic device. The method comprises the steps of:

- molding a body part using a moldable ceramic material, wherein a mold is such that at least one cavity is formed on an inner surface of the body part,
- arranging an electronic part in said cavity, and
- coating the inner surface of the body part to form the coating including covering the electronic part.

[0010] Embodiments of the present disclosure substantially eliminate or at least partially address the aforementioned problems in the prior art, and provides a wearable electronic device having a simple structure configuration and efficient waterproofing.

[0011] Additional aspects, advantages, features and objects of the present disclosure would be made apparent from the drawings and the detailed description of the illustrative embodiments construed in conjunction with the appended claims that follow.

[0012] It will be appreciated that features of the present disclosure are susceptible to being combined in various combinations without departing from the scope of the present disclosure as defined by the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The summary above, as well as the following detailed description of illustrative embodiments, is better understood when read in conjunction with the appended drawings. For the purpose of illustrating the present disclosure, exemplary constructions of the disclosure are shown in the drawings. However, the present disclosure is not limited to specific methods and instrumentalities disclosed herein. Moreover, those in the art will understand that the drawings are not to scale. Wherever possible, like elements have been indicated by identical numbers.

[0014] Embodiments of the present disclosure will now be described, by way of example only, with reference to the following diagrams wherein:

Petitioner Samsung Ex-1004, 0012

FIG. 1 is a schematic side view of a wearable electronic device, in accordance with an embodiment of the present disclosure;

FIG. 2 is a schematic top view of the wearable electronic device, in accordance with an embodiment of the present disclosure;

FIG. 3 is a schematic cross-sectional view of the wearable electronic device along an axis B-B of the FIG. 2, in accordance with an embodiment of the present disclosure;

FIGS. 4 and 5 are schematic cross-sectional views of the wearable electronic device of FIG. 1 along axes A-A and C-C, respectively, in accordance with an embodiment of the present disclosure;

FIG. 6 is an illustration of steps of a method for manufacturing a wearable electronic device, in accordance with an embodiment of the present disclosure;

FIGS. 7A-7C illustrate the steps of the method of FIG. 6, in accordance with an embodiment of the present disclosure;

FIG. 8 is a perspective view of a molded body part and an electronic part of the wearable electronic device in an unassembled state, in accordance with an embodiment of the present disclosure;

FIG. 9 is a perspective view of the molded body part and the electronic part in an assembled state, in accordance with an embodiment of the present disclosure;

FIG. 10 is a perspective view of the assembled molded body part and the electronic part, and a molding stand positioned adjacent thereto, in accordance with an embodiment of the present disclosure;

FIG. 11 is a perspective view of the molded body part, arranged with the electronic part, mounted on the molding stand, in accordance with an embodiment of the present disclosure; and

FIG. 12 is a perspective view of the wearable electronic device, in accordance with an embodiment of the present disclosure.

Petitioner Samsung Ex-1004, 0013

[0015] In the accompanying drawings, an underlined number is employed to represent an item over which the underlined number is positioned or an item to which the underlined number is adjacent. A non-underlined number relates to an item identified by a line linking the non-underlined number to the item. When a number is non-underlined and accompanied by an associated arrow, the non-underlined number is used to identify a general item at which the arrow is pointing.

DETAILED DESCRIPTION OF EMBODIMENTS

[0016] The following detailed description illustrates embodiments of the present disclosure and ways in which they can be implemented. Although some modes of carrying out the present disclosure have been disclosed, those skilled in the art would recognize that other embodiments for carrying out or practicing the present disclosure are also possible.

[0017] In one aspect, an embodiment of the present disclosure provides a wearable electronic device. The wearable electronic device comprises a molded body part made of a moldable ceramic material, having an inner surface and an outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part, an electronic part arranged in said cavity, which electronic part has a thickness that is less than the depth of the cavity, and a coating made of an epoxy material on the inner surface of the body part, covering the electronic part and the cavity.

[0018] In an embodiment, the wearable electronic device is operable to measure different physiological parameters corresponding to a user, such as blood volume pulse, to determine a heart rate of the user. In an example, the heart rate is determined by measuring PPG (photoplethysmogram) from the blood volume pulse. The PPG can be measured or generated using optical electronics, particularly using principle of transmittance or reflectance of light. Additionally, the wearable electronic device is also operable to measure stress of the user.

[0019] In an embodiment, the wearable electronic device is a ring that can be worn by a user in a finger. For example, the wearable electronic device is sized to be suitably worn on a finger, such as an index finger, of the user. Further, it may be available in a variety of sizes

for accommodating various finger sizes. In another embodiment, the wearable electronic device may be a wrist band that may be worn on a wrist of the user. In such instance, it may be evident to those skilled in the art that a size of the wearable electronic device should be large enough to be suitably worn at the wrist of the user.

[0020] The wearable electronic device comprises a molded body part made of a moldable ceramic material. As mentioned herein, the wearable electronic device is a ring, therefore the molded body part may be configured to have a central portion and a loop integral with the central portion for a ring structure. Alternatively, the central portion and the loop can be formed separately and later joined together to form the body part.

[0021] In an embodiment, the moldable ceramic material is selected from a group consisting of zirconia, zirconium, aluminum nitride, aluminum oxide, Boron carbide, silicon carbide, silicon nitride, titanium diboride and yttrium oxide. Alternatively, non-ceramic material, such as plastic, metal (such as titanium, steel, platinum, gold, palladium, silver or bronze or a gold based alloys), rubber or any combination thereof may be used for forming the molded body part.

[0022] The molded body part includes the inner surface, the outer surface and at least one cavity having the depth arranged on the inner surface of the body part. The inner surface contacts the skin of the user, whereas the outer surface is opposite to the inner surface and externally visible. The at least one cavity is made during the molding of the body part. Alternatively it is possible form the cavities to body part by cutting or milling. Further the outer surface can be formed or finalised by milling or polishing up or other metallic workshop methods.

[0023] In an embodiment, the at least one cavity of the molded body part includes two cavities, such as a first cavity and a second cavity, which are formed on the inner surface of the molded body part. Further, the first cavity and the second cavity are connected with each other. Moreover, the first cavity resides in the central portion of the molded body part and the second cavity runs along the loop and is connected to the first cavity. In an embodiment, a depth of the first cavity is slightly more than a depth of the second cavity. For example, if the

Petitioner Samsung Ex-1004, 0015

second cavity has a depth of about 1 mm, then depth of the first cavity would be slightly more than 1 mm. Also, shapes of the two cavities may vary depending upon shapes of the central portion and the loop.

[0024] The wearable electronic device further comprises the electronic part arranged in the cavity, which electronic part has a thickness that is less than the depth of the cavity. Specifically, the cavity is dimensioned to have the depth which is sufficient to allow the electronic part to be fully placed inside the cavity, and an unfilled space still remains when the electronic part is fully placed inside the cavity.

[0025] In an embodiment, the electronic part comprises a battery and a support on which other components of the electronic part are arranged. For example, the other components of the electronic part (arranged on the support) may include but not limited to an infrared transmitter, a microcontroller, a radio frequency transceiver, a temperature sensor and an infrared receiver.

[0026] In an embodiment, the support also comprises means for charging the battery, such as the charging pads (or charging pins). In an embodiment, there may be two or more charging pads arranged, for example on the inner surface of the support. In an embodiment, the support is a flexible printed circuit board (PCB), for example, a flexible plastic substrate made of polyimide, PEEK (a transparent conductive polyester film), polyester or a combination thereof.

[0027] In an embodiment, the electronic part includes a first part and a second part. For example, the battery and a portion of the support (flexible PCB) on which the microcontroller is arranged (or mounted) constitute the first part of the electronic part. Further, a remaining portion of the support and the other components of the electronic part arranged on the remaining portion constitute the second part of the electronic part. In an embodiment, the first part and the second part are connected to each other using electrical wires. For example, the battery may be electrically coupled to the support (particularly to the microcontroller) using the electrical wires. As mentioned above, the electronic part is arranged in the cavity. For example, the first part of the electronic part is arranged in the first cavity and the second part of the electronic part is arranged in the second cavity.

Petitioner Samsung Ex-1004, 0016

[0028] In an embodiment, the electronic part is attached to the cavity by an attachment means arranged at a bottom of the cavity. The attachment means is selected from a group consisting of a sticker, a tape, glue, and an attachment structure made in the molded body part. In an example, a sticker (or a stick foam tape) may be arranged at a bottom of the first cavity and the battery may be adhered to central portion and inside the first cavity with the help of the sticker. Similarly, another sticker (or a stick foam tape) may be arranged at a bottom of the second cavity (or on the support, i.e. flexible PCB) such that the support may be adhered to loop and within the second cavity with another sticker.

[0029] In one embodiment, the electronic part is aligned in proper position with respect to the molded body part using an assembly guiding element (the attachment structure made in the molded body part). Specifically, the second part can be aligned with respect to the second cavity by using the assembly guiding element. In an example, the assembly guiding element is a protruding part, such as a tab or a spike, configured on the inner surface, preferably, on the loop. In an embodiment, there is a single assembly guiding element configured on the inner surface of the loop. Alternatively, there can be more than one assembly guiding elements arranged on the inner surface of the loop. Typically, the support includes at least one hole corresponding to the assembly guiding element for receiving the assembly guiding element therethrough and aligning the electronic part (particularly the support) with respect to the molded body part (particularly to the second cavity).

[0030] The wearable electronic device further comprises a coating made of an moldable filler material on the inner surface of the body part, covering the electronic part and the cavity. For example, the moldable filler material is filled in the cavity embedded with the electronic part. Specifically, the moldable filler material is filled to cover the unfilled space that still remains, when the first cavity and the second cavity respectively receive the first part and the second part of the electronic part therein. Therefore, the coating made of the moldable filler material sealingly covers for electronic part and fills the remaining space of the cavity arranged on the inner surface of the molded body part.

[0031] In an embodiment, the moldable filler material is selected from a group consisting of at least epoxy material, Polyethylene, Polyurethane, low temperature moldable material (low

temperature refers to below 100 degrees of Celsius in order not to cause too high temperatures for the electronics parts), Loctite M-31CL, alpha-epoxy, EpoxAcast® 650, Bisphenol S epoxy resin, Novolac epoxy resin, Aliphatic epoxy resin and Glycidylamine epoxy resin.

[0032] In an embodiment, the moldable filler material comprises optionally an ink, which ink increases value of transmitted infrared light intensity divided by transmitted light intensity. In other words relative mount of infrared light which can pass thru the moldable filler material with the ink compared to amount of visible light which can pass thru the moldable filler material is higher when the ink is used in comparison to no ink. As an example, if the moldable filler material is selected as epoxy material , the epoxy material is a mixture of an epoxy resin and a colorant (i.e. the ink). In an example, the ink is an inkjet ink, such as a Magic Black ink. Further, the moldable filler material comprising the ink is arranged to cover at least area other than the IR transmitter and the IR receiver within the cavity. The moldable filler material comprising the ink can cover also IR transmitter and the IR receiver.

[0033] In another aspect, an embodiment of the present disclosure provides a method for manufacturing the wearable electronic device. The method comprises steps of molding a body part using a moldable ceramic material, wherein a mold is such that at least one cavity is formed on an inner surface of the body part; arranging an electronic part in said cavity; and coating the inner surface of the body part by applying an epoxy resin on the surface and curing the resin to form an epoxy coating, including covering the electronic part.

[0034] In an embodiment, the molding of the body part is done with the use of a mold. The mold essentially comprises a first part and a second part conforming to the central portion and the loop of the molded body part, such that when the moldable ceramic material is injected into the mold, the molded body part with the central portion and the loop is formed.

[0035] In an embodiment, the molded body part is formed using a ceramic injection molding (CIM) technique. As an example of CIM technique zirconia is injected in a mold and then further sintered in temperatures range of about 1300-1550 degrees Celcius.

[0036] In addition a ceramic molding technique such as slip casting, ceramic shell casting and technical ceramics can be used. Typically, the ceramic molding technique is performed at a

temperature range of about 1500-2500 degree Celsius depending on the moldable ceramic material used. For example, if the moldable ceramic material used is zirconium, the molding is performed at a temperature of about 1855 degree Celsius and similarly, if the moldable ceramic material used is aluminum nitride, the molding is performed at a temperature of about 2200 degree Celsius.

[0037] Alternatively, the molded body part (when formed using non-ceramic material) can be molded using a molding technique, such as compression molding, extrusion molding, injection molding and rotational molding. In another embodiment, the body part can be made from other manufacturing techniques, such as forming, machining, three dimensional (3D) printing and the like. Further the molded body part can be formed for example by using ultraviolent (UV) based curing method where ceramic material such as alumina (Al2O3) is mixed in curable solution and then illuminated with high intensity ultraviolent lamps (220-450 nm) for sufficient times.

[0038] The mold (used for molded body part) is such that at least one cavity is formed on an inner surface of the body part. Specifically, the mold used for forming the body part is such that at least one cavity is formed on the inner surface of the molded body part. Specifically, the molded body part is such that two cavities, a first cavity and a second cavity, are formed on the inner surface of the body part. Further, the first cavity and the second cavity are in connection with each other.

[0039] The electronic part is arranged in the cavity thereafter. In an embodiment, the step of arranging the electronic part in the cavity is carried out by arranging the battery in the first cavity, connecting the battery to the support and arranging the support in the second cavity. Initially, the step involves arranging the first part of the electronic part in the first cavity. In an embodiment, the electronic part (particularly, the first part) is arranged in the first cavity using the attachment means arranged on bottom of the first cavity. Specifically, the first part (i.e. battery and the portion of the support having the microcontroller mounted thereon) is first set in the first cavity. More specifically, first an orientation of the support is matched with an orientation of an assembly guiding element. In an embodiment, a sticker (or a stick foam tape) is removed with its covers and initially pasted to the central portion (i.e. inside the first

Petitioner Samsung Ex-1004, 0019

cavity), thereafter a surface of the battery is located against the sticker to fix the battery into the first cavity. For example, the battery is pressed by a finger for about 10 seconds to properly fix the battery to the first cavity. Thereafter, the portion of the support having comparatively a larger width (i.e. a width of the central portion) and the microcontroller mounted thereon is also allowed to be placed on top of the battery.

[0040] In an embodiment, the battery is connected to the support. For example, the battery is connected to the support using electrical wires. Specifically, the battery is physically and electrically coupled to the support (particularly to the microcontroller) using the electrical wires, for example by soldering. In an embodiment, the battery is connected to the support with wires prior to the placement of the battery into the first cavity. Alternatively, the battery is connected to the support with the wires after the placement of the battery into the first cavity.

[0041] The support is thereafter arranged in the second cavity. Specifically, a remaining portion of the support (having a width of about the loop) along with other components of the electronic part arranged or mounted thereon is arranged in the second cavity. The support is made of a flexible material (as discussed above), therefore the support is first slightly bend downwards and rotated so that it gets accommodated easily inside the second cavity of the molded body part. Further, in an embodiment, a sticker (or stick foam tape) is removed with its covers and pasted to a side (that will face the inner surface of the loop) of the support. The use of sticker for arranging the support inside the second cavity enables in proper adherence of the support with the loop of the molded body part.

[0042] In another embodiment, the step of arranging the electronic part (the support) in the cavity is further carried out using at least one assembly guiding element, such a tab or spike. Specifically, the support includes at least one hole conforming to the at least one assembly guiding element for receiving the assembly guiding element therethrough. For example, the molded body part includes one assembly guiding element configured on inner surface of the one side of the loop, alternatively the molded body part may include two or more assembly guiding elements configured on inner surface of the both sides of the loop. The assembly

guiding element fits into (or receives) the hole, thereby aligning the electronic part in proper position with respect to the cavity of the molded body part.

[0043] In an embodiment, in order to ensure a proper alignment of the electronic part into the cavity of molded body part, a check is made to ensure that the guiding element properly fits into (or receives) the hole. For example, a check is made to ensure that the whole electronic part, i.e. the battery and the support, is fully inside the molded body part. Additionally, after the support accommodation into the second cavity, another check is made to ensure that the battery cable (the electrical wires) goes between the battery and the molded body part.

[0044] In another embodiment, the support (particularly, the infrared transmitter and/or the infrared receiver mounted thereon) may not fully lie inside the cavity. For example, the infrared transmitter and receiver may be arranged in such a way that the infrared transmitter and receiver form bulges (or extension) emerging out from the support. The infrared transmitter and receiver accordingly can efficiently contact (or papule) the skin of the user when the user wears the wearable electronic device. Alternatively, the infrared transmitter and/or the infrared receiver may be fully accommodated inside the second cavity.

[0045] According to an embodiment, the proper fitting of the electronic part within the cavity ensures that there is unfilled space or volume for an epoxy material coating.

[0046] In an embodiment, the moldable filler material coating is made on the inner surface of the molded body part using a molding stand. The molding stand includes a base, a channel arranged on the base, and an elongate member extending from the base. The channel and the elongate member are configured to conform to a shape of the molded body part. Specifically, the channel is configured to conform to a thickness of the molded body part, whereas the elongate member is configured to conform to a circumference (or diameter) of the loop of the elongate member. This allows the elongate member to firmly fit over the molding stand. The elongate member further includes an opening and a recess surrounding the opening. The molding stand may be made of a material selected from a group consisting of fibers and fillers, latex, polyurethane rubber, thermosetting plastic and silicone rubber. Alternatively, the molding stand may be made of a material which is highly heat resilient and hard.

Petitioner Samsung Ex-1004, 0021

[0047] In an embodiment, the molding stand further includes jig pads at its one side, which helps in accurately placing the molded body part (with the electronic part arranged therein) onto the molding stand. For example, charging pads of the support (arranged inside of the molded body part) are set against these jig pads and the molded body part is assembled slightly tilted towards the molding stand. Further, the molded body part (with the electronic part arranged therein) is placed onto the molding stand in such a way that contact of the electronics (embedded in the support) with an edge of the molding stand is avoided. Furthermore, the molded body part is placed against a bottom surface of the base of the molding stand by receiving the molded body part into the channel, thereby having a centre of the molded body part aligned with a centre of the molding stand.

[0048] In one embodiment, the moldable filler material comprises an ink to make the modlable filler material appear dark or black for the user. The ink is selected in such a way that it allows infrared light to pass thru relatively better than visible light. The moldable filler material can be arranged thus to cover at the infrared transmitter and the infrared receiver.. For example, if moldable filler material is selected to be epoxy material, the epoxy material is made by mixing the epoxy resin and the ink. Specifically, the mixture is prepared by adding a small amount of the ink (for example, in a range of 0.05g-0.1g) to the epoxy resin (for example, 30-70 ml) and mixing the epoxy resin and the ink uniformly with a stirrer.

[0049] The mixture is then heated in an oven at a temperature of about 60 degree Celsius for about 20 minutes for uniformly mixing of the epoxy resin and the ink. Further, the mixture is again stirred for further mixing and stored in a tube. The tube may be closed using a cover, which may be prick or pierce with a needle for allowing air to escape from within the tube. More, the mixture may be further heated before dispensing (or pouring) into the molding stand.

[0050] In an embodiment, flowable (or heated) mixture is poured into the opening of the elongate member of the molding stand (with the molded body part along with the electronic part mounted thereon). For example, the mixture is added into the molding stand from a dispensing container (such as the tube) through its dispensing needle. The mixture is poured into the opening of the elongate member until the mixture slightly overflows into the recess

(surrounding the opening). Thereafter, the dispensing needle is removed and lifted up from the molding stand.

[0051] In one embodiment, the mixture (of the epoxy resin and the ink) is cured for forming the coating on the inner surface of the molded body part. Optionally, the assembly of the molded body part (along with electronic part therein) and the molding stand may be kept in a vacuum box prior to the curing. The curing is performed for hardening the coating. For example, the assembly of molded body part and the molding stand is put into the oven at about 60 degree Celsius for about 40 minutes. Alternatively, the curing is induced with ultra violet (UV) light for hardening the coating of epoxy material. Moreover, the UV curing is performed at ambient conditions, such as room temperature.

[0052] In one embodiment the method for manufacturing a wearable electronic device comprises the steps of:

- molding a body part using a moldable ceramic material, wherein a mold is such that at least one cavity is formed on an inner surface of the body part,
- arranging an electronic part in said cavity, and
- coating the inner surface of the body part by applying an epoxy resin on the surface and curing the resin to form an epoxy coating, including covering the electronic part.

[0053] In an embodiment, after the curing of the assembly, the assembly is removed from the oven for allowing the assembly to cool down. For example, the assembly is allowed to cool down for about 5-10 minutes, and thereafter the unassembling of the molded body part from the molding stand is performed. Thereafter, an overflow gate (formed due to fluidic coupling between the molding stand and the cavity of the body part) is cut by sharp knife, when cured epoxy coating is slightly warm in order to achieve smooth surface. This forms the epoxy coating on the inner surface of the molded body part for covering the electronic part, thereby forming the wearable electronic device of the present disclosure.

[0054] In one embodiment, the wearable electronic device finally passes through a finishing process. In an example, the finishing process includes visually checking an outlook of molding quality and check whether the charging pads are clean. Finally, the wearable

Petitioner Samsung Ex-1004, 0023

electronic device is subjected to a polishing machine for mainly polishing the outer surface of the molded body part.

[0055] The present disclosure provides a wearable electronic device and a method for manufacturing thereof. The present disclosure provides a simple and efficient waterproof construction for a wearable electronic device, such as a ring and a band. Specifically, the wearable electronic device of the present disclosure precludes a need for two-part covers, o-ring and screws for attaining waterproof construction. Further, the wearable electronic device has a smooth inner surface, i.e. free from any depression or elevation, which avoids deposit of dirt on the inner surface. Moreover, the inner surface is provided with the coating of epoxy material, which provides good adherence with user's skin when worn on a finger. Additionally, the coating of epoxy material makes the wearable electronic device hypoallergic, which does not cause skin irritations and allergies when comes in contact with the user's skin.

DETAILED DESCRIPTION OF THE DRAWINGS

[0056] Referring to FIG. 1, illustrated is a schematic side view of a wearable electronic device **100**, in accordance with an embodiment of the present disclosure. The wearable electronic device **100** includes a molded body part **102** made of a moldable ceramic material. As shown, the molded body part **102** is configured to have a shape of ring that can be suitably worn on a finger of a user. The molded body part **102** includes an inner surface **110** and an outer surface **112** opposite to the inner surface **110**. The molded body part **102** also includes at least one cavity (shown and explained in conjunction with subsequent figures) having a depth and arranged on the inner surface **110** of the moldable body part **102**. Further, as shown, the molded body part **102** includes a central portion **120** and a loop **122** integral with the central portion **120**.

[0057] Referring now to FIG. 2, illustrated is a schematic top view of the wearable electronic device **100**, in accordance with an embodiment of the present disclosure. Specifically, FIG. 2 illustrates the molded body part **102**, i.e. the central portion **120** and the loop **122** extending from the central portion **120**.

Petitioner Samsung Ex-1004, 0024

[0058] Referring now to FIG. 3, illustrated is a schematic cross-sectional view of the wearable electronic device **100**, in accordance with an embodiment of the present disclosure. Specifically, FIG. 3 illustrates the cross-sectional view of the wearable electronic device **100** along the axis B-B of the FIG. 2. As shown, the molded body part **102** includes at least one cavity, particularly, the cavity arranged on the inner surface **110** and running along the central portion **120** and the loop **122**. Specifically, the least one cavity includes a first cavity **302** and a second cavity **304** connected to the first cavity **302**. The first cavity **302** is configured on the central portion **120** and the second cavity **304** is configured on the loop **122**. Further, a depth of the first cavity **302** is configured to be more than a depth of the second cavity **304**.

[0059] The wearable electronic device **100** further includes an electronic part **310** arranged in the cavity, i.e. in the first cavity **302** and the second cavity **304**. Specifically, the electronic part **310** includes a first part **312** and a second part **314**. The first part **312** is configured to be received in the first cavity **302** and the second part **314** is configured to be received in the second cavity **304**. For example, the first part **312** includes electronic elements such as, a battery and a microcontroller, revived in the first cavity **302**. The second part **314** includes a support (a flexible printed circuit board) designed to be received, primarily in the second cavity **304** and marginally in the first cavity **302**. Further, the second part **314** includes a plurality of electronic components, which includes but not be limited to an infrared (IR) transmitter, an IR receiver, a microcontroller, a RF (radio frequency) transceiver and a temperature sensor, arranged thereon. The first part **312** and the second part **314** are coupled to each other (for example with electrical wires, not shown). Moreover, the electronic part **310**, i.e. the first part **312** and the second part **314**, has a thickness that is less than the depth of the first cavity **302** and the second cavity **304**. Specifically, when the first part **312** and the second part **314** are received in the first cavity **302** and the second cavity **304**, respectively, still an unfilled space remains in the first cavity **302** and the second cavity **304**.

[0060] The wearable electronic device **100** includes a coating **330** made of a moldable filler material such as an epoxy material. The coating **330** is arranged on the inner surface **110** of the molded body part **102** for covering the electronic part **310** and the cavity, i.e. the first cavity **302** and the second cavity **304**. Specifically, the coating **330** covers the unfilled space that remains in the first cavity **302** and the second cavity **304** after receiving the first part **312**

Petitioner Samsung Ex-1004, 0025

and the second part **314**, respectively, therein. Therefore, the coating **330** acts a cover for the electronic part **310** and forms a surface that contacts a skin of the user when the wearable electronic device **100** is worn on the finger.

[0061] FIG. 3 also illustrates an assembly guiding element **340** arranged on the inner surface **110** of the loop **122**. The assembly guiding element **340** aligns the electronic part **310** in proper position with respect to the molded body part **102**. Specifically, the assembly guiding element **340** is a protruded structure adapted to be received by a hole or cavity (not shown) configured on the second part **314** (particularly on the support i.e. flexible printed circuit board) for properly aligning the electronic part **310** with respect to the molded body part **102**.

[0062] Referring now to FIGS. 4 and 5, illustrated are cross-sectional views of the wearable electronic device **100** (of FIG. 1) along axes A-A and C-C, respectively, in accordance with an embodiment of the present disclosure. Specifically, the FIGS. 4 and 5 illustrate cross-sectional views of the loop **122** of the molded body part **102** along the axes A-A and C-C, respectively. The molded body part **102** includes the outer surface **112**, the inner surface **110** and the cavity, particularly, the second cavity **304** for receiving the electronic part, particularly, the second part **314**, therein. As shown, the second part **314** sits on the second cavity **304** touching the inner surface **110**. Further, the coating **330** is provided on the inner surface **110** of the molded body part **102** for covering the electronic part, particularly, the second part **314**.

[0063] Further, FIG. 5 illustrates the assembly guiding element **340** aligning the electronic part **310** (shown in FIG. 3) in the cavity of the molded body part **102**. Specifically, the second part **314** (particularly the flexible printed circuit board of the electronic part **310**) includes a hole (not shown) for receiving the assembly guiding element **340** therethrough for aligning the second part **314** (i.e. electronic part **310**) in proper position with respect to the second cavity **304** of the molded body part **102**. Further, the second part **314** sits on the second cavity **304** touching the inner surface **110** of the molded body part **102**.

[0064] Referring now to FIG. 6, illustrated are steps of a method **600** for manufacturing a wearable electronic device, in accordance with an embodiment of the present disclosure.

Petitioner Samsung Ex-1004, 0026

Specifically, the method **600** illustrates the steps of manufacturing the wearable electronic device **100**, explained in conjunction with the FIGS. 1-5.

[0065] At step **602**, a molded body part is molded using a moldable ceramic material and a mold is such that at least one cavity is formed on an inner surface of the molded body part.

[0066] At step **604**, an electronic part is arranged in the cavity.

[0067] At step **606**, the inner surface of the molded body part is applied with a coating of an epoxy resin and epoxy resin is cured to form an epoxy coating for covering the electronic part.

[0068] The steps **602** to **606** are only illustrative and other alternatives can also be provided where one or more steps are added, one or more steps are removed, or one or more steps are provided in a different sequence without departing from the scope of the claims herein. For example, the method **600** further includes attachment of the electronic part to the cavity using attachment means arranged on a bottom of the cavity. Further, the method **600** includes arranging the electronic part in the cavity using an assembly guiding element. Moreover, in the method **600** the mold (for the molded body part) is such that two cavities, a first cavity and a second cavity, are formed on the inner surface of the molded body part. Additionally, the first cavity and the second cavity are in connection with each other. Further, in the method **600**, arranging the electronic part (which includes a battery and a support on which other components of the electronic part are arranged) in the cavity is carried out by arranging the battery in the first cavity, connecting the battery to the support and arranging the support in the second cavity. Moreover, in the method **600**, the curing is induced with UV light. Additionally, in the method **600**, the coating of the inner surface of the molded body part is carried out using a molding stand.

[0069] The method **600** of the present disclosure is further explained in conjunction with subsequent figures, i.e. FIGS. 7-12. Specifically, the FIGS. 7A-7C illustrate the steps **602-606**, respectively, of the method **600** for manufacturing the wearable electronic device **100** (shown in FIG. 1). More specifically, FIGS. 7A-7C illustrate cross-sectional views of the loop **122** of the molded body part **102**. Therefore, as mentioned above, FIG. 7A illustrates the molded body part **102** having at least one cavity, particularly the second cavity **304**, formed on

Petitioner Samsung Ex-1004, 0027

the inner surface **110** of the loop **122**. Further, FIG. 7B illustrates the electronic part **310** (shown in FIG. 3), particularly the second part **314** (the flexible printed circuit board) arranged in the cavity, such as the second cavity **304**. Moreover, FIG. 7C illustrates the inner surface **110** of the molded body part **102** applied with a layer of an epoxy resin being cured to form the coating **330** for covering the electronic part, such as the second part **314** thereof. It is to be understood that if FIGS. 7A-7C would have illustrated cross-sectional views of the central portion **120** (shown in FIG. 3) of the molded body part **102**, in such instance FIGS. 7A-7C would have been explained in conjunction with the first part **312** (shown in FIG. 3) of the electronic part **310** and the first cavity **302**.

[0070] Referring now to FIG. 8, illustrated is a perspective view of the molded body part **102** and the electronic part **310** of the wearable electronic device **100** (as shown in FIG.1) in an unassembled state, in accordance with an embodiment of the present disclosure. As mentioned above, the molded body part **102** is made of a moldable ceramic material using a mold (not shown) such that two cavities, the first cavity **302** and the second cavity **304**, are formed on the inner surface **110** of the molded body part **102**. Further, the first cavity **302** and the second cavity **304** are in connection with each other. Moreover, as mentioned above, the attachment of the electronic part **310** to the cavity (i.e. the first cavity **302** and the second cavity **304**) uses attachment means arranged on a bottom of the cavity. As shown, a stick foam tape **802** (i.e. attachment means) is arranged on the first cavity **302**. Similarly, another stick foam tape (not shown) may be arranged on the second cavity **304** (or on the electronic part **310**).

[0071] As shown in FIG. 8, the electronic part **310** includes the first part **312** (such as a battery and a portion of the support mounted with a microcontroller and the second part **314** (such as the support i.e. flexible PCB) connected to the first part **312**. For example, the first part **312** is connected to the second part **314**, i.e. the battery is connected to the support using a wire **804**. The first part **312** also includes charging pads **806** for charging the battery. Further, on the second part **314**, i.e. the support, other components **810** of the electronic part **310** are arranged. For example, the other components **810** include but are not limited to IR transmitter, the IR receiver, the microcontroller, the RF transceiver and the temperature

Petitioner Samsung Ex-1004, 0028

sensor. The second part **314** also includes a hole **812** for aligning the second part **314** with the molded body part **102**.

[0072] Referring now to FIG. 9, associated with the step of arranging the electronic part **310** in the cavity, i.e. by arranging the battery and the portion of the support mounted with the microcontroller in the first cavity **302** (shown in FIG. 8) and arranging the support (with other electronic elements arranged thereon) in the second cavity **304** (shown in FIG. 8). Specifically, FIG. 9 illustrates a perspective view of the molded body part **102** and the electronic part **310** in an assembled state. The first part **312** (as shown in FIG. 8) and the second part **314** are of the electronic part **310** received in the first and second cavities, **302**,**304** (shown in FIG. 8) respectively, and thereafter the first part **312** and the second part **314** are pressed to couple with the molded body part **102** with the help of the attachment means, such as the stick foam tape **802** (shown in FIG. 8). As mentioned above, the step of arranging the electronic part **310** in the cavity is carried out using the assembly guiding element **340**. Specifically, the hole **812** arranged in the second part **314** of the electronic part **310** receives the assembly guiding element **340** therethrough for aligning the electronic part **310** in proper position with respect to the molded body part **102**.

[0073] Referring now to FIG. 10, associated with the step of coating the inner surface **110** of the body part **102** that is carried out using a molding stand **1000**. Specifically, FIG. 10 illustrates a perspective view of the assembled molded body part **102** and the electronic part **310**, and the molding stand **1000** positioned adjacent thereto. The molding stand **1000** includes a base **1002**, a channel **1004** configured on the base **1002** and an elongate member **1006** extending from the base **1002**. The channel **1004** and the elongate member **1006** are configured to conform to a shape of the molded body part **102**. Specifically, the channel **1004** is configured to conform to a thickness of the molded body part **102**, whereas the elongate member **1006** is configured to conform to a circumference (or diameter) of the loop **122** of the molded body part **102**. This allows the molded body part **102** to firmly fit over the elongate member **1006** of the molding stand **1000**. The elongate member **1006** further includes an opening **1010** and a recess **1012** surrounding the opening **1010**.

[0074] Referring now to FIG. 11, illustrated is a perspective view of the molded body part **102** (arranged with the electronic part therein) mounted on the molding stand **1000**, in accordance

Petitioner Samsung Ex-1004, 0029

with an embodiment of the present disclosure. Specifically, the channel **1004** and the elongate member **1006** receive the molded body part **102**. In such instance, molten epoxy is poured through the opening **1010** for being received by the cavity (particularly the unfilled space remains in the first cavity **302** and the second cavity **304** after receiving the electronic part **310** therein, as shown in FIG. 9). This allows the formation of an epoxy coating on the inner surface **110** of the molded body part **102** for covering the electronic part and the cavity, as shown in FIG. 12. Specifically, the FIG. 12 illustrates a perspective view of the wearable electronic device **100** having the molded body part **102**, the electronic part **310** (shown in FIG. 9) arranged in the molded body part **102** and the coating **330** covering the electronic part **310**.

[0075] Modifications to embodiments of the present disclosure described in the foregoing are possible without departing from the scope of the present disclosure as defined by the accompanying claims. Expressions such as "including", "comprising", "incorporating", "have", "is" used to describe and claim the present disclosure are intended to be construed in a non-exclusive manner, namely allowing for items, components or elements not explicitly described also to be present. Reference to the singular is also to be construed to relate to the plural.

CLAIMS

1. A wearable electronic device comprising:

a body part made of a non-ceramic material, having an inner surface and an outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part,

an electronic part arranged in said at least one cavity, which electronic part has a thickness that is less than the depth of the at least one cavity, and

a coating made of a moldable filler material on the inner surface of the body part, covering the electronic part and the at least one cavity.

2. The wearable electronic device according to claim 1, wherein the non-ceramic material is a titanium material.

3. The wearable electronic device according to claim 1, wherein the non-ceramic material is a machinable material.

4. The wearable electronic device according to claim 1, wherein the non-ceramic material is a machinable titanium material.

Petitioner Samsung Ex-1004, 0031

5. The wearable device according to claim 1 wherein the non-ceramic material is a machinable metallic material comprising one or more of titanium, steel, platinum, gold, palladium, silver or bronze or a gold based alloys.

6. The wearable electronic device according to claim 1, wherein the electronic part is attached to the cavity a bottom of the cavity.

7. The wearable electronic device according to claim 6, comprising one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity.

8. The wearable electronic device according to claim 1, wherein the moldable filler material is selected from a group consisting of at least epoxy material, Polyethylene, Polyurethane, low temperature moldable material, Loctite M-31CL, alpha-epoxy, 1,2-epoxy, EpoxAcast® 650, Bisphenol S epoxy resin, Novolac epoxy resin, Aliphatic epoxy resin and Glycidylamine epoxy resin.

9. The wearable electronic device according to claim 1, wherein the electronic part comprises one or more of a battery, an infrared transmitter, a microcontroller, a radio frequency transceiver, a temperature sensor and an infrared receiver.

10. The wearable electronic device according to claim 9, wherein the moldable filler material comprises an ink and is configured to cover at least an area other than the infrared transmitter and the infrared receiver within the at least one cavity

11. The wearable electronic device according to claim 1, wherein the moldable filler material comprises an ink that increases a value of transmitted infrared light intensity divided by transmitted visible light intensity.

12. The wearable electronic device according to claim 1, wherein the body part comprises a ring configured to be worn on a finger.

13. A method for manufacturing a wearable electronic device, comprising:

machining a body part using a non-ceramic material to form at least one cavity on an inner surface of the body part,

arranging an electronic part in said at least one cavity, and

coating the inner surface of the body part including covering the electronic part and filling any open regions in said at least one cavity.

14. A method according to claim 13, wherein the electronic part is attached to the cavity using one or more of a sticker, tape disposed on a bottom of the at least one cavity.

15. A method according to claim 13, comprising using an assembly guiding element to arrange the electronic part in the at least one cavity.

16. A method according to claim 13, wherein machining the body part to form the at least one cavity comprises machining a first cavity and a second cavity on the inner surface of the body part.

17. A method according to claim 16, wherein the first cavity and the second cavity are connected.

18. A method according to claim 17, wherein the electronic part comprises a battery and a support on which other components of the electronic part are arranged, and arranging the electronic part in the cavity comprises arranging the battery in the first cavity, connecting the battery to the support and arranging the support in the second cavity.

Petitioner Samsung Ex-1004, 0034

19. A method according to claim 13, wherein coating the inner surface of the body part comprises applying an epoxy resin on the inner surface and curing the resin to form an epoxy coating.

20. The method according to claim 13, wherein the body part comprises a ring configured to be worn on a finger.

ABSTRACT

A wearable electronic device includes a body part made of a non-ceramic material, having an inner surface and an outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part, an electronic part arranged in the at least one cavity, which electronic part has a thickness that is less than the depth of the at least one cavity, and a coating made of a moldable filler material on the inner surface of the body part, covering the electronic part and the at least one cavity.

Petitioner Samsung Ex-1004, 0036

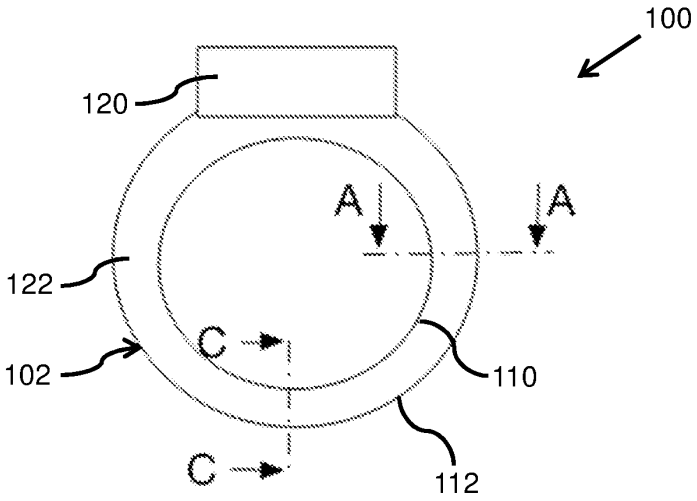


FIG. 1

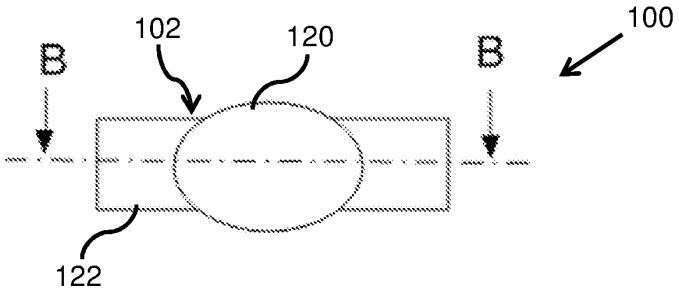


FIG. 2

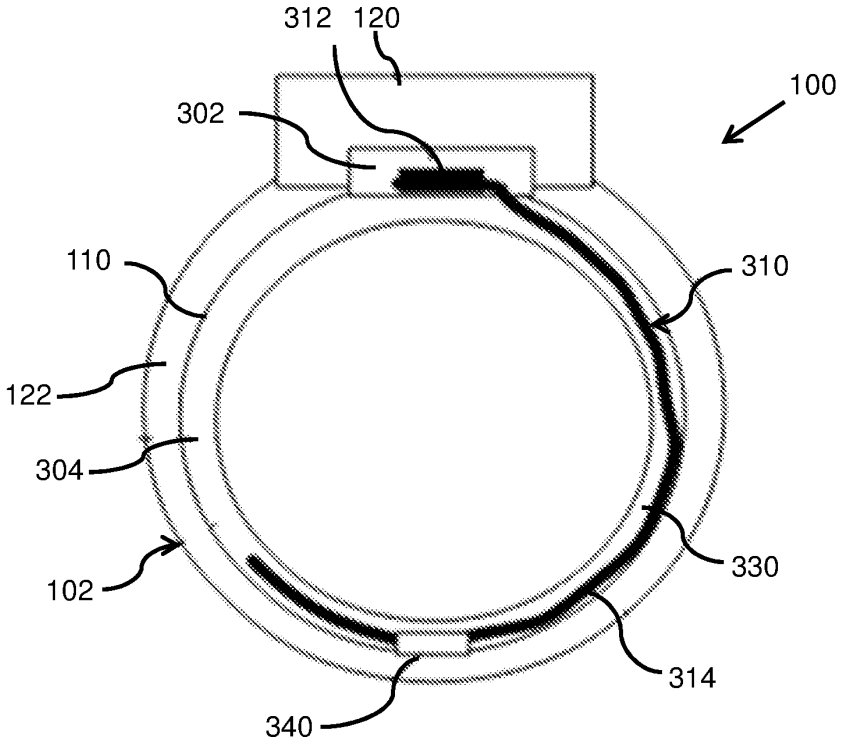


FIG. 3

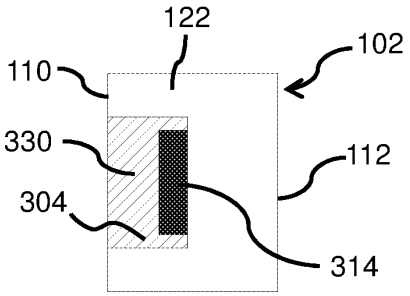


FIG. 4

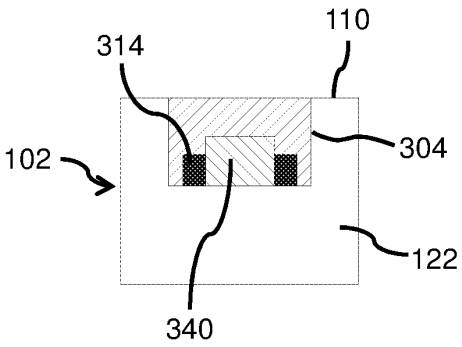


FIG. 5

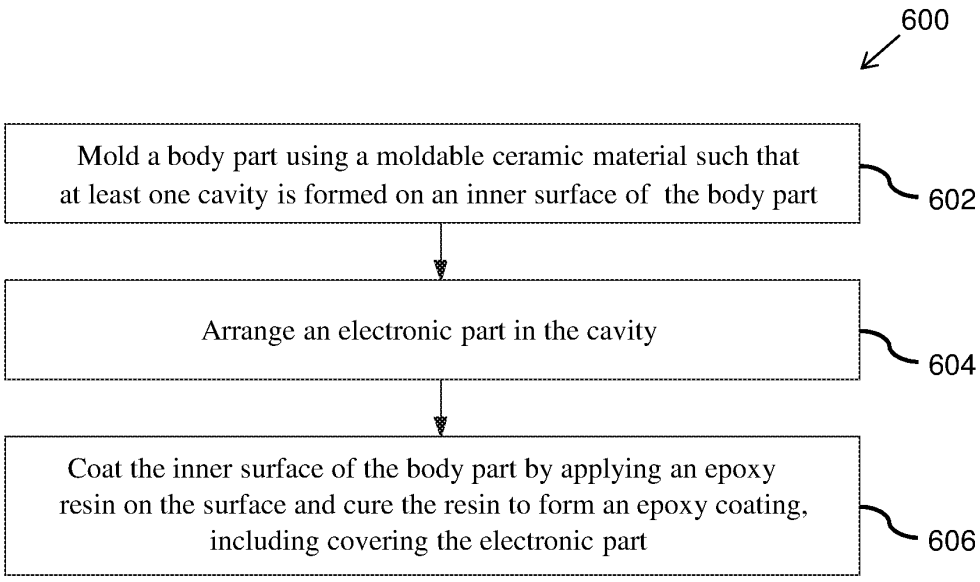

600
Mold a body part using a moldable ceramic material such that at least one cavity is formed on an inner surface of the body part
602
Arrange an electronic part in the cavity
604
Coat the inner surface of the body part by applying an epoxy resin on the surface and cure the resin to form an epoxy coating, including covering the electronic part
606

FIG. 6

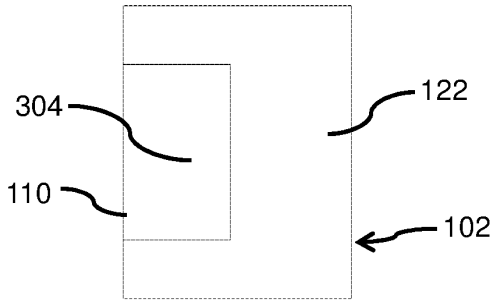


FIG. 7A

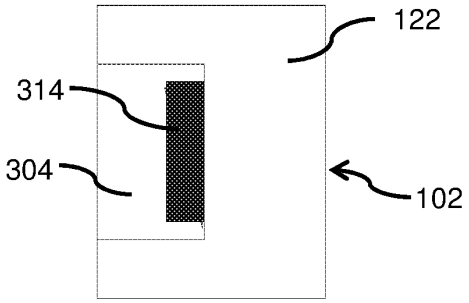


FIG. 7B

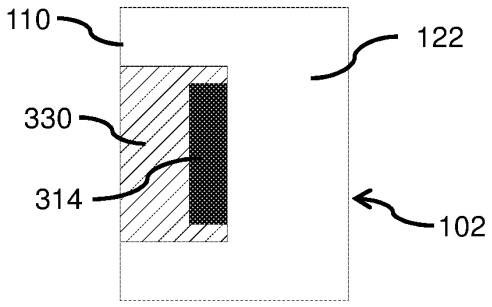


FIG. 7C

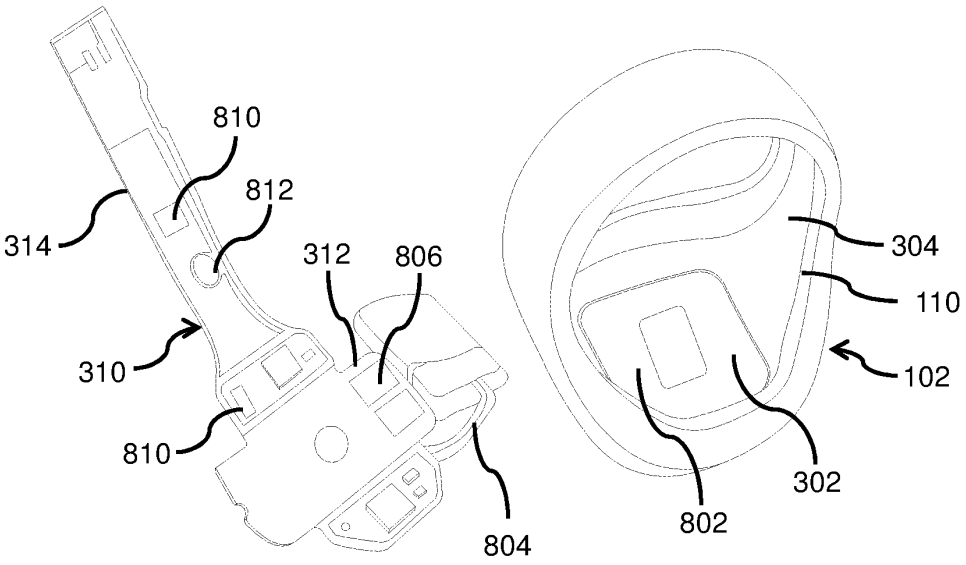

810
812
314
312
806
304
110
310
102
810
302
802
804

FIG. 8

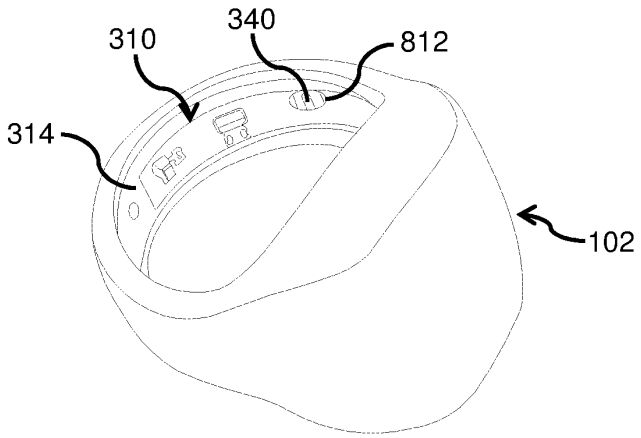

310
340
812
314
102

FIG. 9

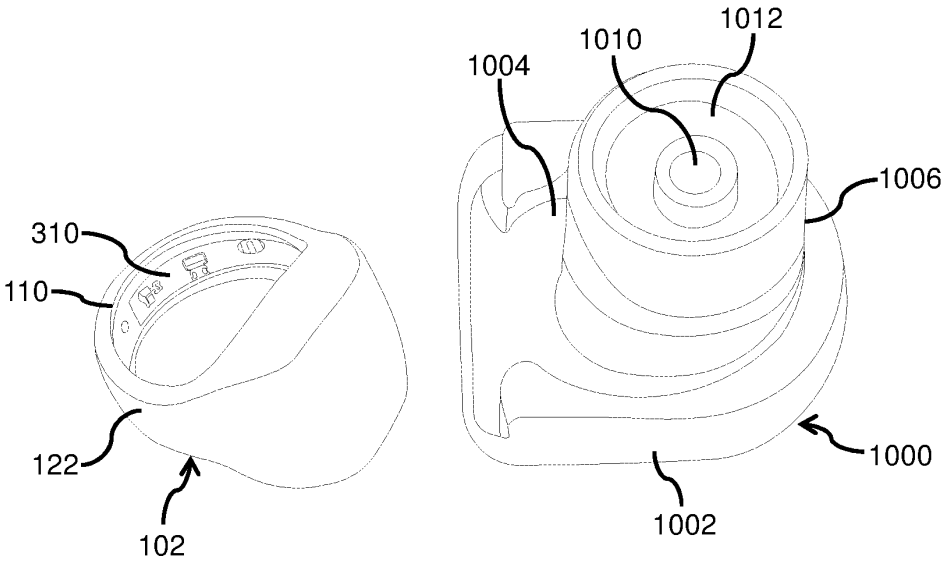


FIG. 10

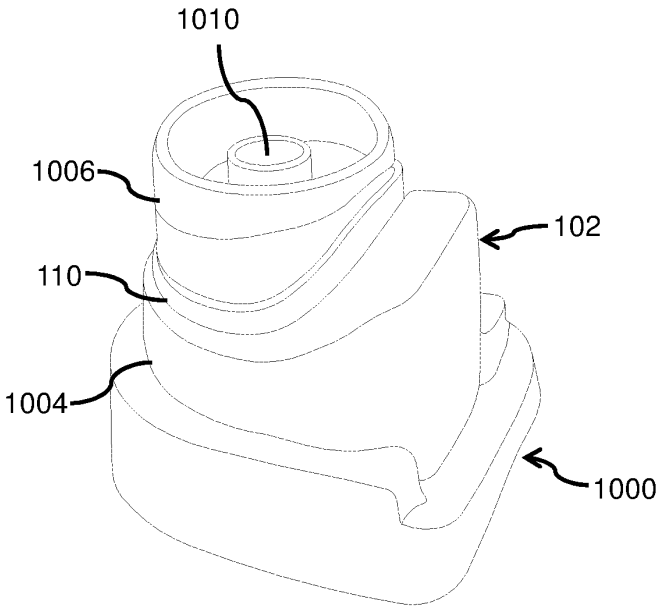


FIG. 11

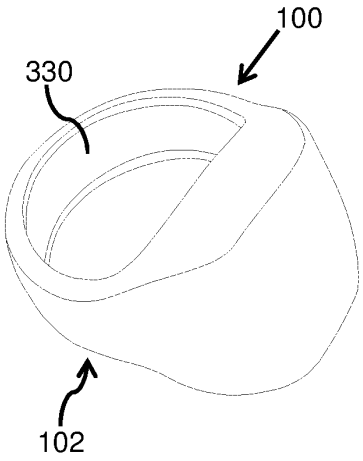


FIG. 12

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Filer:	GEZA C ZIEGLER JR/Ruth DeSabia
Attorney Docket Number:	MDJN.3277.USC2

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	70	70
UTILITY SEARCH FEE	2111	1	300	300
UTILITY EXAMINATION FEE	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**730**

Electronic Acknowledgement Receipt

EFS ID:	31168144
Application Number:	15835573
International Application Number:	
Confirmation Number:	7420
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Customer Number:	93582
Filer:	GEZA C ZIEGLER JR/Ruth DeSabia
Filer Authorized By:	GEZA C ZIEGLER JR
Attorney Docket Number:	MDJN.3277.USC2
Receipt Date:	08-DEC-2017
Filing Date:	
Time Stamp:	10:31:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$730
RAM confirmation Number	120817INTEFSW10315801
Deposit Account	
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	171204_3277_ADS.pdf	1823127 54abcd82bc1f705fa81fc2833b5d2fa39a1e174a	no	9
Warnings:					
Information:					
2		3277_USC2_Jouzen004US2_Specification.pdf	397114 48f437ffebe95ffe75f9300983ee6602c3f31233	yes	27

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	21
	Claims	22	26
	Abstract	27	27

Warnings:					
Information:					
3	Drawings-only black and white line drawings	Figures.pdf	213891 ad692c29663d95548085e2c8da78cf4eefdb2d8b2	no	6
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	34906 5c30db4f208e8dd617d169f4f8ee76cdd98211b7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2469038		

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

New Applications Under 35 U.S.C. 111

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

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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

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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
15/835,573	12/08/2017		730	MDJN.3277.USC2	20	2

CONFIRMATION NO. 7420

93582
ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

FILING RECEIPT

OC000000098370277

Date Mailed: 01/02/2018

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)

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Tomi Hautala, Oulu, FINLAND;
Markku Koskela, Oulu, FINLAND;
Kari Kivelä, Helsinki, FINLAND;

Applicant(s)

Oura Health Oy, Oulu, FINLAND;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 14/826,360 08/14/2015 PAT 9861314

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: Yes

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

Petitioner Samsung Ex-1004, 0048

If Required, Foreign Filing License Granted: 12/28/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/835,573**

Projected Publication Date: 04/12/2018

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

Preliminary Class

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

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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.

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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).

Petitioner Samsung Ex-1004, 0049

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/835,573

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	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))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	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))									
	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.

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
15/835,573	12/08/2017	Teemu Haverinen	MDJN.3277.USC2

CONFIRMATION NO. 7420

93582
ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

FORMALITIES LETTER

OC000000096370278

Date Mailed: 01/02/2018

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).

- 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. Small entity discount is in effect. 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.)

- $ **70** surcharge.
- $(**0**) previous unapplied payment amount.
- $ **70** TOTAL FEE BALANCE DUE.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):

Petitioner Samsung Ex-1004, 0052

Teemu Haverinen
Marko Kelloniemi
Tomi Hautala
Markku Koskela
Kari Kivelä

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://sportal.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**.

/lvongxay/

Petitioner Samsung Ex-1004, 0053

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

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

I hereby appoint:

■ Practitioners associated with Customer Number: 93582

OR

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

Name	Registration Number	Name	Registration Number

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

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

■ The address associated with Customer Number: 93582

OR

☐

Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address: Oura Health Oy
Elektroniikkatie 3
90590 Oulu, Finland

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

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

Signature	/Markku Koskela/	Date	04/26/2017
Name	Markku Koskela	Telephone	00358503874020
Title	Chief Technology Specialist, Co-Founder		

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

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

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.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

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

Secrecy Order 37 CFR 5.2:

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

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Teemu		Haverinen	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Oulu	Country of Residence [i]	FI

Mailing Address of Inventor:

Address 1	Savottalaisentie 18		
Address 2			
City	Oulu	State/Province	
Postal Code	90420	Country [i]	FI

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Marko		Kelloniemi	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Oulu	Country of Residence [i]	FI

Mailing Address of Inventor:

Address 1	Savottalaisentie 12		
Address 2			
City	Oulu	State/Province	
Postal Code	90420	Country [i]	FI

Inventor 3 Remove

Legal Name

Petitioner Samsung Ex-1004, 0056

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

Prefix	Given Name	Middle Name	Family Name	Suffix
	Tomi		Hautala	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Oulu	Country of Residence [i]	FI

Mailing Address of Inventor:

Address 1	Valtatie 56 as. 12		
Address 2			
City	Oulu	State/Province	
Postal Code	90500	Country [i]	FI

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Markku		Koskela	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Oulu	Country of Residence [i]	FI

Mailing Address of Inventor:

Address 1	Pateniementie 68 A 1		
Address 2			
City	Oulu	State/Province	
Postal Code	90800	Country [i]	FI

Inventor 5 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kari		Kivelä	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Helsinki	Country of Residence [i]	FI

Mailing Address of Inventor:

Address 1	Ilmarinkatu 2 C 46		
Address 2			
City	Helsinki	State/Province	
Postal Code	00100	Country [i]	FI

Petitioner Samsung Ex-1004, 0057

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

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

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

Customer Number	93582		
Email Address	ptomail@gziplaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF		
Attorney Docket Number	MDJN.3277.USC2	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	6	**Suggested Figure for Publication (if any)**	

Filing By Reference:

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

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

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

Publication Information:

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

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

Representative Information:

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

Petitioner Samsung Ex-1004, 0058

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	93582		

Domestic Benefit/National Stage Information:

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

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	14826360	2015-08-14

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

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

			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.

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

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

Petitioner Samsung Ex-1004, 0059

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

Petitioner Samsung Ex-1004, 0060

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

Applicant Information:

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

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

(●) Assignee	( ) Legal Representative under 35 U.S.C. 117	( ) Joint Inventor
( ) Person to whom the inventor is obligated to assign.	( ) Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Oura Health Oy		
Mailing Address Information For Applicant:			
Address 1	Elektroniikkatie 3		
Address 2			
City	Oulu	**State/Province**	
Country	FI	Postal Code	90590
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

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

Petitioner Samsung Ex-1004, 0061

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

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

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

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

Signature	/gcz44004/			Date (YYYY-MM-DD)	2018-01-08
First Name	Geza	Last Name	Ziegler	Registration Number	44004

Additional Signature may be generated within this form by selecting the Add button.

Petitioner Samsung Ex-1004, 0062

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MDJN.3277.USC2
	Application Number	
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF	

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

Petitioner Samsung Ex-1004, 0063

Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Petitioner Samsung Ex-1004, 0064

COMBINED DECLARATION AND ASSIGNMENT FOR A UTILITY OR DESIGN PATENT APPLICATION

As the below named inventor(s), I/we declare that:

1) This declaration and assignment are directed to:

Title of Invention **WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF**

☐ The specification of which is attached hereto; OR

☒ United States application or PCT international application number:

15/835,573 filed on **08 December 2017**

☐ As amended on _____ (if applicable);

(I/We hereby authorize and request the Company or its designated attorneys, representatives or agents to insert above the title, application number and filing date of the application, or any other information herein, when known.)

2) The above-identified application was made or authorized to be made by me/us.
3) I/We believe that I/we are the original and/or joint inventors of a claimed invention in the application.
4) I/We hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. §1001 by fine or imprisonment of not more than five (5) years, or both.
5) I/We have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment referred to above.
6) I/We acknowledge the continuing duty to disclose to the United States Patent and Trademark Office all information known to us to be material to patentability of this application, as defined in Title 37, Code of Federal Regulations, Section 1.56, including, for continuation-in-part applications, material information which becomes available between the filing date of the prior application and the filing date of the continuation-in-part application.

Authorization To Permit Access To Application by Participating Office

☒ If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the above-identified patent application is filed access to the above-identified patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the above-identified patent application is filed to have access to the above-identified patent application. In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the above-identified patent application with respect to: 1) the above-identified patent application-as-filed; 2) any foreign application to which the above-identified patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the above-identified patent application; and 3) any U.S. application-as-filed from which benefit is sought in the above-identified patent application. In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Offices.

Petitioner Samsung Ex-1004, 0065

OATH:

I/We do hereby declare that all statements made herein of my/our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

ASSIGNMENT OF RIGHTS:

Whereas, I/we have invented certain new and useful improvements in the Invention identified above and described in the above-identified patent application(s) and/or patent(s) (hereinafter referred to as "Invention"); and,

Whereas I/we desire to assign my above-identified rights, title and interest in the Invention to the Assignee identified herein;

Now, this indenture witnesseth, that for good and valuable consideration, the receipt whereof is hereby acknowledged, I/we,

Inventor(s) (assignor(s))

Name	*Address*
Teemu Haverinen	Savottalaisentie 18 90420 Oulu, Finland
Marko Kellioniemi	Savottalaisentie 12 90420 Oulu, Finland
Tomi Hautala	Valtatie 56 as. 12 90500 Oulu, Finland
Markku Koskela	Pateniementie 68 A 1 90800 Oulu, Finland
Kari Kivelä	Ilmarinkatu 2 C 46 00100 Helsinki, Finland

do hereby assign, sell and transfer to:

Assignee

Name of Company	*Address*
Oura Health Oy	Elektroniikkatie 3 90590 Oulu, Finland

herein referred to as the "Company", its successors and assigns, my entire rights, titles and interests in and to the Invention and improvements made or conceived by me/us described the application(s) listed above and in the following table:

Country	*Type of Filing*	*Application Number*	*Filing Date*	*Title*
US	Utility	14/826,360	14 August 2015	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

(We hereby authorize and request the Company or its delegated attorneys, representatives or agents to insert above the relevant application number, filing date and other information required herein, when known.)

and any and all applications for patent or patents therefrom in any and all countries, including all divisions, continuations, and continuations-in-part, reexaminations, reissues and renewals thereof, and all benefits, rights of priority resulting from the filing of the application(s), and any and all Letters Patent of

Petitioner Samsung Ex-1004, 0066

the United States, and countries foreign thereto, which may be granted or have granted for the Invention, and other benefits accruing or to accrue to us with respect to the filing of applications for patents or securing of patents in the United States and countries foreign thereto, unto the Company;

and I/we hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Letters Patent which may issue for the Invention to the Company, as assignee of the whole right, title and interest thereto;

and I/we further agree to, without any further consideration, communicate to the Company or its representatives or nominees any facts known to me/us respecting the Invention and improvements and testify in any legal proceeding, make all rightful oaths, sign and execute all necessary and lawful future documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights in all countries including but not limited to, any provisional, non-provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, for any derivation proceedings relating thereto, and, as to any patents that issue from such applications, for any supplemental examination, derivation proceeding, opposition, post grant review, reissue, re-examination, inter partes review, or extension thereof, and generally do everything possible to aid the Company, its successors, assigns and nominees, to obtain and enforce proper patent protection for the Invention and its improvements in all countries.

Inventor(s) Signature(s)

Name	*Signature*	*Date*
Teemu Haverinen	Teemu H	18.12.2017
Marko Kellokoski	Marko Kellokoski	18.12.2017
Tomi Hautala	Tomi Hautala	18.12.2017
Markku Koskela	Markku Koskela	18.12.2017
Kari Kivelä	KK	15.12.2017

Petitioner Samsung Ex-1004, 0067

Electronic Acknowledgement Receipt

EFS ID:	31434915
Application Number:	15835573
International Application Number:	
Confirmation Number:	7420
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Customer Number:	93582
Filer:	GEZA C ZIEGLER JR/Ruth DeSabia
Filer Authorized By:	GEZA C ZIEGLER JR
Attorney Docket Number:	MDJN.3277.USC2
Receipt Date:	08-JAN-2018
Filing Date:	08-DEC-2017
Time Stamp:	15:02:28
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	180108_3277_Stmnt.pdf	117196 d230cfdbde826f49b5b7b6d98e2ba422bbc2147c	no	3

Warnings:

Information:					
2	Power of Attorney	170613_3277_POA.pdf	1475872 1c73fad3d59cf101a20940ea8c72a2842309 0354	no	2
Warnings:					
Information:					
3	Application Data Sheet	180108_3277_ADSmu.pdf	842852 eddf7b0f6e56d6cfb02c07a56789746112c2 8656	no	9
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
4	Oath or Declaration filed	Jouzen004US2_Assignment_signed.pdf	2174626 e7863b84bd709123cfd9c507c9dfe2467d2 404a7	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	4610546		

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.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Teemu Haverinen

Application No./Patent No.: 15835573 Filed/Issue Date: 08 December 2017

Titled: WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

OURA HEALTH OY, a Company

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

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

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

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

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

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

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

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

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

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

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

2. From: _____ To: _____

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

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

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.

Petitioner Samsung Ex-1004, 0070

PTO/AIA/96 (08-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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.

/gcz44004/	08 January 2018
Signature	Date
Geza C. Ziegler	44004
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

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

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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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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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504718142 01/08/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT4764864

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
TEEMU HAVERINEN	12/18/2017
MARKO KELLONIEMI	12/18/2017
TOMI HAUTALA	12/18/2017
MARKKU KOSKELA	12/18/2017
KARI KIVELA	12/15/2017

RECEIVING PARTY DATA

Name:	OURA HEALTH OY
Street Address:	ELEKTRONIIKKATIE 3
City:	OULU
State/Country:	FINLAND
Postal Code:	90590

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15835573

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 203 659 0388
Email: ptomail@gziplaw.com
Correspondent Name: ZIEGLER IP LAW GROUP, LLC.
Address Line 1: 55 GREENS FARMS ROAD
Address Line 4: WESTPORT, CONNECTICUT 06880

ATTORNEY DOCKET NUMBER:	MDJN.3277.USC2
NAME OF SUBMITTER:	GEZA C. ZIEGLER
SIGNATURE:	/gcz44004/
DATE SIGNED:	01/08/2018
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 3

source=Jouzen004US2_Assignment_signed#page1.tif
source=Jouzen004US2_Assignment_signed#page2.tif
source=Jouzen004US2_Assignment_signed#page3.tif

COMBINED DECLARATION AND ASSIGNMENT FOR A UTILITY OR DESIGN PATENT APPLICATION

As the below named inventor(s), I/we declare that:

1) This declaration and assignment are directed to:

Title of Invention **WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF**

☐ The specification of which is attached hereto; OR

☒ United States application or PCT international application number:

15/835,573 filed on **08 December 2017**

☐ As amended on _____ (if applicable);

(I/We hereby authorize and request the Company or its designated attorneys, representatives or agents to insert above the title, application number and filing date of the application, or any other information herein, when known.)

2) The above-identified application was made or authorized to be made by me/us.
3) I/We believe that I/we are the original and/or joint inventors of a claimed invention in the application.
4) I/We hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. §1001 by fine or imprisonment of not more than five (5) years, or both.
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6) I/We acknowledge the continuing duty to disclose to the United States Patent and Trademark Office all information known to us to be material to patentability of this application, as defined in Title 37, Code of Federal Regulations, Section 1.56, including, for continuation-in-part applications, material information which becomes available between the filing date of the prior application and the filing date of the continuation-in-part application.

Authorization To Permit Access To Application by Participating Office

☒ If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the above-identified patent application is filed access to the above-identified patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the above-identified patent application is filed to have access to the above-identified patent application. In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the above-identified patent application with respect to: 1) the above-identified patent application-as-filed; 2) any foreign application to which the above-identified patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the above-identified patent application; and 3) any U.S. application-as-filed from which benefit is sought in the above-identified patent application. In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Offices.

Petitioner Samsung Ex-1004, 0075

OATH:

I/We do hereby declare that all statements made herein of my/our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

ASSIGNMENT OF RIGHTS:

Whereas, I/we have invented certain new and useful improvements in the Invention identified above and described in the above-identified patent application(s) and/or patent(s) (hereinafter referred to as "Invention"); and,

Whereas I/we desire to assign my above-identified rights, title and interest in the Invention to the Assignee identified herein;

Now, this indenture witnesseth, that for good and valuable consideration, the receipt whereof is hereby acknowledged, I/we,

Inventor(s) (assignor(s))

Name	*Address*
Teemu Haverinen	Savottalaisentie 18 90420 Oulu, Finland
Marko Kelloniemi	Savottalaisentie 12 90420 Oulu, Finland
Tomi Hautala	Valtatie 56 as. 12 90500 Oulu, Finland
Markku Koskela	Pateniementie 68 A 1 90800 Oulu, Finland
Kari Kivelä	Ilmarinkatu 2 C 46 00100 Helsinki, Finland

do hereby assign, sell and transfer to:

Assignee

Name of Company	*Address*
Oura Health Oy	Elektroniikkatie 3 90590 Oulu, Finland

herein referred to as the "Company", its successors and assigns, my entire rights, titles and interests in and to the Invention and improvements made or conceived by me/us described the application(s) listed above and in the following table:

Country	*Type of Filing*	*Application Number*	*Filing Date*	*Title*
US	Utility	14/826,360	14 August 2015	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

(We hereby authorize and request the Company or its delegated attorneys, representatives or agents to insert above the relevant application number, filing date and other information required herein, when known.)

and any and all applications for patent or patents therefrom in any and all countries, including all divisions, continuations, and continuations-in-part, reexaminations, reissues and renewals thereof, and all benefits, rights of priority resulting from the filing of the application(s), and any and all Letters Patent of

Petitioner Samsung Ex-1004, 0076

the United States, and countries foreign thereto, which may be granted or have granted for the Invention, and other benefits accruing or to accrue to us with respect to the filing of applications for patents or securing of patents in the United States and countries foreign thereto, unto the Company;

and I/we hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Letters Patent which may issue for the Invention to the Company, as assignee of the whole right, title and interest thereto;

and I/we further agree to, without any further consideration, communicate to the Company or its representatives or nominees any facts known to me/us respecting the Invention and improvements and testify in any legal proceeding, make all rightful oaths, sign and execute all necessary and lawful future documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights in all countries including but not limited to, any provisional, non-provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, for any derivation proceedings relating thereto, and, as to any patents that issue from such applications, for any supplemental examination, derivation proceeding, opposition, post grant review, reissue, re-examination, inter parties review, or extension thereof, and generally do everything possible to aid the Company, its successors, assigns and nominees, to obtain and enforce proper patent protection for the Invention and its improvements in all countries.

Inventor(s) Signature(s)

Name	*Signature*	*Date*
Teemu Haverinen	Teemu H	18.12.2017
Marko Kelloniemi	Marko Kelloniemi	18.12.2017
Tomi Hautala	Tomi Hautala	18.12.2017
Markku Koskela	Markku Koskela	18.12.2017
Kari Kivelä	KK	15.12.2017

Petitioner Samsung Ex-1004, 0077

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
15/835,573	12/08/2017	Teemu Haverinen	MDJN.3277.USC2

CONFIRMATION NO. 7420

93582
ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

FORMALITIES LETTER

OC000000096615681

Date Mailed: 01/12/2018

NOTICE OF INCOMPLETE REPLY (NONPROVISIONAL)

Filing Date Granted

The U.S. Patent and Trademark Office has received your reply on 01/08/2018 to the Notice to File Missing Parts (Notice) mailed 01/02/2018 and it has been entered into the nonprovisional application. The reply, however, does not include the following items required in the Notice. A complete reply must be timely filed to prevent ABANDONMENT of the above-identified application. Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Applicant is given **TWO MONTHS** from the date of the Notice to File Missing Parts (Notice) mailed 01/02/2018 within which to file all required items and pay any fees required 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).

Items Required to Avoid Abandonment:

The required items noted below SHOULD be filed along with any items required above. The filing date of this nonprovisional application will be the date of receipt of the items required above.

- 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 the Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. 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.)

- $ **70** surcharge.
- $(**0**) previous unapplied payment amount.
- $ **70** TOTAL FEE BALANCE DUE.

Petitioner Samsung Ex-1004, 0078

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://sportal.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**.

/hteffera/

Petitioner Samsung Ex-1004, 0079

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/835,573

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	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))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	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))									
	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.

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
15/835,573	12/08/2017	Teemu Haverinen	MDJN.3277.USC2

CONFIRMATION NO. 7420

93582
ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

POA ACCEPTANCE LETTER

OC000000096615570

Date Mailed: 01/12/2018

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/08/2018.

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**.

/hteffera/

Petitioner Samsung Ex-1004, 0081

Electronic Patent Application Fee Transmittal

Application Number:	15835573
Filing Date:	08-Dec-2017
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Filer:	GEZA C ZIEGLER JR/Ruth DeSabia
Attorney Docket Number:	MDJN.3277.USC2

Filed as Small 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:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**80**

Electronic Acknowledgement Receipt

EFS ID:	31525156
Application Number:	15835573
International Application Number:	
Confirmation Number:	7420
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Customer Number:	93582
Filer:	GEZA C ZIEGLER JR/Ruth DeSabia
Filer Authorized By:	GEZA C ZIEGLER JR
Attorney Docket Number:	MDJN.3277.USC2
Receipt Date:	17-JAN-2018
Filing Date:	08-DEC-2017
Time Stamp:	14:46:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$80
RAM confirmation Number	011818INTEFSW14474500
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	Fee Worksheet (SB06)	fee-info.pdf	30345 343e6fa525c6fad8b8598ddd7c748122c78327fe	no	2

Warnings:

Information:

Total Files Size (in bytes):	30345

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/835,573	12/08/2017	Teemu Haverinen	MDJN.3277.USC2

CONFIRMATION NO. 7420

93582
ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

PUBLICATION NOTICE



Title:WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

Publication No.US-2018-0103902-A1
Publication Date:04/19/2018

NOTICE OF PUBLICATION OF APPLICATION

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

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

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

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

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

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

Petitioner Samsung Ex-1004, 0086

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
15/835,573	12/08/2017	2835	810	MDJN.3277.USC2	20	2

CONFIRMATION NO. 7420

UPDATED FILING RECEIPT

93582
ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

OC000000102086178

Date Mailed: 09/06/2018

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)

Teemu Haverinen, Oulu, FINLAND;
Marko Kelloniemi, Oulu, FINLAND;
Tomi Hautala, Oulu, FINLAND;
Markku Koskela, Oulu, FINLAND;
Kari Kivelä, Helsinki, FINLAND;

Applicant(s)

Oura Health Oy, Oulu, FINLAND;

Power of Attorney: The patent practitioners associated with Customer Number 93582

Domestic Priority data as claimed by applicant

This application is a CON of 14/826,360 08/14/2015 PAT 9861314

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: Yes

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

Petitioner Samsung Ex-1004, 0087

If Required, Foreign Filing License Granted: 12/28/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/835,573**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

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).

Petitioner Samsung Ex-1004, 0088

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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 AssetsControl, 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).

SelectUSA

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: 15/835,573

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 230 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	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))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	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))									
	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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/835,573	12/08/2017	Teemu Haverinen	MDJN.3277.USC2	7420

93582 7590 01/02/2019

ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

EXAMINER	
AHMAD, YAHYA A.	

ART UNIT	PAPER NUMBER
2835	

NOTIFICATION DATE	DELIVERY MODE
01/02/2019	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):

paralegal_ziplaw@arcticinvent.com
ptomail@gziplaw.com

Petitioner Samsung Ex-1004, 0091

Office Action Summary	**Application No.** 15/835,573	**Applicant(s)** Haverinen et al.	
	Examiner Yahya Ahmad	**Art Unit** 2835	**AIA Status** Yes

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 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 12/08/2017.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 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 12/08/2017 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

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

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Petitioner Samsung Ex-1004, 0092

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Double Patenting

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.

Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over **claims 1-15 of U.S. Patent No. 9,861,314**. Although the claims at issue are not identical, they are not patentably distinct from each other because the non-identical elements refer to the same elements in the instant applications and can be considered as interchangeable as shown in the subject matter as follows:

Instant Application 15/835,573	**Patent No. 9,861,314**
A wearable electronic device comprising: a body part made of a non-ceramic material, having an inner surface and an	A wearable electronic device comprising: a molded body part made of a moldable ceramic material, having an inner surface

outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part, an electronic part arranged in said at least one cavity, which electronic part has a thickness that is less than the depth of the at least one cavity, and a coating made of a moldable filler material on the inner surface of the body part, covering the electronic part and the at least one cavity.	and an outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part, an electronic part arranged in said cavity, which electronic part has a thickness that is less than the depth of the cavity, and a coating made of a moldable filler material on the inner surface of the body part, covering the electronic part and the cavity.
2. The wearable electronic device according to claim 1, wherein the non-ceramic material is a titanium material.	2. The wearable electronic device according to claim 1, wherein the moldable ceramic material is selected from a group consisting of zirconium, aluminum nitride, aluminum oxide, boron carbide, silicon carbide, silicon nitride, titanium diboride and yttrium oxide.
6. The wearable electronic device according to claim 1, wherein the electronic part is attached to the cavity a bottom of the cavity.	3. The wearable electronic device according to claim 1, wherein the electronic part is attached to the cavity by an attachment means arranged at a bottom of the cavity.

7. The wearable electronic device according to claim 6, comprising one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity.	4. The wearable electronic device according to claim 3, wherein the attachment means is selected from a group consisting of a sticker, a tape, glue and an attachment structure made in a molded body part.
8. The wearable electronic device according to claim 1, wherein the moldable filler material is selected from a group consisting of at least epoxy material, Polyethylene, Polyurethane, low temperature moldable material, Loctite M-31CL, alpha-epoxy, 1,2-epoxy, EpoxAcast® 650, Bisphenol S epoxy resin, Novolac epoxy resin, Aliphatic epoxy resin and Glycidylamine epoxy resin.	5. The wearable electronic device according to claim 1, wherein the moldable filler material is selected from a group consisting of at least epoxy material, Polyethylene, Polyurethane, low temperature moldable material, Loctite M-31CL, alpha-epoxy, 1,2-epoxy, EpoxAcast® 650, Bisphenol S epoxy resin, Novolac epoxy resin, Aliphatic epoxy resin and Glycidylamine epoxy resin.
9. The wearable electronic device according to claim 1, wherein the electronic part comprises one or more of a battery, an infrared transmitter, a microcontroller, a radio frequency	6. The wearable electronic device according to claim 1, wherein the electronic part comprises a battery, an infrared transmitter, a microcontroller, a radio frequency transceiver, a

transceiver, a temperature sensor and an infrared receiver.	temperature sensor and an infrared receiver.
10. The wearable electronic device according to claim 9, wherein the moldable filler material comprises an ink and is configured to cover at least an area other than the infrared transmitter and the infrared receiver within the at least one cavity	8. The wearable electronic device according to claim 6, wherein the moldable filler material comprises an ink and is configured to cover at least an area other than the infrared transmitter and the infrared receiver within the cavity.
11. The wearable electronic device according to claim 1, wherein the moldable filler material comprises an ink that increases a value of transmitted infrared light intensity divided by transmitted visible light intensity.	7. The wearable electronic device according to claim 1, wherein the moldable filler material comprises an ink, which ink increases value of transmitted infrared light intensity divided by transmitted visible light intensity.
13. A method for manufacturing a wearable electronic device, comprising: machining a body part using a non-ceramic material to form at least one cavity on an inner surface of the body part, arranging an electronic part in said at least one cavity, and	9. A method for manufacturing a wearable electronic device, comprising the steps of: molding a body part using a moldable ceramic material, wherein a mold is such that at least one cavity is formed on an inner surface of the body part,

coating the inner surface of the body part including covering the electronic part and filling any open regions in said at least one cavity.	arranging an electronic part in said cavity, and coating the inner surface of the body part to form the coating, including covering the electronic part.
14. A method according to claim 13, wherein the electronic part is attached to the cavity using one or more of a sticker, tape disposed on a bottom of the at least one cavity.	10. The method according to claim 9, wherein the electronic part is attached to the cavity using an attachment means arranged on a bottom of the cavity.
15. A method according to claim 13, comprising using an assembly guiding element to arrange the electronic part in the at least one cavity.	11. The method according to claim 9, wherein the step of arranging the electronic part in the cavity is carried out using an assembly guiding element.
16. A method according to claim 13, wherein machining the body part to form the at least one cavity comprises machining a first cavity and a second cavity on the inner surface of the body part.	12. The method according to claim 9, wherein the mold is such that two cavities, a first cavity and a second cavity, are formed on the inner surface of the body part.
17. A method according to claim 16, wherein the first cavity and the second cavity are connected.	13. The method according to claim 12, wherein the first cavity and the second cavity are in connection with each other.

18. A method according to claim 17, wherein the electronic part comprises a battery and a support on which other components of the electronic part are arranged, and arranging the electronic part in the cavity comprises arranging the battery in the first cavity, connecting the battery to the support and arranging the support in the second cavity.	14. The method according to claim 12, wherein the electronic part comprises a battery and a support on which other components of the electronic part are arranged, and the step of arranging the electronic part in the cavity is carried out by arranging the battery in the first cavity, connecting the battery to the support and arranging the support in the second cavity.
19. A method according to claim 13, wherein coating the inner surface of the body part comprises applying an epoxy resin on the inner surface and curing the resin to form an epoxy coating.	15. The method according to claim 9, wherein the coating the inner surface of the body part is done by applying an epoxy resin on the surface and curing the resin to form an epoxy coating.

Claim Objections

Claims 14-19 are objected to because of the following informalities: The claims should read: "**[[A]]** **The** method according to claim …" Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 4, and 5 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention. The term "**machinable**" is unclear in view of the specification.

Claim Rejections - 35 USC § 102

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

A person shall be entitled to a patent unless –

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

Claims 12 and 20 are rejected under 35 U.S.C. 102 (a) (1) as being anticipated by Badinski (2015/0220109).

Regarding Claims 12 and 20, Badinski discloses the body part comprises a ring configured to be worn on a finger **[0155]**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yahya Ahmad whose telephone number is (571)270-0569. The examiner can normally be reached on M-F 8am-5pm.

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, Jayprakash (JP) Gandhi can be reached on (571) 272-3740. 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.

/YAHYA AHMAD/
Examiner, Art Unit 2835

/ANTHONY M HAUGHTON/
Primary Examiner, Art Unit 2835

Notice of References Cited	Application/Control No. 15/835,573	Applicant(s)/Patent Under Reexamination Haverinen et al.	
	Examiner Yahya Ahmad	Art Unit 2835	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20150220109-A1	08-2015	von Badinski; Curt C.	G01P15/00	340/539.12
*	B	US-20160058375-A1	03-2016	Rothkopf; Fletcher R.	G06F1/1643	600/301
*	C	US-6553667-B1	04-2003	West; Trent	A44C9/00	164/80
*	D	US-20160139702-A1	05-2016	Franklin; Jeremy C.	G06F3/044	345/174
*	E	US-20130287622-A1	10-2013	Hoffman; Asher C.	A44C27/003	420/436
*	F	US-20160274621-A1	09-2016	Meyer; Thorsten	B29C39/021	1/1
*	G	US-20160287102-A1	10-2016	Saponas; T. Scott	A61B5/02233	1/1
*	H	US-20160116941-A1	04-2016	KUWABARA; Hideaki	G06F1/163	361/679.03
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

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

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

Petitioner Samsung Ex-1004, 0103

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/835,573	Haverinen et al.
	Examiner	**Art Unit**
	Yahya Ahmad	2835

CPC - Searched*		
Symbol	**Date**	**Examiner**
(A61B5/6801 ; A61B5/6826 ; A61B5/681 ; A61B5/01 ; G06F1/163 ; A61B2562/12 ; B28B1/24 ; A61B5/02416 ; A61B2562/00)	12/26/2018	YA

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**
(A61B5/6801 ; A61B5/6826 ; A61B5/681 ; A61B5/01 ; G06F1/163 ; A61B2562/12 ; B28B1/24 ; A61B5/02416 ; A61B2562/00) WITH TEXT	12/26/2018	YA
Inventor search in EAST	12/26/2018	YA
IP.com search	12/26/2018	YA
Reviewed file wrapper for parent case 14/826,360	12/26/2018	YA

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	Interference search conducted	12/26/2018	YA

/YAHYA AHMAD/ Examiner, Art Unit 2835	/ANTHONY M HAUGHTON/ Primary Examiner, Art Unit 2835

Petitioner Samsung Ex-1004, 0104

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L11	2	("14826360").PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L12	5	"56787492".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2018/12/26 09:05
L13	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L14	3	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L15	7	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L16	3	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L17	8	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L18	5	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L19	12	L14 L15 L16 L17 L18	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L20	21946	(A61B5/6801 or A61B5/681 or A61B5/6826 or G06F1/163 or A61B5/01 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L21	3	("6553667" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L22	9898	(A61B5/681;A61B5/02416;A61B5/6826;A61B2562/12;B28Bl/24;G04G21/025;G04G99/006;G06Fl/163).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L23	22277	L20 L22	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L24	14025	((361/679.01-679.03) or (29/592.1,593)).CCLS.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L25	36032	L23 L24	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L26	163	(G04G99/006).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L27	15	(A61B5/6801 and G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L28	1162	A61B5/6801.cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L29	0	("2017/0042477").URPN.	USPAT	OR	ON	2018/12/26 09:05
L30	4738	(wear$4 electronic mold$4 (body or part) ceramic finger)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L31	12	(("20160354801") or ("20160213075") or ("20160274621") or ("20090090000") or ("20110221709") or ("8947303") or ("20150245513") or ("9634378") or ("9478998") or ("4837184") or ("20160309866") or	US-PGPUB;	OR	OFF	2018/12/26 09:05

Petitioner Samsung Ex-1004, 0105

		("20130034672")).PN.	USPAT			
L32	3	L30 and L17	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L33	1	L30 and L13	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L34	1	L30 and L21	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L35	3	L30 and L27	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L36	103	L30 and L28	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L37	491	L30 and L20	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L38	137	L30 and L22	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L39	62	L30 and L24	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L40	548	L37 L38 L39	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L41	293	L40 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L42	385	L40 and wearable	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L43	7	(US-20170042477-$ or US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$).did.	US-PGPUB	OR	ON	2018/12/26 09:05
L44	6	L43 and ceramic	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L45	4	L43 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L46	9	L40 and (ink near5 light)	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
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L57	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L58	3	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L59	7	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
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L61	8	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L62	5	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L63	12	L58 L59 L60 L61 L62	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05

Petitioner Samsung Ex-1004, 0106

L64	21946	(A61B5/6801 or A61B5/681 or A61B5/6826 or G06F1/163 or A61B5/01 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L65	3	("6553667" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L66	9898	(A61B5/681;A61B5/02416;A61B5/6826;A61B2562/12;B28Bl/24;G04G21/025;G04G99/006;G06Fl/163).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L67	22277	L64 L66	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L68	14025	((361/679.01-679.03) or (29/592.1,593)).CCLS.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L69	36032	L67 L68	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L70	163	(G04G99/006).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L71	15	(A61B5/6801 and G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L72	1162	A61B5/6801.cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L73	0	("2017/0042477").URPN.	USPAT	OR	ON	2018/12/26 09:05
L74	4738	(wear$4 electronic mold$4 (body or part) ceramic finger)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L75	12	(("20160354801") or ("20160213075") or ("20160274621") or ("20090090000") or ("20110221709") or ("8947303") or ("20150245513") or ("9634378") or ("9478998") or ("4837184") or ("20160309866") or ("20130034672")).PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L76	3	L74 and L61	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L77	1	L74 and L57	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L78	1	L74 and L65	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L79	3	L74 and L71	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L80	103	L74 and L72	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L81	491	L74 and L64	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L82	137	L74 and L66	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L83	62	L74 and L68	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L84	548	L81 L82 L83	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L85	293	L84 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L86	385	L84 and wearable	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L87	7	(US-20170042477-$ or US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$).did.	US-PGPUB	OR	ON	2018/12/26 09:05
L88	6	L87 and ceramic	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L89	4	L87 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L90	9	L84 and (ink near5 light)	US-PGPUB;	OR	ON	2018/12/26 09:05

Petitioner Samsung Ex-1004, 0107

			USPAT			
L91	8	(US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$ or US-20140268516-$).did. or (US-6553667-$).did.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L92	7	L91 and ceramic	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L93	3	L91 and nitride	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L94	4	L91 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L95	14	L74 and (ink near4 filler)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L96	4	L67 and (ink near4 filler)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L97	59	((ink near4 filler) electronic mold$4 body ceramic finger)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L98	84	((ink near4 filler) electronic mold$4 finger ceramic finger)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L99	84	L97 L98	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L100	3	L99 and (ring with finger)	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L101	42	L99 and ring	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L102	6	L75 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L103	1	("20120157175").PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L104	0	("29and(inknear5infrared)").PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L105	45	L74 and (ink near5 infrared)	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L106	0	"1000002211979".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2018/12/26 09:05
L116	2	("14826360").PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L117	5	"56787492".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2018/12/26 09:05
L118	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L119	3	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L120	7	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L121	3	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L122	8	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L123	5	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT;	OR	ON	2018/12/26 09:05

Petitioner Samsung Ex-1004, 0108

			USOCR			
L124	12	L119 L120 L121 L122 L123	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L125	21946	(A61B5/6801 or A61B5/681 or A61B5/6826 or G06F1/163 or A61B5/01 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L126	3	("6553667" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L127	9898	(A61B5/681;A61B5/02416;A61B5/6826;A61B2562/12;B28Bl/24;G04G21/025;G04G99/006;G06Fl/163).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L128	22277	L125 L127	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L129	14025	((361/679.01-679.03) or (29/592.1,593)).CCLS.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L130	36032	L128 L129	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L131	163	(G04G99/006).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L132	15	(A61B5/6801 and G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L133	1162	A61B5/6801.cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L134	0	("2017/0042477").URPN.	USPAT	OR	ON	2018/12/26 09:05
L135	4738	(wear$4 electronic mold$4 (body or part) ceramic finger)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L136	12	(("20160354801") or ("20160213075") or ("20160274621") or ("20090090000") or ("20110221709") or ("8947303") or ("20150245513") or ("9634378") or ("9478998") or ("4837184") or ("20160309866") or ("20130034672")).PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L137	3	L135 and L122	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L138	1	L135 and L118	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L139	1	L135 and L126	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L140	3	L135 and L132	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L141	103	L135 and L133	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L142	491	L135 and L125	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L143	137	L135 and L127	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L144	62	L135 and L129	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L145	548	L142 L143 L144	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L146	293	L145 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L147	385	L145 and wearable	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L148	7	(US-20170042477-$ or US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$).did.	US-PGPUB	OR	ON	2018/12/26 09:05
L149	6	L148 and ceramic	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05

Petitioner Samsung Ex-1004, 0109

L150	4	L148 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L151	9	L145 and (ink near5 light)	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L152	2	("14826360").PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L153	5	"56787492".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2018/12/26 09:05
L154	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L155	3	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L156	7	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L157	3	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L158	8	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L159	5	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L160	12	L155 L156 L157 L158 L159	US-PGPUB; USPAT; USOCR	OR	ON	2018/12/26 09:05
L161	21946	(A61B5/6801 or A61B5/681 or A61B5/6826 or G06F1/163 or A61B5/01 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L162	3	("6553667" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L163	9898	(A61B5/681;A61B5/02416;A61B5/6826;A61B2562/12;B28B1/24;G04G21/025;G04G99/006;G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L164	22277	L161 L163	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L165	14025	((361/679.01-679.03) or (29/592.1,593)).CCLS.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L166	36032	L164 L165	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L167	163	(G04G99/006).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L168	15	(A61B5/6801 and G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L169	1162	A61B5/6801.cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L170	0	("2017/0042477").URPN.	USPAT	OR	ON	2018/12/26 09:05
L171	4738	(wear$4 electronic mold$4 (body or part) ceramic finger)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L172	12	(("20160354801") or ("20160213075") or ("20160274621") or ("20090090000") or ("20110221709") or ("8947303") or ("20150245513") or ("9634378") or ("9478998") or ("4837184") or ("20160309866") or ("20130034672")).PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L173	3	L171 and L158	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L174	1	L171 and L154	US-	OR	ON	2018/12/26

Petitioner Samsung Ex-1004, 0110

			PGPUB; USPAT			09:05
L175	1	L171 and L162	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L176	3	L171 and L168	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L177	103	L171 and L169	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L178	491	L171 and L161	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L179	137	L171 and L163	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L180	62	L171 and L165	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L181	548	L178 L179 L180	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L182	293	L181 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L183	385	L181 and wearable	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L184	7	(US-20170042477-$ or US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$).did.	US-PGPUB	OR	ON	2018/12/26 09:05
L185	6	L184 and ceramic	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L186	4	L184 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L187	9	L181 and (ink near5 light)	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L188	8	(US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$ or US-20140268516-$).did. or (US-6553667-$).did.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L189	7	L188 and ceramic	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L190	3	L188 and nitride	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L191	4	L188 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L192	14	L171 and (ink near4 filler)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L193	4	L164 and (ink near4 filler)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L194	59	((ink near4 filler) electronic mold$4 body ceramic finger)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L195	84	((ink near4 filler) electronic mold$4 finger ceramic finger)	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L196	84	L194 L195	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L197	3	L196 and (ring with finger)	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L198	42	L196 and ring	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L199	6	L172 and ink	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L200	1	("20120157175").PN.	US-PGPUB;	OR	OFF	2018/12/26 09:05

Petitioner Samsung Ex-1004, 0111

			USPAT			
L201	0	("29and(inknear5infrared)").PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L202	45	L171 and (ink near5 infrared)	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L203	0	"1000002211979".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2018/12/26 09:05
L204	2	(("20150220109") or ("20130287622")).PN.	US-PGPUB; USPAT	OR	OFF	2018/12/26 09:05
L205	4	L142 and (ceramic near2 (mold$4 or mould$4))	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
S1	1	("14826360").PN.	US-PGPUB; USPAT	OR	OFF	2017/04/29 16:15
S2	1	"56787492".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/04/29 16:16
S3	3	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2017/04/29 16:16
S4	1	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/29 16:16
S5	5	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/29 16:17
S6	1	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/29 16:17
S7	3	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/29 16:17
S8	2	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/29 16:17
S9	7	S4 S5 S6 S7 S8	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/29 16:18
S10	15248	(A61B5/6801 or A61B5/681 or A61B5/6826 or G06F1/163 or A61B5/01 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2017/04/29 18:40
S11	3	("6553667" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT	OR	ON	2017/04/29 19:06
S12	7158	(A61B5/681;A61B5/02416;A61B5/6826;A61B2562/12;B28B1/24;G04G21/025;G04G99/006;G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2017/04/29 19:10
S13	15521	S10 S12	US-PGPUB; USPAT	OR	ON	2017/04/29 19:10
S14	14012	((361/679.01-679.03) or (29/592.1,593)).CCLS.	US-PGPUB; USPAT	OR	OFF	2017/04/29 19:13
S15	29270	S13 S14	US-PGPUB; USPAT	OR	ON	2017/04/29 19:13
S16	150	(G04G99/006).cpc.	US-PGPUB; USPAT	OR	ON	2017/04/29 19:16
S17	6	(A61B5/6801 and G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2017/04/29 19:17
S18	814	A61B5/6801.cpc.	US-PGPUB; USPAT	OR	ON	2017/04/29 19:18
S19	0	("2017/0042477").URPN.	USPAT	OR	ON	2017/04/29

Petitioner Samsung Ex-1004, 0112

						19:21
S20	3886	(wear$4 electronic mold$4 (body or part) ceramic finger)	US-PGPUB; USPAT	AND	ON	2017/04/29 19:28
S21	12	(("20160354801") or ("20160213075") or ("20160274621") or ("20090090000") or ("20110221709") or ("8947303") or ("20150245513") or ("9634378") or ("9478998") or ("4837184") or ("20160309866") or ("20130034672")).PN.	US-PGPUB; USPAT	OR	OFF	2017/04/29 19:32
S22	1	S20 and S7	US-PGPUB; USPAT	OR	ON	2017/04/29 19:35
S23	1	S20 and S3	US-PGPUB; USPAT	OR	ON	2017/04/29 19:35
S24	1	S20 and S11	US-PGPUB; USPAT	OR	ON	2017/04/29 19:35
S25	1	S20 and S17	US-PGPUB; USPAT	OR	ON	2017/04/29 19:35
S26	92	S20 and S18	US-PGPUB; USPAT	OR	ON	2017/04/29 19:35
S27	354	S20 and S10	US-PGPUB; USPAT	OR	ON	2017/04/29 19:37
S28	92	S20 and S12	US-PGPUB; USPAT	OR	ON	2017/04/29 19:37
S29	60	S20 and S14	US-PGPUB; USPAT	OR	ON	2017/04/29 19:37
S30	411	S27 S28 S29	US-PGPUB; USPAT	OR	ON	2017/04/29 19:41
S31	211	S30 and ink	US-PGPUB; USPAT	OR	ON	2017/04/29 19:42
S32	273	S30 and wearable	US-PGPUB; USPAT	OR	ON	2017/04/29 19:56
S33	7	(US-20170042477-$ or US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$).did.	US-PGPUB	OR	ON	2017/04/29 19:59
S34	6	S33 and ceramic	US-PGPUB; USPAT	OR	ON	2017/04/29 19:59
S35	4	S33 and ink	US-PGPUB; USPAT	OR	ON	2017/04/29 20:05
S36	6	S30 and (ink near5 light)	US-PGPUB; USPAT	OR	ON	2017/04/29 20:09
S45	1	("14826360").PN.	US-PGPUB; USPAT	OR	OFF	2017/04/30 13:57
S46	1	"56787492".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/04/30 13:57
S47	3	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S48	1	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/30 13:57
S49	5	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/30 13:57
S50	1	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/30 13:57
S51	3	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/30 13:57
S52	2	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB;	OR	ON	2017/04/30 13:57

Petitioner Samsung Ex-1004, 0113

			USPAT; USOCR			
S53	7	S48 S49 S50 S51 S52	US-PGPUB; USPAT; USOCR	OR	ON	2017/04/30 13:57
S54	15248	(A61B5/6801 or A61B5/681 or A61B5/6826 or G06F1/163 or A61B5/01 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S55	3	("6553667" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S56	7158	(A61B5/681;A61B5/02416;A61B5/6826;A61B2562/12;B28Bl/24;G04G21/025;G04G99/006;G06Fl/163).cpc.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S57	15521	S54 S56	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S58	14012	((361/679.01-679.03) or (29/592.1,593)).CCLS.	US-PGPUB; USPAT	OR	OFF	2017/04/30 13:57
S59	29270	S57 S58	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S60	150	(G04G99/006).cpc.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S61	6	(A61B5/6801 and G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S62	814	A61B5/6801.cpc.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S63	0	("2017/0042477").URPN.	USPAT	OR	ON	2017/04/30 13:57
S64	3886	(wear$4 electronic mold$4 (body or part) ceramic finger)	US-PGPUB; USPAT	AND	ON	2017/04/30 13:57
S65	12	(("20160354801") or ("20160213075") or ("20160274621") or ("20090090000") or ("20110221709") or ("8947303") or ("20150245513") or ("9634378") or ("9478998") or ("4837184") or ("20160309866") or ("20130034672")).PN.	US-PGPUB; USPAT	OR	OFF	2017/04/30 13:57
S66	1	S64 and S51	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S67	1	S64 and S47	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S68	1	S64 and S55	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S69	1	S64 and S61	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S70	92	S64 and S62	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S71	354	S64 and S54	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S72	92	S64 and S56	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S73	60	S64 and S58	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S74	411	S71 S72 S73	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S75	211	S74 and ink	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S76	273	S74 and wearable	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S77	7	(US-20170042477-$ or US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$).did.	US-PGPUB	OR	ON	2017/04/30 13:57
S78	6	S77 and ceramic	US-PGPUB;	OR	ON	2017/04/30 13:57

Petitioner Samsung Ex-1004, 0114

			USPAT			
S79	4	S77 and ink	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S80	6	S74 and (ink near5 light)	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S81	8	(US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$ or US-20140268516-$).did. or (US-6553667-$).did.	US-PGPUB; USPAT	OR	ON	2017/04/30 14:53
S82	7	S81 and ceramic	US-PGPUB; USPAT	OR	ON	2017/04/30 14:54
S83	3	S81 and nitride	US-PGPUB; USPAT	OR	ON	2017/04/30 15:35
S84	4	S81 and ink	US-PGPUB; USPAT	OR	ON	2017/04/30 17:15
S85	7	S64 and (ink near4 filler)	US-PGPUB; USPAT	AND	ON	2017/04/30 17:19
S86	2	S57 and (ink near4 filler)	US-PGPUB; USPAT	AND	ON	2017/04/30 17:22
S87	45	((ink near4 filler) electronic mold$4 body ceramic finger)	US-PGPUB; USPAT	AND	ON	2017/04/30 17:23
S88	70	((ink near4 filler) electronic mold$4 finger ceramic finger)	US-PGPUB; USPAT	AND	ON	2017/04/30 17:24
S89	70	S87 S88	US-PGPUB; USPAT	OR	ON	2017/04/30 17:24
S90	1	S89 and (ring with finger)	US-PGPUB; USPAT	OR	ON	2017/04/30 17:24
S91	34	S89 and ring	US-PGPUB; USPAT	OR	ON	2017/04/30 17:25
S92	6	S65 and ink	US-PGPUB; USPAT	OR	ON	2017/04/30 17:36
S93	1	("20120157175").PN.	US-PGPUB; USPAT	OR	OFF	2017/04/30 17:40
S94	0	("29and(inknear5infrared)").PN.	US-PGPUB; USPAT	OR	OFF	2017/04/30 18:12
S95	32	S64 and (ink near5 infrared)	US-PGPUB; USPAT	OR	ON	2017/04/30 18:13
S96	1	"1000002211979".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/04/30 18:16
S106	1	("14826360").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/21 06:20
S107	2	"56787492".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/08/21 06:20
S108	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S109	1	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S110	5	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S111	1	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S112	4	(("KOSKELA") near3 ("Markku")).INV.	US-	OR	ON	2017/08/21

Petitioner Samsung Ex-1004, 0115

			PGPUB; USPAT; USOCR			06:20
S113	2	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S114	8	S109 S110 S111 S112 S113	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S115	16289	(A61B5/6801 or A61B5/681 or A61B5/6826 or G06F1/163 or A61B5/01 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S116	3	("6553667" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S117	7630	(A61B5/681;A61B5/02416;A61B5/6826;A61B2562/12;B28Bl/24;G04G21/025;G04G99/006;G06Fl/163).cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S118	16570	S115 S117	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S119	14015	((361/679.01-679.03) or (29/592.1,593)).CCLS.	US-PGPUB; USPAT	OR	OFF	2017/08/21 06:20
S120	30321	S118 S119	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S121	151	(G04G99/006).cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S122	6	(A61B5/6801 and G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S123	869	A61B5/6801.cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S124	0	("2017/0042477").URPN.	USPAT	OR	ON	2017/08/21 06:20
S125	4024	(wear$4 electronic mold$4 (body or part) ceramic finger)	US-PGPUB; USPAT	AND	ON	2017/08/21 06:20
S126	12	(("20160354801") or ("20160213075") or ("201602746 21") or ("20090090000") or ("20110221709") or ("8947303") or ("20150245513") or ("9634378") or ("9478998") or ("4837184") or ("20160309866") or ("20130034672")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/21 06:20
S127	1	S125 and S112	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S128	1	S125 and S108	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S129	1	S125 and S116	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S130	1	S125 and S122	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S131	94	S125 and S123	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S132	376	S125 and S115	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S133	96	S125 and S117	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S134	60	S125 and S119	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S135	433	S132 S133 S134	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S136	228	S135 and ink	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S137	293	S135 and wearable	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20

Petitioner Samsung Ex-1004, 0116

S138	7	(US-20170042477-$ or US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$).did.	US-PGPUB	OR	ON	2017/08/21 06:20
S139	6	S138 and ceramic	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S140	4	S138 and ink	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S141	6	S135 and (ink near5 light)	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S142	1	("14826360").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/21 06:20
S143	2	"56787492".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/08/21 06:20
S144	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S145	1	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S146	5	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S147	1	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S148	4	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S149	2	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S150	8	S145 S146 S147 S148 S149	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 06:20
S151	16289	(A61B5/6801 or A61B5/681 or A61B5/6826 or G06F1/163 or A61B5/01 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S152	3	("6553667" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S153	7630	(A61B5/681;A61B5/02416;A61B5/6826;A61B2562/12;B28B1/24;G04G21/025;G04G99/006;G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S154	16570	S151 S153	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S155	14015	((361/679.01-679.03) or (29/592.1,593)).CCLS.	US-PGPUB; USPAT	OR	OFF	2017/08/21 06:20
S156	30321	S154 S155	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S157	151	(G04G99/006).cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S158	6	(A61B5/6801 and G06F1/163).cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S159	869	A61B5/6801.cpc.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S160	0	("2017/0042477").URPN.	USPAT	OR	ON	2017/08/21 06:20
S161	4024	(wear$4 electronic mold$4 (body or part) ceramic finger)	US-PGPUB; USPAT	AND	ON	2017/08/21 06:20
S162	12	(("20160354801") or ("20160213075") or ("20160274621") or ("20090090000") or ("20110221709") or ("8947303") or ("20150245513") or ("9634378") or ("9478998") or ("4837184") or ("20160309866") or	US-PGPUB;	OR	OFF	2017/08/21 06:20

Petitioner Samsung Ex-1004, 0117

		("20130034672")).PN.	USPAT			
S163	1	S161 and S148	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S164	1	S161 and S144	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S165	1	S161 and S152	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S166	1	S161 and S158	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S167	94	S161 and S159	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S168	376	S161 and S151	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S169	96	S161 and S153	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S170	60	S161 and S155	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S171	433	S168 S169 S170	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S172	228	S171 and ink	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S173	293	S171 and wearable	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S174	7	(US-20170042477-$ or US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$).did.	US-PGPUB	OR	ON	2017/08/21 06:20
S175	6	S174 and ceramic	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S176	4	S174 and ink	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S177	6	S171 and (ink near5 light)	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S178	8	(US-20150220109-$ or US-20130287622-$ or US-20160274621-$ or US-20160058375-$ or US-20160287102-$ or US-20160116941-$ or US-20140268516-$).did. or (US-6553667-$).did.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S179	7	S178 and ceramic	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S180	3	S178 and nitride	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S181	4	S178 and ink	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S182	7	S161 and (ink near4 filler)	US-PGPUB; USPAT	AND	ON	2017/08/21 06:20
S183	2	S154 and (ink near4 filler)	US-PGPUB; USPAT	AND	ON	2017/08/21 06:20
S184	45	((ink near4 filler) electronic mold$4 body ceramic finger)	US-PGPUB; USPAT	AND	ON	2017/08/21 06:20
S185	70	((ink near4 filler) electronic mold$4 finger ceramic finger)	US-PGPUB; USPAT	AND	ON	2017/08/21 06:20
S186	70	S184 S185	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S187	1	S186 and (ring with finger)	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S188	34	S186 and ring	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20

Petitioner Samsung Ex-1004, 0118

S189	6	S162 and ink	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S190	1	("20120157175").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/21 06:20
S191	0	("29and(inknear5infrared)").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/21 06:20
S192	35	S161 and (ink near5 infrared)	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S193	1	"1000002211979".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/08/21 06:20
S194	2	(("20150220109") or ("20130287622")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/21 06:49
S195	2	S132 and (ceramic near2 (mold$4 or mould$4))	US-PGPUB; USPAT	OR	ON	2017/08/21 07:11

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L47	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L48	3	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L49	3	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L50	8	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L51	7	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L52	5	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L53	15	L47 L48 L49 L50 L51 L52	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L54	3	(wear$4 electronic mold$4 (body or part) ceramic inner (surface or side or plane) cavity depth (thickness or height or width or dimension) fill$3 cover$3).clm.	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L107	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L108	3	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L109	3	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L110	8	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L111	7	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L112	5	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L113	15	L107 L108 L109 L110 L111 L112	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L114	3	(wear$4 electronic mold$4 (body or part) ceramic inner (surface or side or plane) cavity depth (thickness or height or width or dimension) fill$3 cover$3).clm.	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L115	1	"Term Removed"	US-PGPUB	OR	ON	2018/12/26 09:05
L206	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB;	OR	ON	2018/12/26 09:05

Petitioner Samsung Ex-1004, 0119

			USPAT			
L207	3	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L208	3	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L209	8	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L210	7	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L211	5	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L212	15	L206 L207 L208 L209 L210 L211	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L213	3	(wear$4 electronic mold$4 (body or part) ceramic inner (surface or side or plane) cavity depth (thickness or height or width or dimension) fill$3 cover$3).clm.	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L214	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L215	3	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L216	3	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L217	8	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L218	7	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L219	5	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L220	15	L214 L215 L216 L217 L218 L219	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L221	3	(wear$4 electronic mold$4 (body or part) ceramic inner (surface or side or plane) cavity depth (thickness or height or width or dimension) fill$3 cover$3).clm.	US-PGPUB; USPAT	AND	ON	2018/12/26 09:05
L222	1	"Term Removed"	US-PGPUB	OR	ON	2018/12/26 09:05
L223	21946	(A61B5/6801 or A61B5/6826 or A61B5/681 or A61B5/01 or G06F1/163 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
L224	3	L213 and L223	US-PGPUB; USPAT	OR	ON	2018/12/26 09:05
S37	3	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2017/04/29 16:17
S38	1	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/29 16:18
S39	1	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/29 16:18
S40	3	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/29 16:18
S41	5	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/29 16:18
S42	2	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/29 16:18
S43	7	S37 S38 S39 S40 S41 S42	US-PGPUB; USPAT	OR	ON	2017/04/29 16:19
S44	1	(wear$4 electronic mold$4 (body or part) ceramic inner (surface or side or plane) cavity depth (thickness or height or width or dimension) fill$3 cover$3).clm.	US-PGPUB; USPAT	AND	ON	2017/04/29 19:26

Petitioner Samsung Ex-1004, 0120

S97	3	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S98	1	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S99	1	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S100	3	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S101	5	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S102	2	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S103	7	S97 S98 S99 S100 S101 S102	US-PGPUB; USPAT	OR	ON	2017/04/30 13:57
S104	1	(wear$4 electronic mold$4 (body or part) ceramic inner (surface or side or plane) cavity depth (thickness or height or width or dimension) fill$3 cover$3).clm.	US-PGPUB; USPAT	AND	ON	2017/04/30 13:57
S105	1	"Term Removed"	US-PGPUB	OR	ON	2017/04/30 14:53
S196	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S197	1	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S198	1	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S199	4	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S200	5	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S201	2	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S202	11	S196 S197 S198 S199 S200 S201	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S203	1	(wear$4 electronic mold$4 (body or part) ceramic inner (surface or side or plane) cavity depth (thickness or height or width or dimension) fill$3 cover$3).clm.	US-PGPUB; USPAT	AND	ON	2017/08/21 06:20
S204	7	(JOUZEN near2 OY).as,aanm.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S205	1	(("HAVERINEN") near3 ("Teemu")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S206	1	(("HAUTALA") near3 ("Tomi")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S207	4	(("KOSKELA") near3 ("Markku")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S208	5	(("KELLONIEMI") near3 ("Marko")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S209	2	(("KIVELA") near3 ("Kari")).INV.	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S210	11	S204 S205 S206 S207 S208 S209	US-PGPUB; USPAT	OR	ON	2017/08/21 06:20
S211	1	(wear$4 electronic mold$4 (body or part) ceramic inner (surface or side or plane) cavity depth (thickness or height or width or dimension) fill$3 cover$3).clm.	US-PGPUB; USPAT	AND	ON	2017/08/21 06:20
S212	1	"Term Removed"	US-PGPUB	OR	ON	2017/08/21 06:20
S213	16289	(A61B5/6801 or A61B5/6826 or A61B5/681 or A61B5/01 or G06F1/163 or A61B2562/12 or B28B1/24 or A61B5/02416 or A61B2562/00).cpc.	US-PGPUB;	OR	ON	2017/08/21 07:15

Petitioner Samsung Ex-1004, 0121

			USPAT			
S214	1	S203 and S213	US-PGPUB; USPAT	OR	ON	2017/08/21 07:16

12/26/2018 9:21:12 AM
C:\Users\yahmad\Documents\EAST\Workspaces\14,826,360.wsp

Petitioner Samsung Ex-1004, 0122

Bibliographic Data

Application No: 15/835,573

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /YAHYA AHMAD/ (Examiner's Signature) (Initials)

Title: WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/08/2017	361	2835	MDJN.3277.USC2
RULE			

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Kari Kivelä Helsinki, FINLAND

CONTINUING DATA

This application is a CON of 14826360 08/14/2015 PAT 9861314

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

12/28/2017

**** SMALL ENTITY ****

STATE OR COUNTRY

FINLAND

ADDRESS

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55 Greens Farms Road
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UNITED STATES

FILING FEE RECEIVED

$730

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	15835573
Filing Date	08-Dec-2017
First Named Inventor	Teemu Haverinen
Attorney Docket Number	MDJN.3277.USC2
Title of Invention	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Jouzen OY	100%

The owner(s) with percent interest listed above 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 number(s)

9861314

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner 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 owner 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.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○	I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims the following fee status:

◉ Small Entity

○ Micro Entity

○ Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 44004

○ A sole inventor

○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

○ A joint inventor; all of whom are signing this request

Signature	/gcz44004/
Name	Geza C. Ziegler Jr

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	15835573
Filing Date:	08-Dec-2017
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Filer:	GEZA C ZIEGLER JR
Attorney Docket Number:	MDJN.3277.USC2

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**160**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 15835573

Filing Date: 08-Dec-2017

Applicant/Patent under Reexamination: Haverinen

Electronic Terminal Disclaimer filed on March 27, 2019

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	35541448
Application Number:	15835573
International Application Number:	
Confirmation Number:	7420
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Customer Number:	93582
Filer:	GEZA C ZIEGLER JR
Filer Authorized By:	
Attorney Docket Number:	MDJN.3277.USC2
Receipt Date:	27-MAR-2019
Filing Date:	08-DEC-2017
Time Stamp:	11:31:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	032719INTEFSW11310700
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	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33582 6b139c7e06bdf44c40fa9fd123c94959b8c9e8c5	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30354 fd6cd8b7c1b88597cd1f9b102a3302af4cea1a51	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	63936		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/835,573	Filing Date 12/08/2017	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) 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 $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ 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	03/27/2019	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 $50 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $230 =	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".	/PAMELA V THERATT/
*** 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.

Petitioner Samsung Ex-1004, 0131

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(s):	Teemu Haverinen	ART UNIT:	2835
SERIAL NUMBER:	15/835,573	CONF. NO.:	7420
FILING DATE:	8 December 2018	EXAMINER:	Ahmad, Yahya A.
TITLE:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF		
ATTORNEY REFERENCE NO.:	MDJN.3277.USC2	JOUZEN004_CON1	

Mail Stop Amendment
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

I. Introduction

This is responsive to the Non Final Office Action mailed 2 January 2019. A Terminal Disclaimer is submitted herewith.

Amendments to the Specification are presented on page 2.

Amendments to the Claims are presented on page 3.

Remarks begin on page 8.

Petitioner Samsung Ex-1004, 0132

Electronic Acknowledgement Receipt

EFS ID:	35549318
Application Number:	15835573
International Application Number:	
Confirmation Number:	7420
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Customer Number:	93582
Filer:	GEZA C ZIEGLER JR/Ruth DeSabia
Filer Authorized By:	GEZA C ZIEGLER JR
Attorney Docket Number:	MDJN.3277.USC2
Receipt Date:	27-MAR-2019
Filing Date:	08-DEC-2017
Time Stamp:	16:54:45
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		100327_3277_USC2_Response_NFOA_190102.pdf	271518 997f444ec56748f3e712889967550bb8ac73ac05	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	8	9
	Claims	3	7
	Specification	2	2
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	271518	

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.

III. Remarks

Claims 1-20 are pending in this application with claims 1 and 13 as the independent claim. Claims 9 and 14-19 are amended. No new matter is added.

Double Patenting

A terminal disclaimer over U.S. Patent No. 9,861,314 is submitted herewith.

Claim Objections

Claims 14-19 are amended to address the noted objections.

Claim Rejections 35 U.S.C. 112

Claims 3, 4 and 5 are rejected as being indefinite because the term "machinable" is unclear in view of the specification. The specification is amended to include the express subject matter of claims 3, 4 and 5, as is provided for in the MPEP. Further, original paragraph 0037 of the specification states that the body part can be made from other manufacturing techniques, such as forming, "machining", three dimensional (3D) printing and the like. See also original claim 16 that refers to "machining" the body part. Thus, it is respectfully submitted that the term "machinable" will be readily understandable to a person of skill in the art in view of the subject disclosure. No new matter is added.

Patentability of the Claims

In view of the aforereferenced terminal disclaimer, it is submitted that claims 1 and 13 are now in a condition for allowance. Dependent claims 2-12 and 14-20 are also allowable at least by reason of their respective dependencies and the additional limitations recited therein.

For the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

This paper constitutes Applicants' earnest attempt to place this application in condition for allowance. Applicants reserve all rights and arguments with respect to all other limitations and distinctions not expressly noted above. Applicants' failure (if at all) to expressly address any particular statement or argument by the Examiner should not be construed as an admission or acquiescence that such statement or argument is accurate or

Petitioner Samsung Ex-1004, 0135

proper. Because the remarks set out above may not be exhaustive, there may be reasons for the patentability of any or all of the pending claims that Applicants have not expressed herein. Moreover, the Office should not construe anything in this paper as Applicants' intent to concede any issue with regard to any claim, except as specifically stated in this reply, and the amendment of any claim does not necessarily signify concession of unpatentability of the amended claims prior to amendment.

If the Examiner believes that anything further is necessary to place the application in better condition for allowance, the Examiner is kindly asked to contact the undersigned at the telephone number below.

The Commissioner is hereby authorized to charge any fees associated with this communication or credit any over payment to Deposit Account No. 50-5215.

Respectfully submitted,

/gcz44004/ 27 March 2019

Geza C. Ziegler, Jr. Date

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Customer No. 93582
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Petitioner Samsung Ex-1004, 0136

III. Claim Amendments

The following listing of claims will replace all prior versions and listings of claims in the application:

1. (Original) A wearable electronic device comprising:

- a body part made of a non-ceramic material, having an inner surface and an outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part,
- an electronic part arranged in said at least one cavity, which electronic part has a thickness that is less than the depth of the at least one cavity, and
- a coating made of a moldable filler material on the inner surface of the body part, covering the electronic part and the at least one cavity.

2. (Original) The wearable electronic device according to claim 1, wherein the non-ceramic material is a titanium material.

3. (Original) The wearable electronic device according to claim 1, wherein the non-ceramic material is a machinable material.

4. (Original) The wearable electronic device according to claim 1, wherein the non-ceramic material is a machinable titanium material.

Petitioner Samsung Ex-1004, 0137

5. (Original) The wearable device according to claim 1 wherein the non-ceramic material is a machinable metallic material comprising one or more of titanium, steel, platinum, gold, palladium, silver or bronze or a gold based alloys.

6. (Original) The wearable electronic device according to claim 1, wherein the electronic part is attached to the cavity a bottom of the cavity.

7. (Original) The wearable electronic device according to claim 6, comprising one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity.

8. (Original) The wearable electronic device according to claim 1, wherein the moldable filler material is selected from a group consisting of at least epoxy material, Polyethylene, Polyurethane, low temperature moldable material, Loctite M-31CL, alpha-epoxy, 1,2-epoxy, EpoxAcast® 650, Bisphenol S epoxy resin, Novolac epoxy resin, Aliphatic epoxy resin and Glycidylamine epoxy resin.

Petitioner Samsung Ex-1004, 0138

9. (Currently Amended) The wearable electronic device according to claim 1, wherein the electronic part comprises one or[[e]] more of a battery, an infrared transmitter, a microcontroller, a radio frequency transceiver, a temperature sensor and an infrared receiver.

10. (Original) The wearable electronic device according to claim 9, wherein the moldable filler material comprises an ink and is configured to cover at least an area other than the infrared transmitter and the infrared receiver within the at least one cavity

11. (Original) The wearable electronic device according to claim 1, wherein the moldable filler material comprises an ink that increases a value of transmitted infrared light intensity divided by transmitted visible light intensity.

12. (Original) The wearable electronic device according to claim 1, wherein the body part comprises a ring configured to be worn on a finger.

13. (Original) A method for manufacturing a wearable electronic device, comprising:

- machining a body part using anon-ceramic material to form at least one cavity on an inner surface of the body part,
- arranging an electronic part in said at least one cavity, and

Petitioner Samsung Ex-1004, 0139

- coating the inner surface of the body part including covering the electronic part and filling any open regions in said at least one cavity

14. (Currently Amended) ~~A~~The method according to claim 13, wherein the electronic part is attached to the cavity using one or more of a sticker, tape disposed on a bottom of the at least one cavity.

15. (Currently Amended) ~~A~~The method according to claim 13, comprising using an assembly guiding element to arrange the electronic part in the at least one cavity.

16. (Currently Amended) ~~A~~The method according to claim 13, wherein machining the body part to form the at least one cavity comprises machining a first cavity and a second cavity on the inner surface of the body part.

17. (Currently Amended) ~~A~~The method according to claim 16, wherein the first cavity and the second cavity are connected.

18. (Currently Amended) ~~A~~The method according to claim 17, wherein the electronic part comprises a battery and a support on which other components of the electronic part are

Petitioner Samsung Ex-1004, 0140

arranged, and arranging the electronic part in the cavity comprises arranging the battery in the first cavity, connecting the battery to the support and arranging the support in the second cavity.

19. (Currently Amended) ~~A~~The method according to claim 13, wherein coating the inner surface of the body part comprises applying an epoxy resin on the inner surface and curing the resin to form an epoxy coating.

20. (Original) The method according to claim 13, wherein the body part comprises a ring configured to be worn on a finger.

Petitioner Samsung Ex-1004, 0141

II. Amendments to the Specification

Please amend paragraph 0037 as rewritten below:

--[0037] Alternatively, the molded body part (when formed using non-ceramic material) can be molded using a molding technique, such as compression molding, extrusion molding, injection molding and rotational molding. In another embodiment, the body part can be made from other manufacturing techniques, such as forming, machining, three dimensional (3D) printing and the like. In one embodiment, the non-ceramic material of the molded body part is a machinable material. In one embodiment, the non-ceramic material is a machinable titanium material. In a further embodiment, the non-ceramic material is a machinable metallic material comprising one or more of titanium, steel, platinum, gold, palladium, silver or bronze or a gold based alloys. Further the molded body part can be formed for example by using ultraviolent (UV) based curing method where ceramic material such as alumina (Al2O3) is mixed in curable solution and then illuminated with high intensity ultraviolent lamps (220-450 nm) for sufficient times.--

Petitioner Samsung Ex-1004, 0142

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/835,573	12/08/2017	Teemu Haverinen	MDJN.3277.USC2	7420

93582 7590 08/08/2019

ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

EXAMINER	
AHMAD, YAHYA A.	

ART UNIT	PAPER NUMBER
2835	

NOTIFICATION DATE	DELIVERY MODE
08/08/2019	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):

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ptomail@gziplaw.com

Petitioner Samsung Ex-1004, 0143

Office Action Summary	**Application No.** 15/835,573	**Applicant(s)** Haverinen et al.	
	Examiner Yahya Ahmad	**Art Unit** 2835	**AIA (FITF) Status** Yes

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

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 03/27/2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☐ Claim(s) _____ is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☑ Claim(s) 1-20 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 _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Petitioner Samsung Ex-1004, 0144

Notice of Pre-AIA or AIA Status

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

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-12, drawn to a wearable electronic device classified in A61B 5/6801

II. Claims 13-20, drawn to a method for manufacturing a wearable electronic device classified in H05K 3/4697

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process of making invention (I) can be used to make another and materially different product such as a wrist wearable electronic device, as opposed the claimed wearable ring.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and/or examination burden if restriction were not required because one or more of the following reasons apply:

(a) The inventions have acquired a separate status in the art in view of their different classification;

(b) The inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) The inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) The prior art applicable to one invention would not likely be applicable to another invention;

(e) The inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of an invention to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention**.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 or pre-AIA 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be corrected in compliance with 37 CFR 1.48(a) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. A request to correct inventorship under 37 CFR 1.48(a) must be accompanied by an application data sheet in accordance with 37 CFR 1.76 that identifies each inventor by his or her legal name and by the processing fee required under 37 CFR 1.17(i).

The examiner has required restriction between product or apparatus claims and process claims. Where applicant elects claims directed to the product/apparatus, and all product/apparatus claims are subsequently found allowable, withdrawn process claims that include all the limitations of the allowable product/apparatus claims should be considered for rejoinder. All claims directed to a nonelected process invention must include all the limitations of an allowable product/apparatus claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product/apparatus claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to

be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product/apparatus are found allowable, an otherwise proper restriction requirement between product/apparatus claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product/apparatus claim will not be rejoined. See MPEP § 821.04. Additionally, in order for rejoinder to occur, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product/apparatus claims. **Failure to do so may result in no rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yahya Ahmad whose telephone number is (571)270-0569. The examiner can normally be reached on M-F 8am-5pm.

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, Jayprakash (JP) Gandhi can be reached on (571) 272-3740. 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.

/YAHYA AHMAD/
Examiner, Art Unit 2835

/ZACHARY PAPE/
Primary Examiner, Art Unit 2835

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(s):	Teemu Haverinen	ART UNIT:	2835
SERIAL NUMBER:	15/835,573	CONF. NO.:	7420
FILING DATE:	8 December 2017	EXAMINER:	Ahmad, Yahya A.
TITLE:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF		
ATTORNEY REFERENCE NO.:	MDJN.3277.USC2	JOUZEN004_CON1	

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

RESPONSE

This is responsive to the Office Action mailed 8 August 2019. Restriction is required between Claims 1-12 of Group I or Claim 13-20 of Group II. For purposes of the election herein, Applicant elects the claims of Group I, with traverse.

The Office Action states that the "process of making invention (I) can be used to make another and materially different product such as a wrist wearable electronic device, as opposed to the claimed wearable ring." However, claim 1 recites a "wearable electronic device" that comprises

> - a body part made of a non-ceramic material, having an inner surface and an outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part,
> - an electronic part arranged in said at least one cavity, which electronic part has a thickness that is less than the depth of the at least one cavity, and
> - a coating made of a moldable filler material on the inner surface of the body part, covering the electronic part and the at least one cavity.

Claim 13 is directed to a method for manufacturing the wearable device recited in claim 1. Applicant's claims are directed to a "wearable device." The Office Action imparts

Petitioner Samsung Ex-1004, 0150

limitations into the claims that are not recited. Also, a search of one group necessarily involves a search of the other group. Thus, restriction of the claims is improper.

The Commissioner is hereby authorized to charge any fees associated with this communication or credit any over payment to Deposit Account No. 50-5215.

Respectfully submitted,

/gcz44004/ 08 October 2019

_____ _____

Geza C. Ziegler, Jr. Date

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Ziegler IP Law Group, LLC.
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Petitioner Samsung Ex-1004, 0151

Electronic Acknowledgement Receipt

EFS ID:	37390980
Application Number:	15835573
International Application Number:	
Confirmation Number:	7420
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Customer Number:	93582
Filer:	GEZA C ZIEGLER JR/Ruth DeSabia
Filer Authorized By:	GEZA C ZIEGLER JR
Attorney Docket Number:	MDJN.3277.USC2
Receipt Date:	08-OCT-2019
Filing Date:	08-DEC-2017
Time Stamp:	09:45:22
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	Response to Election / Restriction Filed	191008_3277USC2_Response_RR_190808_1.pdf	19757 90f739bcd527d1594a30645c55b9b9fbd772e860	no	2
Warnings:					

Information:	
Total Files Size (in bytes):	19757

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/835,573	12/08/2017	Teemu Haverinen	MDJN.3277.USC2	7420

93582 7590 12/31/2019

ZIEGLER IP LAW GROUP, LLC.
55 Greens Farms Road
WESTPORT, CT 06880

EXAMINER	
HAUGHTON, ANTHONY MICHAEL	

ART UNIT	PAPER NUMBER
2835	

NOTIFICATION DATE	DELIVERY MODE
12/31/2019	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):

paralegal_ziplaw@arcticinvent.com
ptomail@gziplaw.com

Petitioner Samsung Ex-1004, 0154

Office Action Summary	Application No. 15/835,573	Applicant(s) Haverinen et al.	
	Examiner ANTHONY M HAUGHTON	Art Unit 2835	AIA (FITF) Status Yes

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 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 10/18/2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) 13-20 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-12 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 12/8/2017 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

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

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Petitioner Samsung Ex-1004, 0155

DETAILED ACTION

Election/Restrictions

Claims 13-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/8/2019. The applicant argues the restriction wherein the examiner respectfully states the specific manufacturing methods required to manufacture the wearable electronic device of claim 13 can be used to machine multiple different types of wearable electronic devices wherein also the device of claim 1 can also be formed and made through a materially different manufacturing method or in a different order of process that is described in claim 13. It is also noted that a search of one group does not necessarily involve a search of the other group, specifically in these claims wherein the search for a wearable electronic device does not require a search of the different types of manufacturing techniques used to make the wearable electronic device and this would cause a burden of search on the examiner, and therefore the restriction is considered in final.

Claim Rejections - 35 USC § 102

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

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.
>
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

Claim(s) 1-5, 8, 9, and 12 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by von Badinkski (2015/0220109).

Regarding Claim 1: Von Badinski teaches a wearable electronic device comprising: a body part (410) made of a non-ceramic material (paragraph [0188]), having an inner surface and an outer surface (fig. 4), wherein at least one cavity having a depth is arranged on the inner surface of the body part (fig. 4), an electronic part (415 and 480) arranged in said at least one cavity (fig. 4), which electronic part has a thickness (fig. 4) that is less than the depth of the at least one cavity (fig. 4), and a coating made of a moldable filler material (paragraph [0189]) on the inner surface of the body part (paragraph [0189]), covering the electronic part and the at least one cavity (paragraph [0189]).

Regarding Claim 2: Von Badinski teaches wherein the non-ceramic material is a titanium material (paragraph [0188]).

Regarding Claim 3: Von Badinski teaches wherein the non-ceramic material is a machinable material (paragraph [0188]).

Regarding Claim 4: Von Badinski teaches wherein the non-ceramic material is a machinable titanium material (paragraph [0188]).

Regarding Claim 5: Von Badinski teaches the non-ceramic material is a machinable metallic material comprising one or more of titanium, steel, platinum, gold, palladium, silver or bronze or a gold based alloys (paragraph [0188]).

Regarding Claim 8: Von Badinski teaches wherein the moldable filler material is selected from a group consisting of at least epoxy material, Polyethylene, Polyurethane, low temperature moldable material, Loctite M-31CL, alpha-epoxy, 1,2-epoxy, EpoxAcast® 650, Bisphenol S epoxy resin, Novolac epoxy resin, Aliphatic epoxy resin and Glycidylamine epoxy resin (paragraph [0189]).

Regarding Claim 9: Von Badinski teaches, wherein the electronic part comprises one or more of a battery, an infrared transmitter, a microcontroller, a radio frequency transceiver, a temperature sensor and an infrared receiver (480 and 415 in fig. 4).

Regarding Claim 12: Von Badinski teaches wherein the body part comprises a ring configured to be worn on a finger (fig. 4).

Claim Rejections - 35 USC § 103

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 is/are rejected under 35 U.S.C. 103 as being unpatentable over von Badinski (2015/0220109) as applied to the claims above, and further in view of Sharma (2016/0070393).

Regarding Claim 6: Von Badinski lacks a specific teaching of wherein the electronic part is attached to the cavity a bottom of the cavity (figs. 5a, 5b, and 8a-9b).

Sharma teaches wherein the electronic part is attached to the cavity a bottom of the cavity.

It would have been obvious to one having ordinary skill in the art at the time the invention was filed to modify the apparatus of Von Badinski by having wherein the electronic part is attached to the cavity a bottom of the cavity as disclosed by Sharma in order to allow for a more secure connection between the electronic parts and the cavity which in turn will decrease the chances of damage to the components if the device is dropped since it is more securely connected and this decreases the need to replacement or repair of the internal components of the apparatus.

Regarding Claim 7: Von Badinski lacks a specific teaching of one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity.

Sharma teaches one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity (paragraph [0181] and [0182]).

It would have been obvious to one having ordinary skill in the art at the time the invention was filed to modify the apparatus of Von Badinski by having one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity as disclosed by Sharma in order to allow for a more secure connection between the electronic parts and the cavity which in turn will decrease the chances of damage to the components if the device is dropped since it is more securely connected and this decreases the need to replacement or repair of the internal components of the apparatus.

Claims 10-11 is/are rejected under 35 U.S.C. 103 as being unpatentable over von Badinski (2015/0220109).

Regarding Claim 10: Von Badinski teaches wherein the moldable filler material comprises a different color (paragraph [0189]) and is configured to cover at least an area other than the infrared transmitter (fig. 4) and the infrared receiver (fig. 4) within the at least one cavity (fig. 4), but lacks a specific teaching of the coloring being done through ink.

Official notice is taken that the coloring can be done through using ink.

It would have been obvious to one having ordinary skill in the art at the time the invention was filed to form the coloring by using ink since the examiner takes Official Notice of the equivalence of and for their use in the art and the selection of any of these known equivalents to would be within the level of ordinary skill in the art.

Regarding Claim 11: Von Badinski teaches wherein the moldable filler material comprises a different color (paragraph [0189]) that increases a value of transmitted infrared light intensity divided by transmitted visible light intensity (paragraph [0189] wherein this would inherently happen through the change of coloring), but lacks a specific teaching of the coloring being done through ink.

Official notice is taken that the coloring can be done through using ink.

It would have been obvious to one having ordinary skill in the art at the time the invention was filed to form the coloring by using ink since the examiner takes Official Notice of the equivalence of and for their use in the art and the selection of any of these known equivalents to would be within the level of ordinary skill in the art.

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY MICHAEL HAUGHTON whose telephone number is (571)272-9087. The examiner can normally be reached on M-F 8a-4p.

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, Jinhee Lee can be reached on 571-272-1977. 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.

/ANTHONY M HAUGHTON/
Primary Examiner, Art Unit 2835

Notice of References Cited	Application/Control No. 15/835,573	Applicant(s)/Patent Under Reexamination Haverinen et al.	
	Examiner ANTHONY M HAUGHTON	Art Unit 2835	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20160070393-A1	03-2016	Sharma; Sumit	G06F1/163	345/174
*	B	US-20150220109-A1	08-2015	von Badinski; Curt C.	A61B5/021	340/539.12
*	C	US-9582034-B2	02-2017	von Badinski; Curt C.	G06K9/00885	1/1
	D					
	E					
	F					
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	H					
	I					
	J					
	K					
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	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

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

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

Petitioner Samsung Ex-1004, 0162

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/835,573	Haverinen et al.
	Examiner	Art Unit
	ANTHONY M HAUGHTON	2835

CPC - Searched*		
Symbol	**Date**	**Examiner**
(A61B5/6801 ; A61B5/6826 ; A61B5/681 ; A61B5/01 ; G06F1/163 ; A61B2562/12 ; B28B1/24 ; A61B5/02416 ; A61B2562/00)	05/27/2019	YA
g06f1/163	12/23/2019	amh

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.

/YAHYA AHMAD/ Examiner, Art Unit 2835	

Petitioner Samsung Ex-1004, 0163

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/835,573	Haverinen et al.
	Examiner	**Art Unit**
	ANTHONY M HAUGHTON	2835

Search Notes		
Search Notes	**Date**	**Examiner**
(A61B5/6801 ; A61B5/6826 ; A61B5/681 ; A61B5/01 ; G06F1/163 ; A61B2562/12 ; B28B1/24 ; A61B5/02416 ; A61B2562/00) WITH TEXT	05/27/2019	YA
Inventor search in EAST	05/27/2019	YA
IP.com search	12/26/2018	YA
Reviewed file wrapper for parent case 14/826,360	12/26/2018	YA
Consulted with Primary Examiner Anthony Haughton	05/27/2019	YA
east search	12/23/2019	amh
classification search	12/23/2019	amh
ip.com search	12/23/2019	amh
inventor search	12/23/2019	amh

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	Interference search conducted	05/27/2019	YA

/YAHYA AHMAD/ Examiner, Art Unit 2835	

Petitioner Samsung Ex-1004, 0164

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	4965	h05k7/1498,1461,16,18,142,1417,14.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:35
L2	13545	361/679.01,679.02,724-727,679.33-679.39.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:36
L5	299	((("CHEN") near3 ("Chao-Jung")) OR (("LIU") near3 ("Kun-Pei"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 11:36
L6	1	("20190098794").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:37
L18	1412	(("20190098794") or ("10250447") or ("9699933") or ("10146295") or ("20150256406") or ("9423854") or ("20150257302") or ("20160334860") or ("20150253821") or ("9958178") or ("20150257311") or ("20150253829") or ("9430010") or ("20150256386") or ("10122585") or ("20150253794") or ("10075332") or ("20150256409") or ("9923766") or ("20180205607") or ("20150256394") or ("20150256396") or ("20150256393") or ("20150256390") or ("9964935") or ("10198709") or ("9863659") or ("20150253028") or ("10142822") or ("20150253029") or ("20180322376") or ("20070250410") or ("10187773") or ("10038992") or ("10049240") or ("10140820") or ("9894471") or ("20130027204") or ("8779922") or ("9911290") or ("20170215038") or ("20170213057") or ("20190262204") or ("8094020") or ("20110304463") or ("20140253289") or ("9888337") or ("20190363746") or ("9727515") or ("20140320288") or ("20150325089") or ("8994532") or ("20150236512") or ("20190341954") or ("10355730") or ("20170315950") or ("10169965") or ("8264354") or ("20110084839") or ("20190310685") or ("20130150028") or ("20180024598") or ("9864417") or ("20140020175") or ("20160129960") or ("20140253093") or ("9786153") or ("20160240067") or ("20180096585") or ("9711046") or ("20180017997") or ("10510219") or ("20150074749") or ("20020111819") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:38

Petitioner Samsung Ex-1004, 0165

		("20190309559") or ("10410506") or ("7136832") or ("20190332838") or ("20170148323") or ("20190309560") or ("20160218934") or ("9337555") or ("20190309561") or ("7733230") or ("20190302764") or ("20080024306") or ("10503942") or ("8471706") or ("20120133510") or ("8410935") or ("20100007498") or ("20130222117") or ("20190003236") or ("7298626") or ("7719422") or ("10318769") or ("8742897") or ("10325596") or ("20170116103") or ("10318772") or ("20190309562") or ("9129496") or ("20190087612") or ("20030046339") or ("20190294832") or ("20190378104") or ("20190162009") or ("20110131269") or ("9594385") or ("20100060452") or ("8239252") or ("20140363992") or ("10253582") or ("20140277807") or ("20170298701") or ("10022614") or ("10186331") or ("20190362716") or ("20140108825") or ("20190234159") or ("20120046982") or ("9111098") or ("20180350462") or ("20140277784") or ("10200834") or ("10380007") or ("9545029") or ("20170308845") or ("20180133583")).PN. or (("8249910") or ("20170008739") or ("8393026") or ("9582010") or ("9495853") or ("8917513") or ("20150309921") or ("20150102101") or ("20110010720") or ("20120046809") or ("20100039247") or ("20140176305") or ("20190370159") or ("9539156") or ("9202186") or ("8701229") or ("20170231108") or ("20110277242") or ("9126571") or ("20150379840") or ("9449202") or ("8239251") or ("9760853") or ("9740822") or ("9152933") or ("20140059768") or ("10108208") or ("20060026017") or ("20110231996") or ("20110162141") or ("20080154691") or ("20120046981") or ("9555778") or ("9183158") or ("20140281614") or ("9983601") or ("10420690") or ("7962981") or ("20170061083") or ("9864669") or ("20140237721") or ("RE46326") or ("20110309931") or ("9182232") or ("20170215303") or ("7690059") or ("20170106738") or ("20120232961") or ("9734693") or ("20140277819") or ("10043593") or ("6919816") or ("20100228405") or ("20020190868") or ("20110080264") or ("20140013503") or ("9632506") or ("8060400") or ("20180151260") or ("10404523") or ("9678896") or ("20070239569") or ("10121028") or ("10173876") or ("20060206246") or ("20070157385") or ("20110131074") or ("7187265") or ("10378241") or ("8631247") or ("10102500") or ("20080154712") or ("20080122626") or ("10398233") or ("20150154536") or ("20160041559") or ("20190201117") or ("20100070075") or ("20170248965") or ("20180086615") or ("20190286139") or ("20070169268") or ("20190156940") or ("20190125458") or ("20120102334") or ("20160183687") or ("20160162836") or ("20160189507") or ("20170085413") or ("20160012707") or						

Petitioner Samsung Ex-1004, 0166

		("20140135994") or ("20140320308") or ("9208459") or ("20150002274") or ("20110010770") or ("20190286164") or ("9843847") or ("20190242157") or ("20040193449") or ("6965816") or ("20160048462") or ("20190296958") or ("8924548") or ("9198060") or ("7805784") or ("9913642") or ("20080068170") or ("20110063093") or ("20190283648") or ("20140360232") or ("20190125456") or ("20180130331") or ("20190347923") or ("8648709") or ("7861334") or ("20190283962") or ("8531134") or ("7734476") or ("9355055") or ("20070163043") or ("20190035255") or ("20070174964") or ("8786440") or ("20120166693") or ("10488910") or ("9202374") or ("20030125836") or ("8674822") or ("20130201316")).PN. or (("20140213177") or ("20110279261") or ("9815439") or ("9769786") or ("20190287046") or ("20130046884") or ("9510679") or ("8368321") or ("20190283252") or ("20190286138") or ("20190320799") or ("9456958") or ("20150272575") or ("9124655") or ("9881130") or ("20150154556") or ("8805550") or ("20110080267") or ("8866408") or ("20190377399") or ("20160287459") or ("20140329467") or ("10246905") or ("20140159888") or ("9860961") or ("8610376") or ("20070080801") or ("20060064201") or ("8841859") or ("20110298607") or ("10368222") or ("10071891") or ("8552664") or ("20170111759") or ("8339069") or ("20170311280") or ("20190286152") or ("20170344708") or ("8954170") or ("20180066452") or ("20100296285") or ("8754589") or ("9537522") or ("20140215029") or ("8543249") or ("8536802") or ("20160073276") or ("20190283240") or ("10361800") or ("20190137991") or ("20190119089") or ("7656273") or ("8373362") or ("20190125361") or ("8138690") or ("8610377") or ("20150156627") or ("9443366") or ("10353483") or ("10067571") or ("20140002239") or ("20190098432") or ("20150009013") or ("20190287047") or ("10189692") or ("20110128163") or ("20180241489") or ("9418263") or ("20170085637") or ("20180346300") or ("9953193") or ("10257268") or ("20080068171") or ("10280054") or ("9686138") or ("10134007") or ("8593135") or ("20190283239") or ("10081525") or ("20160259341") or ("20190125454") or ("20190180539") or ("20180124181") or ("9996119") or ("20100301769") or ("20140351098") or ("20160239794") or ("20180132850") or ("10204244") or ("9967759") or ("20180241488") or ("20190287063") or ("20190260829") or ("20100301774") or ("20180034912") or ("9740293") or ("20100295473") or ("20100301768") or ("9710682") or ("20190287059") or ("20180343304") or ("9858452") or ("20190331613") or ("20100295474") or ("20160124470") or					

Petitioner Samsung Ex-1004, 0167

		("20160207497") or ("20100295475") or ("20190125457") or ("20170331899") or ("20100302779") or ("8989053") or ("20190210849") or ("9880635") or ("9617134") or ("20190112171") or ("7436303") or ("8823277") or ("20180375940") or ("20100295482") or ("9234757") or ("9430732") or ("20190074153") or ("20180278694") or ("20100301771") or ("8026814") or ("20170061525") or ("20100270933") or ("10486951") or ("10362658") or ("9402242")).PN. or (("20190125455") or ("20070222597") or ("7213026") or ("20170078400") or ("10445536") or ("9569294") or ("9542577") or ("8452868") or ("20180107281") or ("20100301770") or ("20140244886") or ("10468219") or ("20190132815") or ("20140244881") or ("20190200987") or ("20150372868") or ("20190287062") or ("20190125459") or ("10336592") or ("20190109904") or ("20190002256") or ("9268730") or ("20190098090") or ("20100301834") or ("9974042") or ("10133243") or ("10157363") or ("20190206004") or ("20190218081") or ("20180278693") or ("9256565") or ("20190263644") or ("10346654") or ("20110072132") or ("20170020354") or ("8988223") or ("20150324681") or ("20170160776") or ("20110001436") or ("9930635") or ("20170009417") or ("20180005178") or ("20030093187") or ("20110001438") or ("7152040") or ("20140277615") or ("20170242427") or ("20160052762") or ("20160048709") or ("20180096180") or ("20140239718") or ("20170010610") or ("20160037478") or ("20180204029") or ("10389459") or ("10071893") or ("20170061174") or ("20170270323") or ("20160314327") or ("20160259329") or ("10241555") or ("20160048712") or ("9678484") or ("9984350") or ("20150156100") or ("20170300122") or ("9821991") or ("8334779") or ("20030052787") or ("20040039745") or ("10063331") or ("7557702") or ("20170176986") or ("10338653") or ("20190244448") or ("20040260470") or ("9541905") or ("9619989") or ("7683760") or ("9592964") or ("9774410") or ("7010369") or ("20190114450") or ("8207816") or ("8723653") or ("8710980") or ("9591607") or ("20190286243") or ("20180359039") or ("20190332833") or ("20100259931") or ("20150020558") or ("20100264846") or ("10304304") or ("20160182170") or ("20160294493") or ("20120102434") or ("9426773") or ("20160304004") or ("8457781") or ("9674812") or ("20170022015") or ("10152031") or ("20140277594") or ("9842290") or ("8373562") or ("9900119") or ("7667604") or ("9978035") or ("20130176115") or ("20170131753") or ("9769785") or ("20140148944") or ("10031489") or ("20170174490") or ("20110046775") or						

Petitioner Samsung Ex-1004, 0168

		("9426774") or ("9424447") or ("8928463") or ("20140215030") or ("10176297") or ("9125254") or ("9854556") or ("9674050") or ("20150156254") or ("9734682") or ("20120161963") or ("20190200863") or ("9510316") or ("7969306")).PN. or (("8368545") or ("20110291813") or ("20170010609") or ("10410176") or ("9904902") or ("8803660") or ("9811059") or ("20150077326") or ("20150053742") or ("9020634") or ("20150061511") or ("20110018707") or ("20090008450") or ("10127521") or ("20170277920") or ("9261922") or ("20030227392") or ("20170185956") or ("20060208890") or ("20100301773") or ("20150156605") or ("10049552") or ("20150156718") or ("7737857") or ("7954712") or ("20180247259") or ("9072133") or ("20170373775") or ("20190205567") or ("20050007249") or ("20140277616") or ("20170086279") or ("9775126") or ("9990604") or ("9286441") or ("20070027981") or ("20140346186") or ("20140240914") or ("20150154547") or ("20170118076") or ("9013301") or ("20180348883") or ("7752301") or ("20190201115") or ("10453023") or ("20190200977") or ("20190207773") or ("9949228") or ("8239527") or ("20100295665") or ("20180131455") or ("10315897") or ("10430702") or ("20190304238") or ("20140277595") or ("20190095852") or ("20140273847") or ("9942935") or ("7032037") or ("7679520") or ("20150156747") or ("20100250461") or ("20140293605") or ("8831970") or ("20190206565") or ("20090146832") or ("9875204") or ("20170164319") or ("9984348") or ("20190340396") or ("20190205566") or ("10189691") or ("20140285090") or ("9588504") or ("20140277607") or ("20120235579") or ("9778626") or ("9974041") or ("20140285095") or ("20160260148") or ("7027808") or ("20140195057") or ("20140351406") or ("8232745") or ("20170249431") or ("20100229096") or ("9936603") or ("20080252414") or ("9283054") or ("10351400") or ("9335786") or ("20150347959") or ("10138100") or ("20150156253") or ("9471821") or ("20150053743") or ("10071892") or ("20090135015") or ("9990823") or ("20150154545") or ("20140240909") or ("20110241833") or ("20170134349") or ("20190201033") or ("9766603") or ("20170142769") or ("10130232") or ("20150153175") or ("8793587") or ("10485068") or ("20140282015") or ("20080228346") or ("8025228") or ("20180286205") or ("8058985") or ("20040056779") or ("20170147915") or ("20160260301") or ("20070276548") or ("10381116") or ("9775609") or ("9445813") or ("20150154844") or ("20150156066") or ("20150289405") or ("20140282257") or ("8547226") or ("6611755") or ("20170024806")).PN. or (("20150154548") or					

Petitioner Samsung Ex-1004, 0169

("20150349917") or ("20140277593") or ("20180064443") or ("20090267540") or ("9405950") or ("20160378076") or ("20070005382") or ("9117128") or ("20160320773") or ("8744620") or ("20190119083") or ("10325464") or ("20150154531") or ("9678544") or ("20170017392") or ("8511554") or ("10078811") or ("20190180059") or ("20160117450") or ("10310568") or ("20190380311") or ("9122810") or ("20150154431") or ("20190087774") or ("20140000322") or ("20080121700") or ("RE47599") or ("20180068211") or ("6462670") or ("20130339714") or ("9738125") or ("20190201140") or ("20130030566") or ("9913240") or ("20140257699") or ("20170019970") or ("20180064441") or ("10430073") or ("20140203915") or ("20190206569") or ("20170178104") or ("20050222933") or ("20190256334") or ("20150053741") or ("20190207911") or ("20110166891") or ("20160211632") or ("20150154544") or ("20190187690") or ("20170196649") or ("20140297855") or ("20160005284") or ("10031490") or ("20150053749") or ("20170148075") or ("8390456") or ("20190329421") or ("20180011451") or ("20050085248") or ("9504628") or ("20140274123") or ("10078809") or ("8674839") or ("20030105903") or ("20190122765") or ("10102170") or ("20160209887") or ("20190201137") or ("20170010608") or ("8323114") or ("20100210354") or ("20130332719") or ("20150054753") or ("10478973") or ("20190206562") or ("20140339249") or ("8165928") or ("20150048101") or ("7242306") or ("20180346299") or ("8511555") or ("20180077545") or ("20170353943") or ("7791479") or ("20160239696") or ("20090134999") or ("8599012") or ("9463140") or ("20180330293") or ("9021431") or ("20190201136") or ("10265859") or ("10377196") or ("10229382") or ("20150348498") or ("20150154538") or ("20140121789") or ("8719066") or ("20150154557") or ("20170368897") or ("20150154542") or ("20100252517") or ("20190101910") or ("20170007246") or ("20140339248") or ("20170007244") or ("20170007245") or ("20140223230") or ("8928456") or ("10074069") or ("20150154585") or ("8334781") or ("9456959") or ("20170264493") or ("20110128118") or ("20190371157") or ("20190359018") or ("8009034") or ("20140257754") or ("20100065632") or ("20160260161") or ("20180343024") or ("8854207") or ("20050141997") or ("20190110792")).PN. or (("20040015418") or ("20110137489") or ("20150053748") or ("7911349") or ("20120280834") or ("10195513") or ("10414052") or ("7154397") or ("20150130593") or ("10508010") or ("20190099180") or

Petitioner Samsung Ex-1004, 0170

("20190201143") or ("20180064442") or ("20120286969") or ("20130131870") or ("9984349") or ("20140195844") or ("20150302234") or ("9700310") or ("10022613") or ("7489993") or ("20180264347") or ("7667573") or ("20150154539") or ("20100134257") or ("20160257212") or ("10229082") or ("9788297") or ("20180352920") or ("10384351") or ("20180181906") or ("20180064440") or ("20140244325") or ("10239738") or ("9886013") or ("20160259028") or ("20190084814") or ("20040056091") or ("20170132168") or ("20150053739") or ("7374096") or ("20180332434") or ("10046228") or ("20190284034") or ("20180055513") or ("20190102930") or ("9182231") or ("20190290265") or ("20120046978") or ("20080135613") or ("20130325998") or ("6837427") or ("20140277617") or ("7450024") or ("20170225334") or ("20190113896") or ("9329654") or ("20190358515") or ("20190302231") or ("10435279") or ("20050035862") or ("10486313") or ("20160232483") or ("8547222") or ("20170340498") or ("10102494") or ("20140277596") or ("10201349") or ("20190205001") or ("8113425") or ("20110266338") or ("10235447") or ("9639722") or ("20070069018") or ("20170225336") or ("20160244311") or ("20190193276") or ("20180277241") or ("20100212087") or ("20150154543") or ("9116897") or ("7549579") or ("9211811") or ("20170225332") or ("20190169005") or ("8886985") or ("7786844") or ("20180326291") or ("20180117446") or ("20160012390") or ("20190200998") or ("20190099178") or ("20040222297") or ("20150154532") or ("20160224048") or ("20160260054") or ("7627666") or ("20140115353") or ("20180206843") or ("20160132046") or ("20130117078") or ("20080197193") or ("7486180") or ("10262172") or ("8458329") or ("20170032022") or ("7518500") or ("20060208892") or ("20140277605") or ("10360760") or ("20120028680") or ("20190206551") or ("20170225321") or ("20140258052") or ("20190099179") or ("9355531") or ("8120467") or ("20190201141") or ("20170257841") or ("20150154540") or ("20120062363") or ("20190361917") or ("20150154551") or ("20180117447") or ("20180321356") or ("20120185590") or ("9536405")).PN. or (("20190041637") or ("20150142137") or ("8738177") or ("20180289999") or ("20060208891") or ("20060142913") or ("20150156109") or ("20110016342") or ("20190219996") or ("20110192901") or ("20190200986") or ("20140277618") or ("8583314") or ("20170178066") or ("9068374") or ("7864047") or ("7665071") or ("20150154370") or ("10286792") or ("10078812") or ("20080174485") or ("20150154552") or ("20120143401") or

Petitioner Samsung Ex-1004, 0171

		("20100005331") or ("20100154124") or ("20170308984") or ("20150054627") or ("9201933") or ("20190200844") or ("20100013639") or ("20090237258") or ("20070247316") or ("9860965") or ("20070120689") or ("8456286") or ("20170196560") or ("20150053746") or ("20080116269") or ("20160258762") or ("20150053737") or ("9924942") or ("7952485") or ("7440767") or ("10441281") or ("8508367") or ("20140166745") or ("20180262891") or ("20120109797") or ("9358894") or ("20100141445") or ("20180033244") or ("6658586") or ("9928713") or ("9235979") or ("20050127177") or ("20170103239") or ("20150053744") or ("20050125312") or ("20050040952") or ("20160035246") or ("9949540") or ("9510828") or ("20180074156") or ("20040222298") or ("20130231779") or ("20090088924") or ("10470008") or ("20020183882") or ("20180211465") or ("8803669") or ("20190340876") or ("20100194604") or ("10037449") or ("20050085180") or ("20150154555") or ("10322675") or ("20150076209") or ("20150076210") or ("20190108691") or ("20050194437") or ("9129493") or ("20150154553") or ("9361568") or ("20170318919") or ("20080121690") or ("20080088437") or ("10109124") or ("20170223807") or ("8169304") or ("20100127880") or ("20090270174") or ("10412110") or ("10158654") or ("9721418") or ("20170039833") or ("9808249") or ("20190146482") or ("7956746") or ("20080122691") or ("10403069") or ("8947201") or ("9367195") or ("20170347333") or ("7938326") or ("9452684") or ("20160313744") or ("20080052027") or ("20120109401") or ("20190119978") or ("20080122656") or ("8874817") or ("9928054") or ("7661591") or ("20080088438") or ("20110140913") or ("20180190056") or ("7548826") or ("8400268") or ("9463574") or ("20060181400") or ("9594998") or ("20170069148") or ("9665521") or ("20090212925") or ("8248252") or ("20120004770") or ("9792542") or ("20180146960")).PN. or (("20180153542") or ("20180368833") or ("20190110791") or ("20090174550") or ("20150053745") or ("20150154541") or ("10469993") or ("20120143383") or ("10199715") or ("10395021") or ("8825535") or ("9655217") or ("20150019008") or ("20180125489") or ("20110068921") or ("20140347174") or ("20150053740") or ("20160232479") or ("20060288101") or ("20190045325") or ("20170008162") or ("9720479") or ("9809169") or ("10032123") or ("20140145845") or ("20130205069") or ("20170296173") or ("20170305349") or ("20170021260") or ("8577759") or ("20190201116") or ("20120109403") or ("20150278219") or ("20170318923") or ("20090309732") or						

Petitioner Samsung Ex-1004, 0172

		("9490920") or ("20180124072") or ("20060250249") or ("20180072223") or ("20170228566") or ("20180109955") or ("20120109798") or ("9288117") or ("20090144010") or ("9367980") or ("20110040440") or ("20190073209") or ("20160266891") or ("7974809") or ("9283857") or ("20100127881") or ("20120194327") or ("20170214117") or ("20130257600") or ("20170105086") or ("20140297180") or ("20080086349") or ("9921559") or ("20120047050") or ("20120271742") or ("9857234") or ("6647328") or ("7668754") or ("20180004176") or ("20160330825") or ("20180089410") or ("20170168472") or ("20150369671") or ("20100164736") or ("20190025354") or ("9082260") or ("9715814") or ("20080313006") or ("20140265577") or ("8242926") or ("20150129666") or ("20190025355") or ("8938366") or ("20110153614") or ("20150163626") or ("20190180533") or ("10104496") or ("20120005344") or ("20150053738") or ("8461725") or ("20060154642") or ("20040078503") or ("9987006") or ("20160116961") or ("9380274") or ("20160162772") or ("8983875") or ("20100116885") or ("20120109402") or ("20190025353") or ("10448211") or ("20190173154") or ("10432473") or ("20160260145") or ("9541454") or ("6636983") or ("20190294131") or ("20190187641") or ("6658585") or ("20120233006") or ("20150221160") or ("20180077546") or ("10453572") or ("20180124095") or ("20190201146") or ("7319853") or ("20170082498") or ("10026033") or ("20160117583") or ("20050080956") or ("20190141063") or ("10380511") or ("20180066996") or ("9390362") or ("20110068906") or ("20140187172") or ("7254468") or ("20010056544") or ("8171142") or ("20190350582") or ("9355508")).PN. or ((("20110187503") or ("20050086366") or ("20160321480") or ("20070034264") or ("20180024700") or ("20190116478") or ("9117342") or ("8700420") or ("20150126234") or ("8819855") or ("8674806") or ("7782194") or ("7117169") or ("20110298301") or ("20170308143") or ("20190146481") or ("7082528") or ("20160284185") or ("20190201144") or ("20030114206") or ("20190156280") or ("9619951") or ("9830483") or ("20080198015") or ("20130339479") or ("20100031043") or ("10354315") or ("9902539") or ("20190125486") or ("20190222652") or ("10034359") or ("20180109417") or ("20130262170") or ("20020169696") or ("9355510") or ("20180184506") or ("20180077521") or ("20170308797") or ("8311765") or ("20090189767") or ("20190317564") or ("9037881") or ("8491159") or ("8941470") or ("9026462") or ("20170193417") or ("10089505") or						

Petitioner Samsung Ex-1004, 0173

		("20130026220") or ("9352887") or ("20170308795") or ("20120106672") or ("20180007504") or ("9373241") or ("10181167") or ("20180165565") or ("8725345") or ("9965564") or ("9602976") or ("20150348396") or ("9571211") or ("20090270175") or ("20070205894") or ("9043332") or ("20180125488") or ("20160343181") or ("20190012705") or ("10085332") or ("20140108827") or ("20150051749") or ("20190108355") or ("9711038") or ("9781548") or ("8138925") or ("20170324896") or ("10448491") or ("10448489") or ("10349744") or ("20150102901") or ("9641969") or ("9351353") or ("20190201138") or ("7510110") or ("20150223019") or ("8416064") or ("20190206561") or ("20110133908") or ("20160132822") or ("20190303848") or ("20170308975") or ("8248239") or ("20160355308") or ("20180192501") or ("9691198") or ("20030195644") or ("20180271286") or ("9098818") or ("20170308799") or ("7714723") or ("20170126505") or ("20190099224") or ("20180249561") or ("20070285241") or ("20110313893") or ("20090029766") or ("8764242") or ("8004397") or ("10068467") or ("20180271287") or ("10342104") or ("20150154549") or ("20180302477") or ("9811949") or ("20190122321") or ("7451238") or ("9807858") or ("7741808") or ("20120253508") or ("20170332750") or ("20150163867") or ("20090222349") or ("20190295369") or ("10357107") or ("20070197262") or ("20080061979") or ("7518502") or ("10257217") or ("8994276") or ("10025337") or ("20130268199")).PN. or (("20170280274") or ("10098211") or ("20080091309") or ("20140361869") or ("9142116") or ("20050108096") or ("8279065") or ("7323991") or ("9849364") or ("9943174") or ("20040049324") or ("8600932") or ("20150332211") or ("20170017815") or ("20140075514") or ("20180177032") or ("8855794") or ("9953289") or ("20130278067") or ("6654816") or ("10390413") or ("20190201105") or ("8294579") or ("20170163515") or ("9004352") or ("20190292030") or ("9908239") or ("10438271") or ("20140187173") or ("10262656") or ("8610574") or ("8325011") or ("8558699") or ("20090195363") or ("20110191058") or ("10102703") or ("9896315") or ("20130285558") or ("9442789") or ("9870773") or ("20080215727") or ("8269630") or ("20160275731") or ("20170111451") or ("7898403") or ("20180107188") or ("9465559") or ("9442876") or ("8248238") or ("20090216775") or ("20080026625") or ("8253567") or ("20180310389") or ("6421571") or ("20170276573") or ("20190201104") or ("10437658") or ("8284055") or ("20100327766") or ("20120080944") or ("10346792") or ("20160249439") or ("9047181") or						

Petitioner Samsung Ex-1004, 0174

		("20180084627") or ("20120194354") or ("20190137989") or ("8000850") or ("10499478") or ("7685026") or ("7364452") or ("20080231431") or ("20170171359") or ("20130204984") or ("8421630") or ("10296194") or ("9019104") or ("8242907") or ("7953849") or ("8947233") or ("20030030993") or ("20160029160") or ("8682541") or ("20170074617") or ("20190201145") or ("6775576") or ("20130293378") or ("8242908") or ("20170232300") or ("20080084333") or ("10089850") or ("7291032") or ("20130158736") or ("9739763") or ("10351399") or ("20120169469") or ("20190272498") or ("20160147589") or ("20160364129") or ("10117059") or ("20080125965") or ("9530295") or ("8451120") or ("20120228243") or ("20190137988") or ("10204297") or ("20180263098") or ("20180161225") or ("20190280438") or ("20070055470") or ("7302320") or ("9543788") or ("20080084334") or ("8359248") or ("20140062730") or ("20080125964") or ("9857133") or ("20160132532") or ("20030191877") or ("9682598") or ("10154555") or ("20180131715") or ("8519566") or ("9730518") or ("20140058616") or ("6882917") or ("20190050784") or ("10284589") or ("20140196761") or ("8770140")).PN.				
L19	116	((("CHANG") near3 ("Cheng-Wen")) OR (("TSAI") near3 ("CHEN-YU")) OR (("WANG") near3 ("CHUN-YUAN")) OR (("LEE") near3 ("CHENG-YI"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 11:41
L20	3	(("20190324502") or ("20170311461") or ("10045448")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:49
L21	114	(("20190324502") or ("20170311461") or ("10045448") or ("20160363960") or ("9864412") or ("9772657") or ("20160320804") or ("10162387") or ("20170329369") or ("20180235440") or ("20150366090") or ("9477267") or ("20090101405") or ("8153896") or ("20190141843") or ("20190261520") or ("4507769") or ("20060176655") or ("7289315") or ("20190339742") or ("20010042990") or ("20170280571") or ("10188002") or ("5926167") or ("6499788") or ("20190056768") or ("9603271") or ("20150257289") or ("10001810") or ("10430923") or ("20190098783") or ("20190387633") or ("20180011515") or ("20180225804") or ("20120277530") or ("20140197289") or ("20180160554") or ("10506726") or ("20040061683") or ("20190087016") or ("8306575") or ("7196692") or ("8795158") or ("8876074") or ("20190374233") or ("20080013264") or ("7830460") or ("9791892") or ("20150378397") or ("7272423") or ("20190371214") or ("20020146960") or ("20080192419") or ("20180032108") or ("10152089") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:49

Petitioner Samsung Ex-1004, 0175

		("20090075702") or ("20160324021") or ("4674859") or ("4426695") or ("10347160") or ("7949312") or ("20060293095") or ("20190079561") or ("20060055607") or ("8638321") or ("20130167600") or ("20170234478") or ("10400942") or ("20090290077") or ("2680581") or ("9823697") or ("20140357954") or ("RE32996") or ("8302925") or ("7046204") or ("9678539") or ("7817410") or ("4582271") or ("10433438") or ("20150116921") or ("20120074802") or ("4555173") or ("9992888") or ("20160216737") or ("20160179141") or ("20160374228") or ("20070210223") or ("20180077810") or ("20110182007") or ("20180188637") or ("9271634") or ("20090272870") or ("9836087") or ("9756757") or ("8456834") or ("20180270971") or ("20050088814") or ("20060162122") or ("20030209212") or ("20030086240") or ("4685792") or ("20150164514") or ("8052101") or ("20080302741") or ("6819550") or ("20040228080") or ("9103349") or ("20190380218") or ("20040202316") or ("4668076") or ("20190098774") or ("20040218352") or ("7209344")).PN.				
L22	18778	G06F1/1652,1626,1613.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:50
L23	3149	G06F2203/04105.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:50
L24	1552	361/679.17,679.41-679.44.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:09
L25	6319	G06F1/1624,1633,1662,1667,1669,1671.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:09
L37	1132	(("20190215975") or ("8395465") or ("20130100055") or ("8665044") or ("20160226183") or ("20160226182") or ("9494980") or ("8988876") or ("8264310") or ("20190278329") or ("20140049911") or ("8390411") or ("20120068919") or ("8390412") or ("20120069503") or ("10037054") or ("10303215") or ("8289114") or ("20190064878") or ("20180012691") or ("10236106") or ("8928437") or ("20190180898") or ("20170010633") or ("20150153783") or ("8344836") or ("20150160696") or ("20130162668") or ("8975991") or ("20160209883") or ("20120194308") or ("20120068942") or ("8143982") or ("20130162669") or ("20140334098") or ("8143983") or ("9329630") or ("8576031") or ("9773598") or ("9568954") or ("20170125144") or ("20120066865") or ("20130162554") or ("8648679") or ("9627803") or ("20190004764")	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:15

Petitioner Samsung Ex-1004, 0176

		or ("10212506") or ("20140321040") or ("8242868") or ("8884730") or ("20120069540") or ("20120068798") or ("8253518") or ("8514042") or ("20170093453") or ("8390413") or ("20180115816") or ("8934226") or ("20170094391") or ("20120068799") or ("8138869") or ("9967644") or ("9883272") or ("9967648") or ("20130214887") or ("20120066873") or ("9588550") or ("10225637") or ("20160268729") or ("20190289382") or ("20120300383") or ("10003880") or ("10003881") or ("20190052739") or ("20130027867") or ("20170093079") or ("9973840") or ("20170094397") or ("20170094398") or ("20170094390") or ("20170245038") or ("20170094393") or ("20170264046") or ("20170094381") or ("10446948") or ("9769558") or ("8665045") or ("10397683") or ("10397682") or ("9883281") or ("20190289383") or ("9973845") or ("10009678") or ("9794673") or ("9967650") or ("20170094396") or ("9826301") or ("9883277") or ("20120068797") or ("20170093454") or ("20190289381") or ("20170094392") or ("10182282") or ("9883274") or ("9531119") or ("20160268730") or ("20170238087") or ("10097913") or ("20120069502") or ("9961433") or ("20170094399") or ("20170094394") or ("9967649") or ("20100225429") or ("8073324") or ("20170347182") or ("9326576") or ("9961431") or ("9883276") or ("9954571") or ("20160323006") or ("20170177037") or ("20190024683") or ("10203728") or ("20160003270") or ("20170094395") or ("20160240966") or ("20140043748") or ("20160320808") or ("20160202734") or ("9502819")).PN. or (("20130294020") or ("20140043741") or ("20140043121") or ("8953310") or ("9615476") or ("20150076185") or ("20150119114") or ("9848071") or ("20180103135") or ("8878637") or ("10104211") or ("9071672") or ("20180212455") or ("10401902") or ("20170062999") or ("10505386") or ("9653844") or ("10090877") or ("10404089") or ("9072352") or ("20170237460") or ("20160098016") or ("20160378072") or ("10050378") or ("20160094076") or ("20170257146") or ("10063009") or ("20130027862") or ("20120314354") or ("9753436") or ("20180337704") or ("20190386507") or ("9300344") or ("8531834") or ("9627130") or ("9660684") or ("9559741") or ("20160099741") or ("10396843") or ("20130334072") or ("20190072911") or ("20190278232") or ("20150111398") or ("8995126") or ("20140233167") or ("5112247") or ("20150270046") or ("20130217246") or ("20150171913") or ("8401219") or ("20160239047") or ("9172178") or ("9854343") or ("20080165982") or ("20100134964") or ("9276626") or ("9287657") or ("20080166007") or ("20160111815") or ("20170048604") or ("20130273752") or ("20170035170") or ("20180337467") or ("20170245040") or						

Petitioner Samsung Ex-1004, 0177

		("10433043") or ("20150117141") or ("20160204545") or ("8180093") or ("9312633") or ("20150117137") or ("9729791") or ("9815037") or ("9967646") or ("9625944") or ("9032130") or ("20190090045") or ("20140072312") or ("20180028991") or ("20080164934") or ("10313775") or ("10231044") or ("20120268878") or ("20180255389") or ("20170065947") or ("20190132665") or ("20180255388") or ("20150201723") or ("20090174990") or ("9118990") or ("10213756") or ("10165346") or ("20080166001") or ("20100254111") or ("7997906") or ("9555384") or ("9300081") or ("20150277491") or ("8311255") or ("20160058375") or ("20080166006") or ("9886006") or ("20160378070") or ("7762817") or ("20160378071") or ("20160378069") or ("5105095") or ("10054990") or ("20150227178") or ("9665125") or ("8853998") or ("9317076") or ("20180136613") or ("20170149171") or ("20140217862") or ("20130002193") or ("20160150861") or ("9584709") or ("20160241761") or ("9583871") or ("8915361") or ("20140355200") or ("20080166005") or ("10234828") or ("20150116926") or ("9019698") or ("8712071") or ("20170093087") or ("9941627") or ("20160040698") or ("20180248406")).PN. or (("9877549") or ("10264857") or ("20150318709") or ("20170085283") or ("20160040695") or ("9853507") or ("8867758") or ("20160037870") or ("20160191101") or ("20080164770") or ("9229494") or ("20180226747") or ("10085523") or ("9852844") or ("20070035917") or ("7715187") or ("9450634") or ("20120224710") or ("9819850") or ("9898048") or ("9900041") or ("9294830") or ("20190216178") or ("20160277649") or ("8185084") or ("20160259374") or ("7352567") or ("20190371504") or ("20170318375") or ("20170345536") or ("20150270058") or ("20120212063") or ("20180062454") or ("20070247800") or ("20080278899") or ("20160072327") or ("9634728") or ("20170205855") or ("20130326829") or ("20150102879") or ("7916467") or ("20100177476") or ("20150349847") or ("10192665") or ("20190296497") or ("9773601") or ("20140091686") or ("10511127") or ("20190053584") or ("9126237") or ("20180311795") or ("20140265765") or ("20140028243") or ("20180332445") or ("20150117139") or ("10312039") or ("20080163663") or ("9611881") or ("8650925") or ("20100194503") or ("20090126155") or ("20160040825") or ("20140263908") or ("10321279") or ("20160217953") or ("9689527") or ("20120021619") or ("9977460") or ("20100194375") or ("20130082840") or ("20160254837") or ("20190293232") or ("20170207042") or ("20180306380") or ("8248059") or ("9818559") or ("20190220059") or ("9324487") or ("9548785") or					

Petitioner Samsung Ex-1004, 0178

		("20170070076") or ("8963666") or ("20180242064") or ("20190283823") or ("20160037876") or ("20160215923") or ("20180324964") or ("9608475") or ("20150116927") or ("9894964") or ("20160102805") or ("20110028041") or ("20170256883") or ("10442367") or ("20180125178") or ("5128835") or ("20060098403") or ("10491725") or ("9869423") or ("10123593") or ("20120326819") or ("20180094769") or ("20130082919") or ("7942678") or ("20190132018") or ("20130082918") or ("20170371374") or ("9590352") or ("20120023597") or ("9825399") or ("10401905") or ("7826205") or ("20170070077") or ("20180309232") or ("8823477") or ("20130100601") or ("20190132019") or ("10454515") or ("10125921") or ("5226634") or ("9577467") or ("20130077236") or ("20190220065") or ("9778705") or ("9497697") or ("10381144") or ("20150311741") or ("9748689") or ("10485115") or ("20180241429")).PN. or (("20160127643") or ("20170068286") or ("9709111") or ("20080166907") or ("20180250557") or ("10389399") or ("20170083049") or ("20170106298") or ("9450446") or ("20180364769") or ("20170110229") or ("8711554") or ("8811648") or ("20170317533") or ("20150126934") or ("9901147") or ("20170364125") or ("20130157477") or ("5192832") or ("20170047767") or ("20160088880") or ("20140066128") or ("20060272725") or ("9943332") or ("20180298636") or ("10317953") or ("20170106300") or ("20120250928") or ("10065081") or ("10082840") or ("9252627") or ("20130033844") or ("9950267") or ("10372159") or ("7578628") or ("7798831") or ("9425543") or ("20150358439") or ("10184506") or ("9602639") or ("20140177139") or ("20140240085") or ("8794980") or ("8811032") or ("20160093979") or ("20150199858") or ("20180330859") or ("20170098916") or ("20160190736") or ("20160069371") or ("9628707") or ("20170216734") or ("20130082924") or ("9643096") or ("9761068") or ("20150195937") or ("9282662") or ("20060046792") or ("20080081505") or ("20160182826") or ("10164688") or ("20120004602") or ("10437359") or ("20190025889") or ("9445633") or ("20120029385") or ("20180295896") or ("9647755") or ("20180351393") or ("20180064224") or ("20180207539") or ("20180056306") or ("20140342579") or ("20180224897") or ("10206474") or ("10014624") or ("10049801") or ("20160261166") or ("9954330") or ("20160065702") or ("20140065847") or ("8029309") or ("8939773") or ("8882710") or ("20170070001") or ("20160091922") or ("20110178461") or ("9814995") or ("8435209") or ("20110031287") or ("8932256") or ("10238981") or ("20180108190") or					

Petitioner Samsung Ex-1004, 0179

		("20160064996") or ("20190238170") or ("20130005179") or ("9706026") or ("20130190683") or ("20170222359") or ("8798675") or ("9534852") or ("20160198838") or ("10345866") or ("10300497") or ("20180203482") or ("20170085020") or ("20150185771") or ("20120112552") or ("20180185060") or ("20180234127") or ("20150126047") or ("9905964") or ("9913526") or ("9946297") or ("20160309010") or ("20190217213") or ("20170150049") or ("20140131007") or ("20170264037") or ("20170177039") or ("8545247") or ("9927836") or ("9610405") or ("8104816") or ("10270484") or ("20190110567") or ("9787129") or ("9576409") or ("9768538") or ("4491791")).PN. or (("9086835") or ("10483614") or ("20130085705") or ("10390594") or ("10511341") or ("20180133871") or ("20150153765") or ("20180246548") or ("20180246547") or ("20080232071") or ("9961793") or ("9742085") or ("20140273546") or ("9946315") or ("20180091879") or ("9197011") or ("20190089395") or ("10248171") or ("20190235587") or ("10254805") or ("9064356") or ("10050658") or ("20130083477") or ("20190089037") or ("9787022") or ("20180091878") or ("20110272959") or ("20170308134") or ("9600029") or ("20190158136") or ("20190238728") or ("8031461") or ("10257608") or ("20170257147") or ("20160032952") or ("10298075") or ("20160069712") or ("20170250578") or ("20180366893") or ("9161484") or ("20180183622") or ("10322233") or ("9883610") or ("9553403") or ("20170157321") or ("8188851") or ("9829350") or ("9363904") or ("20140047677") or ("20180091901") or ("20170157322") or ("10350353") or ("20190282756") or ("20180085283") or ("20100277304") or ("10254802") or ("9559456") or ("4491792") or ("9267638") or ("20180213921") or ("9329295") or ("20130134291") or ("10197891") or ("20150214760") or ("20190198212") or ("8382059") or ("20040198245") or ("10236649") or ("20160126675") or ("20160020557") or ("9538675") or ("20180059512") or ("20190190193") or ("20100331059") or ("20190363565") or ("20190335868") or ("8960634") or ("20150163936") or ("20040239460") or ("20090061794") or ("20180091889") or ("20190110561") or ("20120199501") or ("20130048464") or ("9879596") or ("7003333") or ("20100242332") or ("20160329658") or ("9286024") or ("20170251313") or ("20130328825") or ("20170179661") or ("9843150") or ("20140070036") or ("20180088724") or ("20190057799") or ("20180087767") or ("10182623") or ("9702741") or ("9967653") or ("8978854") or ("20180091897") or ("20190348791") or ("20160084683") or ("8218306") or ("10425241") or ("10025352") or					

Petitioner Samsung Ex-1004, 0180

		("20110175601") or ("20190103751") or ("20180091894") or ("20180227661") or ("7841120") or ("20170235339") or ("10129667") or ("20160037897") or ("20160313669") or ("10298037") or ("9432490") or ("9930444") or ("9457730") or ("20030030342") or ("20130084921") or ("20150271961") or ("20130183000") or ("20190230434") or ("9733669") or ("20180054077") or ("9429940") or ("20160094090")).PN. or (("9588462") or ("20130187020") or ("9342073") or ("20130328914") or ("9035872") or ("10250783") or ("20190186857") or ("20180091888") or ("9974206") or ("20140144624") or ("20180091896") or ("20180227664") or ("20190346653") or ("9876266") or ("10123608") or ("9904501") or ("20160217896") or ("20160037896") or ("9964999") or ("20180217669") or ("10004142") or ("9682451") or ("20180013934") or ("10117504") or ("20150224941") or ("8947076") or ("20160037877") or ("9829655") or ("10377459") or ("20160301157") or ("20150318100") or ("10401982") or ("10458736") or ("20190230259") or ("20130050958") or ("20150221460") or ("20140152890") or ("20150083838") or ("10290440") or ("20070104340") or ("20190053610") or ("20130076597") or ("20160022374") or ("20190046993") or ("8847979") or ("20190228927") or ("20180281914") or ("9007157") or ("20170205847") or ("20170068276") or ("20170123348") or ("20160246248") or ("20060230297") or ("9755355") or ("9145666") or ("10020668") or ("20180088690") or ("9478339") or ("20140328621") or ("20180249079") or ("20170215293") or ("20130206942") or ("20150077372") or ("20190233075") or ("20170070801") or ("20160373870") or ("20180181361") or ("5933330") or ("10225640") or ("20170033567") or ("20130082585") or ("9469469") or ("9904209") or ("9417600") or ("20090059485") or ("20170269641") or ("9838085") or ("20160118179") or ("4027278") or ("10469635") or ("9291989") or ("20170150539") or ("20180218859") or ("20180237214") or ("9377807") or ("9447619") or ("20150300839") or ("20130100605") or ("20170300095") or ("20180187828") or ("20190141846") or ("20100156345") or ("9826302") or ("20180013229") or ("8576034") or ("20180063433") or ("20130169391") or ("20110253895") or ("20190291191") or ("7974662") or ("8762704") or ("7152440") or ("9883273") or ("20130176626") or ("20130083470") or ("20090088227") or ("20150359367") or ("10073499") or ("9729683") or ("20180364699") or ("20120154288") or ("9575555") or ("20180249078") or ("9787346") or ("10367300") or ("20190313025") or ("9948719") or ("10003333") or ("20180259285") or ("20180011390") or ("20160198824") or ("9019718") or ("10423155") or ("20150270900")						

Petitioner Samsung Ex-1004, 0181

		or ("20160266606") or ("20180217668") or ("9170608") or ("8242741") or ("20170222681")).PN. or (("9386872") or ("20170318376") or ("20160349748") or ("20140187057") or ("20090297136") or ("20150318655") or ("20100081377") or ("20150024809") or ("20180107247") or ("9930257") or ("9086836") or ("9317243") or ("20190158946") or ("10228208") or ("9882305") or ("20140062629") or ("20170011834") or ("20190036363") or ("20150179324") or ("8548541") or ("20080143954") or ("10348965") or ("8581739") or ("20150049426") or ("20130343025") or ("7645143") or ("20090147471") or ("10294016") or ("9827504") or ("20170170677") or ("10416537") or ("20110006611") or ("20130048463") or ("9836083") or ("9083111") or ("8564950") or ("20150007431") or ("20130342159") or ("8455826") or ("20190289716") or ("9501108") or ("10044232") or ("20190141854") or ("9518840") or ("20190137728") or ("9041347") or ("20080002355") or ("8866571") or ("10401590") or ("7845953") or ("20180245374") or ("10133308") or ("9419378") or ("20160091925") or ("20180013221") or ("20130077221") or ("9474345") or ("9118143") or ("8233948") or ("9497054") or ("20150362962") or ("20140209503") or ("20170220077") or ("20130164949") or ("20120281346") or ("9093234") or ("7641477") or ("9281109") or ("20080132302") or ("20130083464") or ("20160101741") or ("7583495") or ("20150236444") or ("20130309935") or ("10250064") or ("7517222") or ("20130113423") or ("10005611") or ("6595608") or ("20160377891") or ("20090176391") or ("10170851") or ("9899132") or ("6155126") or ("10465422") or ("20190296482") or ("9050932") or ("9090214") or ("20160094691") or ("7810750") or ("9461431") or ("9886032") or ("20160344136") or ("4756312") or ("20180315563") or ("4273976") or ("9690385") or ("20190074729") or ("20140345957") or ("7917028") or ("20170202598") or ("20040226424") or ("9116655") or ("20120082317") or ("10468919") or ("7577467") or ("20170040825") or ("20170138101") or ("10466510") or ("9569002") or ("20060230296") or ("20180062420") or ("20160198782") or ("20110051982") or ("20160015887") or ("20180136584") or ("20160015886") or ("20130088828") or ("10381881") or ("9917468") or ("8803701") or ("8688037") or ("20140078462") or ("20180073275") or ("20140254077") or ("20190074724") or ("9606375") or ("20180013271") or ("9597607") or ("20130120106") or ("7652888")).PN. or (("8373310") or ("20170227793") or ("8540363") or ("8967355") or ("8644519") or ("20120315864") or ("10036186") or ("9417678") or ("20160015911") or ("10248048") or ("20120282124") or ("8890369") or					

Petitioner Samsung Ex-1004, 0182

		("20180212358") or ("8467829") or ("20170149474") or ("20160015885") or ("20190131847") or ("20180245375") or ("20180220213") or ("20140072261") or ("20170179622") or ("20130048462") or ("20160015956") or ("20170092402") or ("20190192367") or ("20180059791") or ("20190074719") or ("20080252476") or ("20180013272") or ("10105149") or ("20160057879") or ("20190281715") or ("10431360") or ("20150237750") or ("20160015957") or ("20170070131") or ("8342325") or ("9831599") or ("20120211382") or ("9164246") or ("9329641") or ("20180234529") or ("20190310706") or ("20180136686") or ("7311526") or ("9693609") or ("20170196086") or ("20180077810") or ("10481417") or ("10389858") or ("20160015888") or ("20140077954") or ("10455306") or ("20150056847") or ("20130088130") or ("20180012710") or ("10082241") or ("20090252488") or ("20180077806") or ("9917937") or ("20130188312") or ("9992888") or ("20130048461") or ("20170366652") or ("20140227026") or ("9280084") or ("20180164537") or ("20190312421") or ("20170303026") or ("20140281633") or ("20080024964") or ("20170049973") or ("20160213414") or ("8526180") or ("9229675") or ("4025885") or ("20180169324") or ("9502873") or ("20160208580") or ("20140027317") or ("9246551") or ("20180206607") or ("8780548") or ("6517777") or ("20140045559") or ("9452255") or ("9380723") or ("20170312421") or ("20180252359") or ("9918395") or ("10165814") or ("20130092576") or ("10256568") or ("20120163754") or ("20170333620") or ("20070141860") or ("10303216") or ("9601286") or ("20120044081") or ("20170072135") or ("20150084357") or ("20130082955") or ("20170072136") or ("20180183916") or ("20150311011") or ("20170250563") or ("20180169323") or ("10474108") or ("20160284497") or ("20130083468") or ("20180169325") or ("20170086551") or ("9452256") or ("8769772") or ("8887890") or ("20190094811") or ("20180245373") or ("20160066460") or ("20160131358") or ("9778690") or ("20180186242") or ("8570737") or ("20180245372") or ("20110170256") or ("20190072999") or ("20170333621") or ("20140372940")).PN. or (("20130083558") or ("9549598") or ("20130077226") or ("10387020") or ("20150237748") or ("8497753") or ("10244630") or ("10268274") or ("9744291") or ("20110136351") or ("20190070358") or ("20180129078") or ("20190076597") or ("9722450") or ("20190290297") or ("9744290") or ("9925330") or ("9439314") or ("10133314") or ("9789245") or ("9785188") or ("20190074706") or ("9277661") or ("10376632") or ("9517299") or ("20120118773") or ("20160066459") or						

Petitioner Samsung Ex-1004, 0183

		("20070072442") or ("10376631") or ("9098069") or ("10172998") or ("8881882") or ("20180239431") or ("9692147") or ("8783457") or ("20190033917") or ("20150086210") or ("9931460") or ("9931459") or ("6367344") or ("10299554") or ("8531824") or ("20150090748") or ("20150220111") or ("9926953") or ("20180157401") or ("20150137978") or ("20170012661") or ("20130120459") or ("8973753") or ("10491041") or ("8087939") or ("9262900") or ("20100081473") or ("20170138763") or ("20160084434") or ("20160322745") or ("9548576") or ("20160048165") or ("10291059") or ("7351066") or ("20130175986") or ("10166327") or ("20140262847") or ("20160352385") or ("20140217863") or ("9822611") or ("7515405") or ("20190138073") or ("20150022324") or ("10172999") or ("20160006288") or ("9288922") or ("20190101960") or ("9125506") or ("10107646") or ("9107299") or ("20180327981") or ("20180028818") or ("20130043777") or ("7331793") or ("20160029844") or ("8393466") or ("9696752") or ("10070871") or ("9998166") or ("10340969") or ("9247661") or ("9423671") or ("9627163") or ("20170076885") or ("10429722") or ("9370279") or ("9899753") or ("10370872") or ("20140016217")).PN.				
L38	1	("20190215975").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:15
L39	4	(("20110101185") or ("20110228504") or ("20180130389") or ("8384616")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:36
L42	186	(("7742289") or ("20100014228") or ("20150238073") or ("10131280") or ("20070097618") or ("20070097619") or ("9782159") or ("20080151489") or ("20180256145") or ("20150018622") or ("7317613") or ("7606026") or ("10231607") or ("7499272") or ("9783114") or ("20150146000") or ("20190380566") or ("20120236152") or ("8908039") or ("20070097617") or ("20180029534") or ("20140239139") or ("7502226") or ("9492065") or ("9723976") or ("20140005486") or ("20180064316") or ("9615728") or ("9681796") or ("20140005489") or ("8882662") or ("20140005484") or ("20160100908") or ("20190096174") or ("20150141759") or ("9216068") or ("20180064317") or ("20140005487") or ("20140005485") or ("9936863") or ("9642606") or ("20180055348") or ("20180070804") or ("9492073") or ("9629523") or ("20140005488") or ("20180353059") or ("20180055502") or ("10022041") or ("20140005555") or ("20150272694") or ("20190046021") or ("20150197879") or ("20100134964") or ("7821495") or ("20070057914") or ("20140247612") or ("8934226") or ("20120268878") or ("9476575") or ("9588550")	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:39

Petitioner Samsung Ex-1004, 0184

		or ("9538675") or ("20090065667") or ("8960634") or ("20100155265") or ("20070247800") or ("20170251558") or ("20140125875") or ("20150163936") or ("9924603") or ("8171761") or ("20120199501") or ("8313072") or ("20140171843") or ("20130271940") or ("9655267") or ("20180279490") or ("20070257178") or ("20080000477") or ("20090257603") or ("10098246") or ("20180228687") or ("20100193650") or ("7497412") or ("20170112707") or ("20150227267") or ("20110315844") or ("20070257181") or ("7891624") or ("20110108692") or ("6215518") or ("8460223") or ("9702500") or ("7922139") or ("20160255731") or ("9792758") or ("20160005266") or ("7988119") or ("9968511") or ("20160001188") or ("8297578") or ("20090192421") or ("8582316") or ("8194133") or ("20130063920") or ("20060164230") or ("20130086797") or ("9247683") or ("8462103") or ("20160202734") or ("20160320808") or ("7370983") or ("20080266389") or ("20170343150") or ("20050200696") or ("6604831") or ("20190102980") or ("9939100") or ("7789756") or ("20050264543") or ("20190371117") or ("8964298") or ("20110031287") or ("10395466") or ("20050146844") or ("20160005262") or ("20110002110") or ("20130127980") or ("20130235282")).PN. or (("20060205504") or ("20180141499") or ("10220797") or ("9983620") or ("20090243970") or ("20070252489") or ("20050202879") or ("8542499") or ("9082325") or ("20080156949") or ("20170086309") or ("10359145") or ("20060119539") or ("8400371") or ("20120224347") or ("20130278631") or ("8075384") or ("7871048") or ("8687352") or ("10495255") or ("20170006727") or ("6967632") or ("9185782") or ("20180038543") or ("7542012") or ("9267638") or ("20130134291") or ("20190075944") or ("20150220300") or ("20100066640") or ("20160210886") or ("20190166704") or ("9945509") or ("8382059") or ("9506281") or ("20090269943") or ("20050127260") or ("8342857") or ("10485362") or ("10290177") or ("20110136350") or ("20070197896") or ("20160005261") or ("5407519") or ("7963773") or ("20140203727") or ("8190238") or ("20160062416") or ("7175152") or ("20190197666") or ("20170159876") or ("9845816") or ("20190206183") or ("20190295459") or ("20190206182") or ("20170322634") or ("20130107137")).PN.				
L43	4622	G06F1/1601.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:45
L44	4858	G06F3/147.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:45

Petitioner Samsung Ex-1004, 0185

L45	775	G09F9/3026.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
L46	429	G09F7/20.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
L47	5254	345/1.1,1.3,33,55.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
L48	2087	248/917,919,920,921,922,923.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
L49	215	361/679.04.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
L57	215	361/679.04.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:52
L58	81	49 AND WALL	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:52
L59	57	("20030039094" | "20030090866" | "20030154673" | "20040212745" | "20060238967" | "20060243872" | "20070007411" | "20070170325" | "20070252060" | "20080123284" | "20090184221" | "20100171014" | "20110002129" | "4657316" | "4866530" | "4919287" | "4920458" | "5299017" | "5321579" | "5348324" | "5351176" | "5579597" | "5636101" | "5786995" | "5805117" | "6054968" | "6359775" | "6594078" | "6688518" | "6692093" | "6841790" | "6883563" | "6989800" | "7019786" | "7176380" | "7334766" | "7408596" | "7430111" | "7438269" | "7510156" | "7513469" | "7546745" | "7661643" | "7663706" | "7712717" | "7719480" | "7780124" | "7866622" | "7869201" | "7891622" | "D390143").PN. OR ("8313072").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:54
L60	2443	g06f1/1647.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:59
L61	11517	g06f3/147,1446,1423.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:59
L62	775	g09f9/3026.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:59
L66	354	(("20190364656") or ("20190311968") or ("20060232940") or ("10091894") or ("20170086313") or ("20140072855") or ("20140087231") or ("20150359107") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:24

Petitioner Samsung Ex-1004, 0186

		("8317525") or ("20110256749") or ("20070175656") or ("5218516") or ("20170006711") or ("10098240") or ("7807931") or ("20180302999") or ("20110134610") or ("20150211718") or ("7911051") or ("20110170258") or ("20160212835") or ("20150173227") or ("8477502") or ("10015875") or ("4698729") or ("20180359874") or ("20180352666") or ("9237679") or ("10462915") or ("20130314876") or ("20170082466") or ("20110017497") or ("8344258") or ("20190230804") or ("20160088771") or ("9930809") or ("6851598") or ("9060454") or ("20120057320") or ("20030038157") or ("20100226098") or ("8339789") or ("20040028315") or ("20080094805") or ("8547701") or ("6661664") or ("20020172010") or ("20090056980") or ("20100230151") or ("6504722") or ("7746653") or ("20180303009") or ("20090168360") or ("8964392") or ("7697300") or ("6929975") or ("20080144290") or ("4665467") or ("7995351") or ("20150098193") or ("8366297") or ("20010046121") or ("20120182731") or ("20040048414") or ("7095614") or ("20090161319") or ("5712765") or ("20060067054") or ("6552903") or ("7775708") or ("20050231918") or ("20090052146") or ("7215551") or ("20180132353") or ("20130208425") or ("20120127736") or ("9769945") or ("20080212647") or ("20150043177") or ("10085345") or ("10237979") or ("20150208541") or ("7804030") or ("20180177058") or ("20020003692") or ("20080037229") or ("20190045628") or ("8089768") or ("5510958") or ("9699929") or ("20190324372") or ("20180376597") or ("20070107511") or ("20060076686") or ("8811019") or ("20130044436") or ("20130329370") or ("20120222808") or ("6185100") or ("9345139") or ("7373816") or ("9433130") or ("20120040541") or ("20150257309") or ("8579637") or ("9241424") or ("6459585") or ("20120240396") or ("20140038474") or ("20180151968") or ("20090213552") or ("20080293261") or ("7780469") or ("20110255850") or ("9532460") or ("20110255250") or ("9472486") or ("10366939") or ("20150022976") or ("9763344") or ("20090301765") or ("7583504") or ("7179140") or ("20030067754") or ("6757171") or ("20080266808") or ("20160172267") or ("20160100505") or ("20180203490")).PN. or (("20150243937") or ("20180114742") or ("20160021730") or ("20140362535") or ("6225559") or ("10120424") or ("20040266244") or ("10034412") or ("9756717") or ("8253026") or ("20130121759") or ("20080043441") or ("20140307403") or ("20030227760") or ("8789271") or ("5276584") or ("20110100598") or ("7609527") or ("6985366") or ("20110069448") or ("20060105495") or ("20190057923") or ("20190335577") or ("9107295") or ("20190335621") or ("5901036")						

Petitioner Samsung Ex-1004, 0187

		or ("6674344") or ("5402313") or ("20160353616") or ("9408291") or ("20160128208") or ("7299546") or ("9642288") or ("20180124956") or ("20130314878") or ("8792242") or ("20130146352") or ("20020137391") or ("9562548") or ("9265148") or ("20110044005") or ("20060218782") or ("6088228") or ("20150029669") or ("20190335576") or ("20140113171") or ("10014232") or ("20150216038") or ("20070227761") or ("9532459") or ("8488324") or ("8076586") or ("20110051384") or ("8837141") or ("9642266") or ("20150096800") or ("20100202110") or ("8468691") or ("20090217519") or ("20160165727") or ("5999407") or ("4994937") or ("9531094") or ("7115821") or ("20140104786") or ("20160064841") or ("20150043169") or ("9516748") or ("20150107882") or ("9706694") or ("5528461") or ("8087943") or ("10057989") or ("20130301231") or ("10426040") or ("20140347821") or ("20140104776") or ("4953059") or ("20190234602") or ("7754977") or ("20060120060") or ("5305185") or ("20160044794") or ("20110100681") or ("20180359860") or ("20090194884") or ("20150092350") or ("9568259") or ("5943213") or ("7217043") or ("20120037403") or ("20140102626") or ("7450400") or ("7557442") or ("8164904") or ("20090040727") or ("7237724") or ("6921973") or ("20040140554") or ("20140240927") or ("20140182898") or ("7172347") or ("6507108") or ("20080192445") or ("7808785") or ("4441140") or ("6230397") or ("20190150272") or ("20050230820") or ("9500793") or ("20090097208") or ("8817458") or ("9338895") or ("20170354036") or ("9746879") or ("9912211") or ("20060072881") or ("8998454") or ("20080253089") or ("20150177779") or ("20060226240") or ("20140104775") or ("20090190310") or ("8632346") or ("20150109812") or ("20140268780") or ("20090290301") or ("20070131349") or ("8885343") or ("9706668") or ("6045396")).PN. or (("20100000655") or ("8902606") or ("6606254") or ("20130078828") or ("20190035709") or ("5812374") or ("7881059") or ("9801286") or ("5483420") or ("20140104766") or ("6222732") or ("20160227652") or ("9041196") or ("20130135883") or ("20080198557") or ("5966288") or ("20080151487") or ("5883784") or ("5986886") or ("20020118527") or ("20130141913") or ("8861220") or ("7768785") or ("20140035118") or ("5107404") or ("20120108083") or ("5321582") or ("8630092") or ("9585280") or ("20120176764") or ("20180269828") or ("20110205711") or ("20080017174") or ("9620873") or ("20160057882") or ("20110036627") or ("7483271") or ("9991435") or ("7645998") or ("20140106578") or ("20150124411") or ("7575443") or ("20070211442") or ("8072768") or ("6820798") or ("6042388") or						

Petitioner Samsung Ex-1004, 0188

		("20160043485") or ("20100163210") or ("7542291") or ("8436711") or ("20090314522") or ("20090122494") or ("20050124224") or ("8834182") or ("9418930") or ("20110234356") or ("20070297145") or ("20090041994") or ("20070212920") or ("10212802") or ("20140000941") or ("9913376") or ("7520781") or ("4373259") or ("4508163") or ("6923580") or ("7796399") or ("20090166339") or ("20070034807") or ("6035513") or ("4330812") or ("4912601") or ("6538196") or ("20140104811") or ("20080207020") or ("9271399") or ("6243269") or ("9736968") or ("7397662") or ("20180115027") or ("9883612") or ("4222090") or ("7666003") or ("9253888") or ("5783881") or ("10270138") or ("20180007779") or ("6038130") or ("20090002959") or ("20090168363") or ("4809134") or ("8966747") or ("20130148320") or ("20100202114")).PN.				
L67	573	((("ROBIN") near3 ("Hermann")) OR (("HEMPEN") near3 ("Martin")) OR (("MAIER") near3 ("Thomas"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
L68	128	((("NAKANO") near3 ("Yuzo"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
L69	65	((("ALVA") near3 ("Samarth")) OR (("VARADARAJAN") near3 ("Krishnakumar")) OR (("CHANNAIAH") near3 ("Yogesh")) OR (("PILLAI") near3 ("Prakash")) OR (("PAWAR") near3 ("Sagar")) OR (("TULJAPURKAR") near3 ("Aneesh")) OR (("N") near3 ("Raghavendra"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
L70	116	((("CHANG") near3 ("Cheng-Wen")) OR (("TSAI") near3 ("CHEN-YU")) OR (("WANG") near3 ("CHUN-YUAN")) OR (("LEE") near3 ("CHENG-YI"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
L71	299	((("CHEN") near3 ("Chao-Jung")) OR (("LIU") near3 ("Kun-Pei"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
L72	15375	G06F1/20,203,206.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:35
L73	8481	H05K1/0207,181.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:36
L74	1847	H05K3/303.CPC.	US-PGPUB; USPAT;	OR	OFF	2019/12/23 13:36

Petitioner Samsung Ex-1004, 0189

			USOCR			
L75	1307	H05K7/20472,2049,20509.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:36
L79	7240	361/704,707,711,709.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:37
L80	167	66 AND FILM	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:38
L81	56	80 and (PCB or (circuirt near board))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:38
L82	165	80 and (PCB or (circuit near board))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:38
L83	89	82 and (heat near conduct$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:38
L84	89	83 and component$1	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:39
L85	3	"20150220109"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:53
L86	1	"20160070393"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:53
L87	55	(US-20160370828-$ or US-20190205596-$ or US-20120242635-$ or US-20110267298-$ or US-20130177302-$ or US-20180126704-$ or US-20150362333-$ or US-20140145515-$ or US-20160141884-$ or US-20160001663-$ or US-20130281155-$ or US-20130236192-$ or US-20170063102-$ or US-20170090516-$ or US-20180107253-$ or US-20140021909-$ or US-20120113576-$ or US-20100014235-$ or US-20080258679-$ or US-20070035917-$ or US-20170060186-$ or US-20050168937-$ or US-20190013687-$ or US-20180358826-$ or US-20180323636-$ or US-20180109148-$).did. or (US-20180098366-$ or US-20140152235-$ or US-20140059263-$ or US-20130175986-$ or US-20150077438-$ or US-20190072912-$ or US-20170042477-$ or US-20160287102-$ or US-20160139702-$ or US-20160116941-$ or US-20150220109-$ or US-20130287622-$ or US-20130196169-$ or US-20160061726-$ or US-20160070393-$).did. or (US-9632530-$ or US-6593859-$ or US-5864708-$ or US-5793606-$ or US-9442526-$ or US-9107027-$ or US-9436220-$	US-PGPUB; USPAT	OR	OFF	2019/12/23 13:54

Petitioner Samsung Ex-1004, 0190

		or US-6151645-$ or US-10039147-$ or US-6553667-$ or US-5526867-$ or US-5163499-$ or US-4120930-$ or US-9582749-$).did.				
L88	13	87 and ink	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:54
L89	19	87 and (ink or color)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:54
L90	16	89 and (fill$4)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:54
L91	4	85 86	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 14:00
S1	1	"9635530".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:36
S2	1	"9870030".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:36
S3	2	S1 S2	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:36
S4	267	haughton.xa.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S5	1363	haughton.xp.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S6	1630	S4 S5	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S7	988	g06f1/1669.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S8	25	S6 and S7	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S9	415	S7 and (laptop or (lap near top))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:42
S10	219	S7 and (laptop or (lap near top))	USPAT	OR	OFF	2019/12/05 00:43
S11	1	"9632530".pn.	US-	OR	OFF	2019/12/05

Petitioner Samsung Ex-1004, 0191

			PGPUB; USPAT; USOCR			00:51
S12	4772	349/58.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:38
S13	23117	345/173.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:39
S14	15281	g06f1/20-206.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:43
S15	14127	g06f1/18-189.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:43
S16	203	S6 and S14	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:43
S17	248	S6 and S15	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:43
S18	1	"10372167".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:19
S19	1	"10095274".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:25
S20	1	"20040246666"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:27
S21	3631	g06f1/187.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:55
S22	98	S6 and S21	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:55
S23	1	"10228734".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 03:08
S24	2	"20080278856"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 03:14
S25	4	("20150169006" | "20160370828" | "20160164852" | "20160370828" | "20160195901").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:00

Petitioner Samsung Ex-1004, 0192

S26	2	"20160370828"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:01
S27	5	S25 S26	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:01
S28	2	"20180164852"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:01
S29	7	S27 S28	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:01
S30	218	((("LARGE") near3 ("Timothy")) OR (("GHIONI") near3 ("Lincoln")) OR (("BABU") near3 ("Sarat")) OR (("LONGBOTTOM") near3 ("Matthew")) OR (("CARTER") near3 ("Duncan"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/09 09:07
S31	161	(("20190173041") or ("10143080") or ("9823693") or ("9560751") or ("20160065920") or ("20180052486") or ("20170238412") or ("20160037625") or ("10289163") or ("10201089") or ("20190305237") or ("20170235341") or ("7349203") or ("20150378391") or ("9971382") or ("9848494") or ("20180004252") or ("20170034918") or ("20180054897") or ("20160266672") or ("7136280") or ("6819550") or ("7773371") or ("20170060188") or ("10495941") or ("20190265758") or ("20190207130") or ("20160374228") or ("10345858") or ("20180062094") or ("20180219165") or ("9756757") or ("20040233623") or ("10411205") or ("20180097199") or ("20170075464") or ("10418572") or ("20170162821") or ("10121988") or ("20160179229") or ("20170371465") or ("20170287385") or ("9535522") or ("20180335679") or ("9766737") or ("9983714") or ("20070014084") or ("20190317550") or ("20040228080") or ("7145768") or ("10254795") or ("20160327987") or ("20170160769") or ("20070201197") or ("20050041048") or ("9874904") or ("20160336523") or ("20160181345") or ("9490312") or ("7218510") or ("20130271940") or ("20030086240") or ("20050088814") or ("9655267") or ("20160093685") or ("9812659") or ("7209344") or ("20040218352") or ("9425418") or ("20050088812") or ("20100039350") or ("20180090713") or ("20040257755") or ("20170323934") or ("20190075669") or ("20160240602") or ("20160183364") or ("10068960") or ("20160268546") or ("20170194411") or ("20160093644") or ("9748322") or ("20160155788") or ("9847506") or ("7046509") or ("10229963") or ("20160172623") or ("9349758") or ("20180062090") or ("9627463")	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:08

Petitioner Samsung Ex-1004, 0193

		or ("D487893") or ("7142415") or ("D489370") or ("9935281") or ("9379355") or ("20060176655") or ("20170179423") or ("7035092") or ("20170263890") or ("20170179215") or ("9818974") or ("20180123060") or ("20130279088") or ("9793334") or ("20070046594") or ("20190296259") or ("7965258") or ("9985086") or ("10186684") or ("20050036283") or ("20110018785") or ("20160099433") or ("D486486") or ("7289315") or ("9910458") or ("7042714") or ("20180092166") or ("8724304") or ("7738245") or ("10182474") or ("9558685") or ("20170290106") or ("9698375") or ("20130169515") or ("20160111028") or ("10103179") or ("20190082528") or ("20170301267") or ("20160048169") or ("20180197928")).PN. or (("9980326") or ("20170192460") or ("10212811") or ("20160174304") or ("20190268455") or ("10154562") or ("9274559") or ("10199445") or ("10319265") or ("6755533") or ("20100315575") or ("20170062485") or ("20180076236") or ("9706607") or ("20160181346") or ("6710754") or ("20030098832") or ("20130081756") or ("20110121151") or ("20070052617") or ("9759420") or ("9780157") or ("9684339") or ("8274623") or ("20190081276") or ("20190152129") or ("10304869") or ("10281956") or ("20160035759") or ("20160181572") or ("10245776")).PN.				
S32	1559	g06f1/182.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:31
S33	14173	g06f1/18-189.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:31
S34	1062	g11b33/14,022.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:32
S35	1744	h05k5/069,026,006,0047,0043,0039,0034.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:33
S36	11330	G06F1/169,1698,16847,1643,1662.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:39
S37	34285	G06F3/03547,044.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:39
S38	3747	H05K5/0226,0239,03.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:39
S39	13718	G06F1/169,1698,1684,1643,1662.CPC.	US-PGPUB;	OR	OFF	2019/12/09 11:41

Petitioner Samsung Ex-1004, 0194

			USPAT; USOCR			
S40	3050	((("CHANG") near3 ("Ching")) OR (("MCKITTRICK") near3 ("Allen"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/09 11:41
S41	18	(("20110151780") or ("20170317709") or ("20160006488") or ("9231673") or ("20190369674") or ("20180210508") or ("10429901") or ("6967280") or ("20040105411") or ("7580395") or ("20170179996") or ("9692478") or ("20180210515") or ("20180210514") or ("20170310002") or ("10198044") or ("20190288388") or ("10156871")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:45
S42	9	("20020080297" | "20140092532" | "20140146452" | "20150241916" | "20150316090" | "20160266619" | "6744622" | "8066308" | "9461390").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:29
S43	31883	G06F1/1626,1656,1601,1633,1637,1656,163.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:33
S44	214	((("LARSEN") near3 ("Denica")) OR (("HO") near3 ("Wing"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/09 12:34
S45	268	((("SEO") near3 ("Jae-Il")) OR (("KIM") near3 ("Ki-Jae")) OR (("KIM") near3 ("Ji-Hoon")) OR (("LEE") near3 ("Dong-Ik"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/09 12:34
S46	0	g06f1/1626,1635,1658,1633	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:52
S47	16483	g06f1/1626,1635,1658,1633.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:52
S48	7826	361/679.21-679.3,679.55,679.56.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:52
S49	10564	455/575.1-575.9.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:53
S50	5977	349/56-60.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:53
S51	1	("20170003716").PN.	US-PGPUB; USPAT;	OR	OFF	2019/12/09 12:56

Petitioner Samsung Ex-1004, 0195

			USOCR			
S52	11	(("20190025880") or ("20100044553") or ("20100044815") or ("20130177302") or ("20180321571") or ("20140176779") or ("8684613") or ("10018891") or ("20180126704") or ("20190158641") or ("20190144332")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:00
S53	12	S51 S52	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:13
S54	12	S53 and camera	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:13
S55	11	S53 and (glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S56	10	S53 and (cover near2 glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S57	10	S53 and (cover$3 near2 glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S58	11	S54 and S55	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S59	10	S54 and S56	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S60	10	S54 and S57	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S61	11	S58 S59 S60	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S62	1	S61 and (curv$4 near2 display$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S63	1	S61 and planarizat$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:16
S64	3	S61 and wavelength	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:18
S65	2	S61 and (refract$3 near3 index)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:19

Petitioner Samsung Ex-1004, 0196

S66	3	S64 S65	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:19
S67	5	S61 and (glass near4 (coat$3 or cur$3 or polymer))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:26
S68	4	S61 and (glass near3 (coat$3 or cur$3 or polymer))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:26
S69	5	S67 S68	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:27
S70	17161	g06f1/1626,1643,1605.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:32
S71	17656	g06f3/0412.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:32
S72	209	S70 and planarizat$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:32
S73	1309	S71 and planarizat$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:32
S74	260	S73 and camera	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S75	118	S72 and camera	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S76	22	S74 and (cover near2 glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S77	25	S75 and (cover near2 glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S78	38	S76 S77	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S79	7	S78 and (planarizat$3 near3 material$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S80	31	S78 not S79	US-PGPUB; USPAT;	OR	OFF	2019/12/09 13:37

Petitioner Samsung Ex-1004, 0197

			USOCR			
S81	7	(US-20160370828-$ or US-20190205596-$ or US-20120242635-$ or US-20110267298-$ or US-20130177302-$ or US-20180126704-$).did. or (US-9632530-$).did.	US-PGPUB; USPAT	OR	OFF	2019/12/09 14:07
S82	1	S81 and polishing	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:07
S83	2	S81 and curv$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:08
S84	51	S53 S54 S55 S56 S57 S58 S59 S60 S61 S62 S63 S64 S65 S66 S67 S68 S69 S76 S77 S78 S79 S80 S81 S82 S83	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:10
S85	2	S84 and (curv$3 near display)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:11
S86	22595	G06F1/1626,1605,1613,1637,1643,1686.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:19
S87	17656	G06F3/0412.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:19
S88	13803	G06F1/1626.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:20
S89	602	S88 AND (COVER NEAR GLASS)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:20
S90	0	S89 AND (curved near dispay)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:20
S91	0	S88 AND (curved near dispay)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:20
S92	24	S89 AND (curved near display)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:21
S93	1	"20180126704"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:30
S103	9044	g06f1/1632.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:54
S104	6987	h02j50/80.cpc.	US-	OR	OFF	2019/12/10

Petitioner Samsung Ex-1004, 0198

			PGPUB; USPAT; USOCR			20:55
S105	755	S104 and (dock$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:58
S106	755	S104 and (dock$4)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:58
S107	719	S106 and (tablet or computer or ((notebook or portable or laptop or (lap near top) near computer) or laptop or (lap near top)))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:58
S108	564	S107 and (charg$3 near2 (wireless or (wire near less)))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:59
S109	544	S108 and (ports or (input$1 and output$1) or peripheral$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:00
S110	0	S109 and (high near speeed)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:01
S111	204	S109 and (high near speed)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:01
S112	225	(("20180307275") or ("20190237985") or ("9401621") or ("20150263565") or ("9729003") or ("20170070076") or ("9608475") or ("20170070077") or ("9577467") or ("9444276") or ("20140191713") or ("20130205060") or ("20150008876") or ("20150084583") or ("9831030") or ("20130307468") or ("9263910") or ("20150222138") or ("9325187") or ("20160141884") or ("9979236") or ("20160118179") or ("20090001929") or ("20190158136") or ("20160006291") or ("20120294463") or ("20160190853") or ("8559659") or ("7825625") or ("9806555") or ("20140347008") or ("20180198312") or ("9461479") or ("20150011160") or ("10305316") or ("9742214") or ("20160043590") or ("9088305") or ("20180054077") or ("9444289") or ("20130062961") or ("20150318898") or ("9293929") or ("20140191717") or ("20170274778") or ("9319109") or ("9969282") or ("20150008756") or ("20160164308") or ("20190058332") or ("9825672") or ("20120299389") or ("10135260") or ("9094059") or ("20160134149") or ("20080119241") or ("9660486") or ("20170090516") or ("9300147") or ("10084338") or ("20130002038") or ("20160372961") or ("20150326053") or ("20190207423") or ("8170623") or ("20160308397") or ("20180074547") or ("20160001663") or ("20190363565") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:02

Petitioner Samsung Ex-1004, 0199

		("10256666") or ("10461581") or ("10122184") or ("20180069423") or ("20130057078") or ("20160079801") or ("10333333") or ("20140021909") or ("9793744") or ("20160141910") or ("9306401") or ("9722540") or ("20120139484") or ("20140368053") or ("9821672") or ("20150035474") or ("9819216") or ("9124105") or ("20140153491") or ("20110057607") or ("20150115885") or ("20180358826") or ("20160072327") or ("20190310685") or ("20160233728") or ("8928284") or ("20150137746") or ("9503178") or ("10164482") or ("9287732") or ("9252629") or ("20150095533") or ("9961433") or ("9826301") or ("9794673") or ("9967650") or ("9577448") or ("9883277") or ("20180323636") or ("10135498") or ("20170093454") or ("20160329755") or ("20180131847") or ("20150078461") or ("20170347182") or ("20190222052") or ("20160134334") or ("9184802") or ("20180109148") or ("10193398") or ("20190348868") or ("20160285299") or ("20160172895") or ("20180262057") or ("20140009109") or ("20160372960") or ("20150130409") or ("9287039") or ("9997951") or ("20180098366")).PN. or (("20130175986") or ("20170305280") or ("20150091508") or ("20150162785") or ("20190074867") or ("10411517") or ("20180262055") or ("10000133") or ("20150188352") or ("20170093224") or ("20150188356") or ("20170141604") or ("10277056") or ("20150091496") or ("9843226") or ("20140266021") or ("20170201123") or ("9793739") or ("20190222062") or ("9769558") or ("20170018954") or ("20190312460") or ("9923408") or ("20180109147") or ("20130005252") or ("20170094399") or ("20190081518") or ("20180375390") or ("20180337548") or ("10291068") or ("10483806") or ("9627918") or ("10230278") or ("10039147") or ("20170117757") or ("9166654") or ("10320245") or ("20160276865") or ("20170207663") or ("20170264341") or ("20170094396") or ("10097913") or ("9397505") or ("10355515") or ("9692248") or ("9843214") or ("9967649") or ("20140145515") or ("10079513") or ("10286862") or ("20160241086") or ("20140242911") or ("10063107") or ("20170094392") or ("20140354223") or ("9883274") or ("10182282") or ("10003880") or ("9692487") or ("20140354222") or ("20170094394") or ("20170094397") or ("20190013687") or ("20170372836") or ("10097041") or ("8437695") or ("10212506") or ("10397683") or ("20120153894") or ("20180115816") or ("9967648") or ("20190027965") or ("20170093453") or ("10068704") or ("10009678") or ("20190165619") or ("20190289382") or ("20160072338") or ("20190023141") or ("9961431") or ("20170094381") or ("20160181849") or ("9883276") or ("20170094398") or ("20190289383") or					

Petitioner Samsung Ex-1004, 0200

		("10333355") or ("9559754") or ("20180090998") or ("9379780") or ("10361591") or ("9413175") or ("10003881") or ("20170094393") or ("8527688") or ("20170094395") or ("20190044388")).PN.				
S113	186	S112 not S111	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:02
S114	6	(("20180107253") or ("20140021909") or ("20140036437") or ("20170090516") or ("20170063102") or ("20160320867")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:28
S115	1	"20170090516"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:31
S116	71	("20070217135" | "20130039000" | "20130329360" | "6612668" | "6643124" | "7471506" | "9124105" | "20100271771" | "20040057204" | "20060250764" | "6421235" | "6593859" | "6707666" | "6944012" | "20070101039" | "20090295328" | "8593804" | "20060056143" | "6256192" | "20090179501" | "20140133080" | "7916467" | "20050168937" | "20140273590" | "5719799" | "6093039" | "6430038" | "20080258679" | "20080304688" | "20100081473" | "20120113576" | "20150036275" | "20140098485" | "20140177162" | "20140185220" | "20140312202" | "5317691" | "5793606" | "6654234" | "20070035917" | "20140355190" | "20150198980" | "20010022719" | "7061472" | "8995121" | "9223344" | "20110210617" | "8688037" | "20090141439" | "20140334086" | "20140347802" | "9535456" | "20030128505" | "20100277856" | "20150277491" | "6006243" | "7349201" | "8199476" | "8937803" | "20060013411" | "20170060186" | "5030128" | "5175672" | "6781823" | "6989987" | "7667959" | "20100014235" | "20120188687" | "20130170126" | "7643283" | "9041347").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:32
S117	43	S116 and wireless	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:33
S118	28	S116 not S117	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:39
S119	14	("6856506" | "6952343" | "5455466" | "5864708" | "5434964" | "D321179" | "20060159158" | "20040233930" | "7052296" | "D322063" | "20040145342" | "20050047055" | "20050083012" | "7054145").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:46
S120	120	("4734874" | "5127050" | "5142446" | "5209583" | "5227953" | "5237663" | "5245169" | "5283714" | "5375226" | "5430567" | "5465038" | "5493542" | "5546211" | "5559501" | "5561446" | "5598539" | "5600471" | "5617236" | "5628055" | "5632020" | "5668566" | "5668977" | "5675524" | "5682379" | "5687717" | "5699226" | "5701302" | "5724168" | "5794164").PN. OR ("5864708").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:56

Petitioner Samsung Ex-1004, 0201

S121	94	S120 and wireless	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:59
S122	26	S120 not S121	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:00
S123	2	"20180098366"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:30
S124	27	("20020119800" | "20040092249" | "20110131358" | "20110136550" | "20130084800" | "20130175986" | "20130210347" | "20130219098" | "20130288600" | "20130324035" | "20140059263" | "20140152235" | "20140349578" | "20150006395" | "20150318898" | "20160150354" | "20160285299" | "7825625" | "8254992" | "8255720" | "8805456" | "8825118" | "8947042" | "9020436" | "9496925" | "9627913" | "9755437").PN. OR ("10039147").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:31
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Petitioner Samsung Ex-1004, 0202

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S136	4340288	S135 and high speed	US-	OR	OFF	2019/12/10

Petitioner Samsung Ex-1004, 0203

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S139	8	S138 AND CONTROL$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 23:16
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Petitioner Samsung Ex-1004, 0204

			PGPUB; USPAT; USOCR			00:53
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S164	11	S147 and (sticker or tape or glue or adhesive)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:38

Petitioner Samsung Ex-1004, 0205

S165	4	S153 and (filler$1 with color$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:42
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S171	5	S170 and ink$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:45
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S177	2230	S176 and display$1	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 14:12
S178	1237	S176 and ((multiple or plurality) near3 display$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 14:12
S179	237	g09f9/3023.cpc.	US-PGPUB; USPAT;	OR	OFF	2019/12/11 14:24

Petitioner Samsung Ex-1004, 0206

			USOCR			
S180	9	("20050193930" | "20090296321" | "20140160636" | "20150116911" | "20160042896" | "20160156163" | "20160233651" | "20160242315" | "6149254").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 00:51
S181	15	("20030168433" | "20050193930" | "20090296321" | "20120218067" | "20130137358" | "20140097734" | "20140118887" | "20140160636" | "20150116911" | "20150372463" | "20160042896" | "20160156163" | "20160233651" | "20160242315" | "6149254").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 00:54
S182	15	S180 S181	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 00:54

12/ 23/ 2019 2:39:34 PM
C:\ Users\ ahaughton\ Documents\ EAST\ Workspaces\ newest search 12_10.wsp

Petitioner Samsung Ex-1004, 0207

Bibliographic Data

Application No: 15/835,573

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /ANTHONY M HAUGHTON/ Examiner's Signature | Initials

Title: WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/08/2017	361	2835	MDJN.3277.USC2
RULE			

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Tomi Hautala Oulu, FINLAND

Markku Koskela Oulu, FINLAND

Kari Kivelä Helsinki, FINLAND

CONTINUING DATA

This application is a CON of 14826360 08/14/2015 PAT 9861314

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

12/28/2017

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/835,573	Filing Date 12/08/2017	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) 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 $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ 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	03/27/2020	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 $50 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $230 =	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".	/ANITA 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(s):	Oura Health Oy	ART UNIT:	2835
SERIAL NUMBER:	15/835,573	CONF. NO.:	7420
FILING DATE:	8 December 2017	EXAMINER:	Anthony M. Haughton
TITLE:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF		
ATTORNEY REFERENCE NO.:	MDJN.3277.USC2	JOUZEN004_CON1	

Mail Stop Amendment
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

I. Introduction

This is responsive to the Non-Final Office Action mailed 31 December 2019.

The Claims are presented on page 2.

Remarks begin on page 6.

Petitioner Samsung Ex-1004, 0210

II. The Claims

The following listing of claims will replace all prior versions and listings of claims in the application:

1. (Original) A wearable electronic device comprising:

- a body part made of a non-ceramic material, having an inner surface and an outer surface, wherein at least one cavity having a depth is arranged on the inner surface of the body part,

- an electronic part arranged in said at least one cavity, which electronic part has a thickness that is less than the depth of the at least one cavity, and

- a coating made of a moldable filler material on the inner surface of the body part, covering the electronic part and the at least one cavity.

2. (Original) The wearable electronic device according to claim 1, wherein the non-ceramic material is a titanium material.

3. (Original) The wearable electronic device according to claim 1, wherein the non-ceramic material is a machinable material.

4. (Original) The wearable electronic device according to claim 1, wherein the non-ceramic material is a machinable titanium material.

5. (Original) The wearable device according to claim 1 wherein the non-ceramic material is a machinable metallic material comprising one or more of titanium, steel, platinum, gold, palladium, silver or bronze or a gold based alloys.

Petitioner Samsung Ex-1004, 0211

6. (Original) The wearable electronic device according to claim 1, wherein the electronic part is attached to the cavity a bottom of the cavity.

7. (Original) The wearable electronic device according to claim 6, comprising one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity.

8. (Original) The wearable electronic device according to claim 1, wherein the moldable filler material is selected from a group consisting of at least epoxy material, Polyethylene, Polyurethane, low temperature moldable material, Loctite M-31CL, alpha-epoxy, 1,2-epoxy, EpoxAcast® 650, Bisphenol S epoxy resin, Novolac epoxy resin, Aliphatic epoxy resin and Glycidylamine epoxy resin.

9. (Previously Presented) The wearable electronic device according to claim 1, wherein the electronic part comprises one or more of a battery, an infrared transmitter, a microcontroller, a radio frequency transceiver, a temperature sensor and an infrared receiver.

10. (Original) The wearable electronic device according to claim 9, wherein the moldable filler material comprises an ink and is configured to cover at least an area other than the infrared transmitter and the infrared receiver within the at least one cavity

11. (Original) The wearable electronic device according to claim 1, wherein the moldable filler material comprises an ink that increases a value of transmitted infrared light intensity divided by transmitted visible light intensity.

12. (Original) The wearable electronic device according to claim 1, wherein the body part comprises a ring configured to be worn on a finger.

Petitioner Samsung Ex-1004, 0212

13. (Withdrawn, Original) A method for manufacturing a wearable electronic device, comprising:

- machining a body part using a non-ceramic material to form at least one cavity on an inner surface of the body part,

- arranging an electronic part in said at least one cavity, and

- coating the inner surface of the body part including covering the electronic part and filling any open regions in said at least one cavity

14. (Withdrawn, Previously Presented) The method according to claim 13, wherein the electronic part is attached to the cavity using one or more of a sticker, tape disposed on a bottom of the at least one cavity.

15. (Withdrawn, Previously Presented) The method according to claim 13, comprising using an assembly guiding element to arrange the electronic part in the at least one cavity.

16. (Withdrawn, Previously Presented) The method according to claim 13, wherein machining the body part to form the at least one cavity comprises machining a first cavity and a second cavity on the inner surface of the body part.

17. (Withdrawn, Previously Presented) The method according to claim 16, wherein the first cavity and the second cavity are connected.

18. (Withdrawn, Previously Presented) The method according to claim 17, wherein the electronic part comprises a battery and a support on which other components of the electronic part are arranged, and arranging the electronic part in the cavity comprises arranging the battery

Petitioner Samsung Ex-1004, 0213

in the first cavity, connecting the battery to the support and arranging the support in the second cavity.

19. (Withdrawn, Previously Presented) The method according to claim 13, wherein coating the inner surface of the body part comprises applying an epoxy resin on the inner surface and curing the resin to form an epoxy coating.

20. (Withdrawn, Original) The method according to claim 13, wherein the body part comprises a ring configured to be worn on a finger.

Petitioner Samsung Ex-1004, 0214

III. Remarks

Claims 1-20 are pending in this application with claims 1 and 13 as the independent claim. Claims 13-20 are withdrawn from consideration. No claim amendment is presented in this response.

Patentability of the Claims

Independent Claim 1

Independent claim 1 stands rejected under 35 U.S.C. 102(a)(1) as being anticipated by *von Badinski* (US 2015/0220109).

Applicant respectfully traverses this rejection because *von Badinski* fails to disclose all of the features of claim 1.

More specifically, in *von Badinski* the U-shaped ring housing 412 of the wearable computing device WCD 410 defines a groove on the edge side of the ring housing 412. As such, the groove is not on the inner surface of the ring housing 412. Instead, it is between the inner and outer surfaces of the ring housing 412. *See* Fig. 4 and paragraph [0189] of *von Badinski*. In contrast, claim 1 of the present application recites "wherein at least one cavity having a depth is arranged on the inner surface of the body part". (Emphasis added.)

Having the cavity on the inner surface offers many advantages. For example, it makes the placement of the electronics in the cavity much easier. In addition, the cavity is not visible when the wearable electronic device is used on a finger of a user.

Moreover, in *von Badinski* it appears the thickness of the electronics is greater than the depth of the groove. For example, in Fig. 13 the electronics 1340/1350 extends from the groove 1320. And in Fig. 14A, the electronics 1440 extends from the groove 1420. In contrast, claim 1 recites "which electronic part has a thickness that is less than the depth of the at least one cavity".

In view of the foregoing, Applicant respectfully submits that claim 1 is not anticipated by and patentable over *von Badinski*.

Petitioner Samsung Ex-1004, 0215

Dependent Claims 2-12

Dependents claims 2-12 are patentable for at least the reason of their dependency from independent claim 1 as well as for the additional features recited therein.

Conclusion

For the reasons set out above, Applicant respectfully submits that the application is in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested. If the Examiner believes that anything further is necessary to place the application in better condition for allowance, the Examiner is kindly asked to contact the undersigned at the telephone number below.

The Commissioner is hereby authorized to charge any fees associated with this communication or credit any over payment to Deposit Account No. 50-5215.

Respectfully submitted,

/gcz44004/ 27 March 2020

Geza C. Ziegler, Jr. Date

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Petitioner Samsung Ex-1004, 0216

Electronic Acknowledgement Receipt

EFS ID:	38987404
Application Number:	15835573
International Application Number:	
Confirmation Number:	7420
Title of Invention:	WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF
First Named Inventor/Applicant Name:	Teemu Haverinen
Customer Number:	93582
Filer:	GEZA C ZIEGLER JR/Deandra Castro
Filer Authorized By:	GEZA C ZIEGLER JR
Attorney Docket Number:	MDJN.3277.USC2
Receipt Date:	27-MAR-2020
Filing Date:	08-DEC-2017
Time Stamp:	11:27:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		200327_3277_USC2_Response_NFOA_191231.pdf	41656 6d7a4cb1fb1ba4b8a1ff0a6c3215649f05e61494	yes	7

Petitioner Samsung Ex-1004, 0217

	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:			
	Total Files Size (in bytes):	41656	

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

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/835,573	12/08/2017	Teemu Haverinen	MD.3277.USC2	7420

93582 7590 07/09/2020

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EXAMINER	
HAUGHTON, ANTHONY MICHAEL	

ART UNIT	PAPER NUMBER
2841	

NOTIFICATION DATE	DELIVERY MODE
07/09/2020	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):

eofficeaction@appcoll.com
ptomail@gziplaw.com

Petitioner Samsung Ex-1004, 0219

Office Action Summary	Application No. 15/835,573	Applicant(s) Haverinen et al.	
	Examiner ANTHONY M HAUGHTON	Art Unit 2841	AIA (FITF) Status Yes

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 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 the claims submitted on 3/27/2020.

☐ 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) 1-20 is/are pending in the application.

5a) Of the above claim(s) 13-20 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-12 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 12/8/2017 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

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

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Petitioner Samsung Ex-1004, 0220

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Claim Rejections - 35 USC § 102

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

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.
>
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

Claim(s) 1-5, 8, 9, and 12 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by von Badinski (2015/0220109).

Regarding Claim 1: Von Badinski teaches a wearable electronic device comprising: a body part (410) made of a non-ceramic material (paragraph [0188]), having an inner surface and an outer surface (fig. 4), wherein at least one cavity having a depth is arranged on the inner surface of the body part (fig. 4), an electronic part (415 and 480) arranged in said at least one cavity (fig. 4), which electronic part has a thickness (fig. 4) that is less than the depth of the at least one cavity (fig. 4), and a coating made of a moldable filler material (paragraph [0189]) on the inner surface of the body part (paragraph [0189]), covering the electronic part and the at least one cavity (paragraph [0189]).

Regarding Claim 2: Von Badinski teaches wherein the non-ceramic material is a titanium material (paragraph [0188]).

Regarding Claim 3: Von Badinski teaches wherein the non-ceramic material is a machinable material (paragraph [0188]).

Regarding Claim 4: Von Badinski teaches wherein the non-ceramic material is a machinable titanium material (paragraph [0188]).

Regarding Claim 5: Von Badinski teaches the non-ceramic material is a machinable metallic material comprising one or more of titanium, steel, platinum, gold, palladium, silver or bronze or a gold based alloys (paragraph [0188]).

Regarding Claim 8: Von Badinski teaches wherein the moldable filler material is selected from a group consisting of at least epoxy material, Polyethylene, Polyurethane, low temperature moldable material, Loctite M-31CL, alpha-epoxy, 1,2-epoxy, EpoxAcast® 650, Bisphenol S epoxy resin, Novolac epoxy resin, Aliphatic epoxy resin and Glycidylamine epoxy resin (paragraph [0189]).

Regarding Claim 9: Von Badinski teaches, wherein the electronic part comprises one or more of a battery, an infrared transmitter, a microcontroller, a radio frequency transceiver, a temperature sensor and an infrared receiver (480 and 415 in fig. 4).

Regarding Claim 12: Von Badinski teaches wherein the body part comprises a ring configured to be worn on a finger (fig. 4).

Claim Rejections - 35 USC § 103

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 is/are rejected under 35 U.S.C. 103 as being unpatentable over von Badinski (2015/0220109) as applied to the claims above, and further in view of Sharma (2016/0070393).

Regarding Claim 6: Von Badinski lacks a specific teaching of wherein the electronic part is attached to the cavity a bottom of the cavity (figs. 5a, 5b, and 8a-9b).

Sharma teaches wherein the electronic part is attached to the cavity a bottom of the cavity.

It would have been obvious to one having ordinary skill in the art at the time the invention was filed to modify the apparatus of Von Badinski by having wherein the electronic part is attached to the cavity a bottom of the cavity as disclosed by Sharma in order to allow for a more secure connection between the electronic parts and the cavity which in turn will decrease the chances of damage to the components if the device is dropped since it is more securely connected and this decreases the need to replacement or repair of the internal components of the apparatus.

Regarding Claim 7: Von Badinski lacks a specific teaching of one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity.

Sharma teaches one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity (paragraph [0181] and [0182]).

It would have been obvious to one having ordinary skill in the art at the time the invention was filed to modify the apparatus of Von Badinski by having one or more of a sticker, a tape or glue that attaches the electronic part to the at least one cavity at a bottom of the at least one cavity as disclosed by Sharma in order to allow for a more secure connection between the electronic parts and the cavity which in turn will decrease the chances of damage to the components if the device is dropped since it is

more securely connected and this decreases the need to replacement or repair of the internal components of the apparatus.

Claims 10-11 is/are rejected under 35 U.S.C. 103 as being unpatentable over von Badinski (2015/0220109).

Regarding Claim 10: Von Badinski teaches wherein the moldable filler material comprises a different color (paragraph [0189]) and is configured to cover at least an area other than the infrared transmitter (fig. 4) and the infrared receiver (fig. 4) within the at least one cavity (fig. 4), but lacks a specific teaching of the coloring being done through ink.

Official notice is taken that the coloring can be done through using ink.

It would have been obvious to one having ordinary skill in the art at the time the invention was filed to form the coloring by using ink since the examiner takes Official Notice of the equivalence of and for their use in the art and the selection of any of these known equivalents to would be within the level of ordinary skill in the art.

Regarding Claim 11: Von Badinski teaches wherein the moldable filler material comprises a different color (paragraph [0189]) that increases a value of transmitted infrared light intensity divided by transmitted visible light intensity (paragraph [0189] wherein this would inherently happen through the change of coloring), but lacks a specific teaching of the coloring being done through ink.

Official notice is taken that the coloring can be done through using ink.

It would have been obvious to one having ordinary skill in the art at the time the invention was filed to form the coloring by using ink since the examiner takes Official Notice of the equivalence of and for their use in the art and the selection of any of these known equivalents to would be within the level of ordinary skill in the art.

Response to Arguments

Applicant's arguments filed 3/27/2020 have been fully considered but they are not persuasive. In regards to claim 1 the applicant argues the cavity of Badinski is not located on the inner surface of the body part, wherein the examiner respectfully disagrees. The cavity as shown by Badinski is formed from the opening shown on the inner surface of the body part as shown in fig. 4. This can also be seen in a different view from fig. 3B wherein this opening forms the cavity that is being pointed out by the applicant in figs. 13 and 14a and is clearly on the inner surface of the body part. Also in regards to claim 1 and figs. 13 and 14a the of the prior art the applicant argues that these figures show the electronic parts extending out of the groove and therefore do not teach the electronic parts having a thickness that is less than the depth of the cavity as stated in claim 1. The examiner respectfully disagrees with the applicant by pointing out first that it is unclear from fig. 13 is the electronic parts 1350 actually extend out of the cavity of Badinski, but also points to paragraph [0202] of Badinski which states "In an assembled state, the WCD 1300 can include a battery 1330, a PCB 1340, and components 1350, which can be at least partially or completely disposed within the partially enclosed internal space 1320", and therefore it is clear that if the electronics can be disposed completely in the cavity then they must have a thickness that is less than the depth of the cavity. Therefore as can clearly be pointed out in the rejections above the application is considered as finally rejected.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY MICHAEL HAUGHTON whose telephone number is (571)272-9087. The examiner can normally be reached on M-F 9a-5p.

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, Jinhee Lee can be reached on 571-272-1977. 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.

/ANTHONY M HAUGHTON/
Primary Examiner, Art Unit 2841

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/835,573	Haverinen et al.
	Examiner	Art Unit
	ANTHONY M HAUGHTON	2841

CPC - Searched*		
Symbol	**Date**	**Examiner**
(A61B5/6801 ; A61B5/6826 ; A61B5/681 ; A61B5/01 ; G06F1/163 ; A61B2562/12 ; B28B1/24 ; A61B5/02416 ; A61B2562/00)	05/27/2019	YA
g06f1/163	12/23/2019	amh

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.

/ANTHONY M HAUGHTON/ Primary Examiner, Art Unit 2841	

Petitioner Samsung Ex-1004, 0227

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/835,573	Haverinen et al.
	Examiner	Art Unit
	ANTHONY M HAUGHTON	2841

Search Notes		
Search Notes	**Date**	**Examiner**
(A61B5/6801 ; A61B5/6826 ; A61B5/681 ; A61B5/01 ; G06F1/163 ; A61B2562/12 ; B28B1/24 ; A61B5/02416 ; A61B2562/00) WITH TEXT	05/27/2019	YA
Inventor search in EAST	05/27/2019	YA
IP.com search	12/26/2018	YA
Reviewed file wrapper for parent case 14/826,360	12/26/2018	YA
Consulted with Primary Examiner Anthony Haughton	05/27/2019	YA
east search	12/23/2019	amh
classification search	12/23/2019	amh
ip.com search	12/23/2019	amh
inventor search	12/23/2019	amh
updated east search	04/27/2020	AMH

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	Interference search conducted	05/27/2019	YA

/ANTHONY M HAUGHTON/ Primary Examiner, Art Unit 2841	

Petitioner Samsung Ex-1004, 0228

Bibliographic Data

Application No: 15/835,573

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /ANTHONY M HAUGHTON/ Examiner's Signature | Initials

Title: WEARABLE ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THEREOF

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/08/2017	361	2841	MDJN.3277.USC2
RULE			

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CONTINUING DATA

This application is a CON of 14826360 08/14/2015 PAT 9861314

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

12/28/2017

**** SMALL ENTITY ****

STATE OR COUNTRY

FINLAND

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55 GREENS FARMS ROAD
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UNITED STATES

FILING FEE RECEIVED

$730

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	4	("20150131222" | "20170023986" | "20180150107" | "20190196541").PN.	US-PGPUB; USPAT	OR	OFF	2020/07/05 16:03
L2	242	("0000007" | "0000008" | "10236032" | "10285293" | "20010048793" | "20020058445" | "20020097555" | "20020099513" | "20020126112" | "20020140147" | "20020145847" | "20030005073" | "20030156383" | "20030161101" | "20030210521" | "20040049610" | "20040054796" | "20040174675" | "20040193824" | "20040214543" | "20050007692" | "20050086413" | "20050102451" | "20050205292" | "20050237716" | "20050280981" | "20060002070" | "20060065431" | "20060069896" | "20060142910" | "20060158844" | "20060256522" | "20060256533" | "20070026945" | "20070094439" | "20070150480" | "20070170337" | "20070230101" | "20070230110" | "20080091858" | "20080165291" | "20080259060" | "20090037949" | "20090132621" | "20090160733" | "20090182533" | "20090231232" | "20090251607" | "20090255653" | "20090292896" | "20090320065" | "20100007293" | "20100033931" | "20100049914" | "20100110633" | "20100113092" | "20100115321" | "20100217909" | "20100306501" | "20100321876" | "20110013348" | "20110128199" | "20110175787" | "20110235755" | "20110266163" | "20110302357" | "20110307746" | "20120002455" | "20120151098" | "20120173732" | "20120200469" | "20120203936" | "20120206303" | "20130035050" | "20130170129" | "20130187816" | "20130264919" | "20130271905" | "20130303267" | "20130308266" | "20140055315" | "20140118210" | "20140118211" | "20140250267" | "20140281987" | "20140306586" | "20140309019" | "20140333497" | "20140355206" | "20150222008" | "20150254199" | "20150333394" | "20150340768" | "20150349401" | "20160181690" | "20160190702" | "20160191693" | "20160380359" | "2270315" | "3787818" | "3896419" | "3921177" | "3932016" | "4232356" | "4389080" | "4437074" | "4479198" | "4511964" | "4791531" | "4814777" | "4814970" | "4816993" | "4829372" | "4837735" | "4843403" | "4853704" | "4876644" | "5036335" | "5051868" | "5076794" | "5094624" | "5124712" | "5124733" | "5131140" | "5136718" | "5142255" | "5181855" | "5227957" |	US-PGPUB; USPAT	OR	OFF	2020/07/05 16:05

		"5251097" | "5278730" | "5311397" | "5329418" | "5349132" | "5377356" | "5383192" | "5390081" | "5419712" | "5430607" | "5438476" | "5449297" | "5504918" | "5534880" | "5539616" | "5541611" | "5557291" | "5589406" | "5600538" | "5602721" | "5625531" | "5640430" | "5646823" | "5661494" | "5663867" | "5671430" | "5689406" | "5689654" | "5694294" | "5696983" | "5701231" | "5736796" | "5754396" | "5761033" | "5761034" | "5774337" | "5784252" | "5786984" | "5793616" | "5793806" | "5801072" | "5805474" | "5822608" | "5844824" | "5845391" | "5863211" | "5896273" | "5909357" | "5938757" | "5940274" | "5948087" | "5949644" | "5964854" | "5992955" | "5996831" | "5999952" | "6003100" | "6005767" | "6011330" | "6018456" | "6021453" | "6023507" | "6029183" | "6032257" | "6035356" | "6037846" | "6043987" | "6049419" | "6058011" | "6116192" | "6137686" | "6151209" | "6151650" | "6153881" | "6157533" | "6157537" | "6178084" | "6181549" | "6188571" | "6191750" | "6192577" | "6216185" | "6220346" | "6222735" | "6229700" | "6229710" | "6246573" | "6259605" | "6261104" | "6275922" | "6282433" | "6288893" | "6292718" | "6304459" | "6307742" | "6321335" | "6327152" | "6331938" | "6349038" | "6351246" | "6351375" | "6369849" | "6370546" | "6373715" | "6377446" | "6388870" | "6388880" | "6389499" | "6396453" | "6446192" | "6463519" | "6467009" | "6482042" | "6487080").PN.				
L3	259	("6490157" | "6501429" | "6512356" | "6512488" | "6512963" | "6523079" | "6525696" | "6532152" | "6542354" | "6542926" | "6552691" | "6567254" | "6567272" | "6574098" | "6603430" | "6607408" | "6618698" | "6629181" | "6633231" | "6636918" | "6636958" | "6643135" | "6650302" | "6666705" | "6680843" | "6687128" | "6690576" | "6697032" | "6703981" | "6704838" | "6714411" | "6718408" | "6724346" | "6727774" | "6765539" | "6795926" | "6801307" | "6804564" | "6806845" | "6819550" | "6844851" | "6853293" | "6859176" | "6862173" | "6863211" | "6865076" | "6868602" | "6871344" | "6881098" | "6895532" | "6898705" | "6900383" | "6911947" | "6914570" | "6941247" | "6954850" | "6957291" | "6961237" | "6970367" | "6977624" | "6988226" | "6992627" | "6993618" | "6996500" | "7053864" | "7057568" | "7061762" | "7064729" | "7065381" | "7068510" | "7075784" | "7092246" | "7092248" | "7103745" | "7119982" | "7155711" | "7159053" | "7176837" | "7180457" | "7183999" | "7184264" | "7193565" | "7196275" | "7209089" | "7223105" | "7227751" | "7228963" | "7236353" | "7237138" | "7239283" | "7239700" | "7242574" |	US-PGPUB; USPAT	OR	OFF	2020/07/05 16:05

		"7245266" | "7245497" | "7256991" | "7263632" | "7271776" | "7277295" | "7277783" | "7278035" | "7280082" | "7286436" | "7324060" | "7327315" | "7334028" | "7337333" | "7340763" | "7359208" | "7372695" | "7377603" | "7377804" | "7396257" | "7403169" | "7408772" | "7414312" | "7414837" | "7429781" | "7436674" | "7450077" | "7466880" | "7498995" | "7508663" | "7511681" | "7525219" | "7538739" | "7539023" | "7539219" | "7551140" | "7557755" | "7580781" | "7584382" | "7613937" | "7619683" | "7619881" | "7636863" | "7650480" | "7656658" | "7659736" | "7683460" | "7697301" | "7705783" | "7710725" | "7716470" | "7719832" | "7733635" | "7764236" | "7764506" | "7768470" | "7777684" | "7817412" | "7818487" | "7826205" | "7830657" | "7833051" | "7835769" | "7843691" | "7869210" | "7885056" | "7894703" | "7895540" | "7903407" | "7907398" | "7907409" | "7926977" | "7952529" | "7975109" | "7978465" | "8028146" | "8047780" | "8059054" | "8063841" | "8068340" | "8077476" | "8081122" | "8102319" | "8107569" | "8120904" | "8123495" | "8131830" | "8138985" | "8144068" | "8149172" | "8164888" | "8164901" | "8190837" | "8191837" | "8203837" | "8208381" | "8212921" | "8226488" | "8228251" | "8248314" | "8259027" | "8270157" | "8274792" | "8278745" | "8305754" | "8319583" | "8321645" | "8323041" | "8325093" | "8327110" | "8355246" | "8405969" | "8434804" | "8441793" | "8446729" | "8520385" | "8526182" | "8531344" | "8535103" | "8543660" | "8564491" | "8582292" | "8582298" | "8582306" | "8605434" | "8623289" | "8638548" | "8656579" | "8687377" | "8736782" | "8737638" | "8783051" | "8786513" | "8788786" | "8837132" | "8854438" | "8863173" | "8881204" | "8907855" | "8954821" | "8976513" | "9000996" | "9048112" | "9065673" | "9066316" | "9069666" | "9088820" | "9091386" | "9116893" | "9119316" | "9142889" | "9147929" | "9189091" | "9225761" | "9244866" | "9258609" | "9324294" | "9390035" | "9450309" | "9478867" | "9478868" | "9483118" | "9535625" | "9606577" | "9723759" | "9961788" | "RE44739").PN.				
L4	10,797	G06F1/1635,1632.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/05 16:27
L5	5,524	B60R11/0252,0241,0258,0235,02.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/05 16:28

L6	723	B60R2011/001,0001,0003.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/05 16:28
L10	3	((("BLOWERS") near3 ("Robert")) OR (("LAWLOR") near3 ("Shaun")) OR (("MONG") near3 ("HAY") near3 ("Darren"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/07/05 16:28
L11	1	("20180361945").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/05 16:30
L14	247	(("20180361945") or ("20120080465") or ("8496144") or ("20120270663") or ("9073574") or ("8893622") or ("9550514") or ("20120217728") or ("20160375927") or ("20200001815") or ("9039038") or ("20160325662") or ("10583855") or ("20190071112") or ("20140361522") or ("7744122") or ("9580033") or ("20150142246") or ("20080277911") or ("20080246264") or ("8636301") or ("7445284") or ("7213837") or ("9043093") or ("10293758") or ("9022417") or ("7159923") or ("20180118131") or ("20150142247") or ("20140103624") or ("5382046") or ("7762580") or ("9108584") or ("20080284145") or ("20060125215") or ("20150137492") or ("20190001899") or ("7938442") or ("20030064748") or ("20080243342") or ("6983170") or ("7740273") or ("20100244416") or ("20080272580") or ("8794662") or ("20120211972") or ("7648164") or ("20140131982") or ("20060232050") or ("7475902") or ("20060232052") or ("20070235995") or ("10106122") or ("7832762") or ("20080067792") or ("20050121889") or ("8020658") or ("7441799") or ("8177254") or ("20170210331") or ("20200108790") or ("20100289253") or ("7126583") or ("20130076011") or ("20140265270") or ("6837514") or ("9828016") or ("8556292") or ("9266494") or ("6648367") or ("8346438") or ("20190381962") or ("20140265268") or ("6905135") or ("20160236642") or ("20170274860") or ("RE47687") or ("6715789") or ("8444178") or ("8894094") or ("9682680") or ("20010048215") or ("20160375860") or ("20180086297") or ("10328890") or ("8448982") or	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/05 16:30

		("10399529") or ("20120306183") or ("10144383") or ("20070017724") or ("20190092264") or ("20200010041") or ("8136835") or ("10457239") or ("20080125940") or ("20110031055") or ("8801033") or ("20050077746") or ("20050194766") or ("7055854") or ("20120211971") or ("20140028008") or ("7175221") or ("8899623") or ("20190161044") or ("20060043776") or ("20120313357") or ("20130062866") or ("7080855") or ("7461863") or ("9096257") or ("9834121") or ("20200172037") or ("8138908") or ("20060097494") or ("20020101067") or ("6533316") or ("20200001816") or ("7040653") or ("20060244251") or ("20170113589") or ("20040108752") or ("20010015548") or ("20200101928") or ("8757658") or ("20140054880") or ("10507784") or ("10518684") or ("20030227159") or ("20180215339") or ("8419052")).PN. or (("20200055481") or ("20100168962") or ("8024090") or ("9566935") or ("20120306184") or ("6502513") or ("7566071") or ("20160039383") or ("9902359") or ("6443486") or ("20060208470") or ("7108279") or ("20040026909") or ("20020020993") or ("20160244016") or ("20020027346") or ("7390018") or ("20180326939") or ("20130221641") or ("8985623") or ("7520528") or ("20060220360") or ("20180281728") or ("7669890") or ("9908480") or ("20070126216") or ("8256797") or ("20200130630") or ("20020084634") or ("9855909") or ("20110291392") or ("20070046002") or ("20100066066") or ("20170015267") or ("20080082237") or ("8485552") or ("20190061587") or ("20190135220") or ("20180281731") or ("20040245750") or ("5615910") or ("20190061561") or ("7384065") or ("6626458") or ("20080276191") or ("20050151354") or ("6386632") or ("7774115") or ("8827306") or ("7185912") or ("10351089") or ("5560648") or ("20130257024") or ("10384566") or ("6179326") or ("20010011815") or ("20020036397") or ("20190129482") or ("20180029556") or ("20160204635") or ("20100090446") or ("20160200281") or ("10065595") or ("7988193") or ("6419262") or ("8979120") or ("8596676") or ("8292322") or ("10507781") or ("20050073134") or ("20180086298") or ("20140265282") or ("10196028") or ("8764057") or ("10207697") or ("6474682") or ("6902186") or ("20090152839") or ("6205882") or ("7823908") or ("20200171947") or				

		("20090085334") or ("9601935") or ("20030132618") or ("9499119") or ("9156400") or ("8140227") or ("20170282835") or ("7641223") or ("20140197620") or ("20150042079") or ("20100004827") or ("20130038044") or ("20170174203") or ("9838529") or ("20020171230") or ("20040160042") or ("20020171231") or ("20120175925") or ("6314833") or ("20150239422") or ("20090146400") or ("9963099") or ("10266143") or ("7631891") or ("4915410") or ("10577008") or ("20170171379") or ("9580034") or ("10358110") or ("20190118849") or ("20170210325") or ("20050206141") or ("20080048420") or ("8087691") or ("6942245")).PN.				
L15	238	14 AND AIRBAG	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/05 16:32
L16	31	15 AND TABLET	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/05 16:32
S1	1	"9635530".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:36
S2	1	"9870030".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:36
S3	2	S1 S2	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:36
S4	267	haughton.xa.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S5	1,363	haughton.xp.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S6	1,630	S4 S5	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40

S7	988	g06f1/1669.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S8	25	S6 and S7	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:40
S9	415	S7 and (laptop or (lap near top))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:42
S10	219	S7 and (laptop or (lap near top))	USPAT	OR	OFF	2019/12/05 00:43
S11	1	"9632530".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 00:51
S12	4,772	349/58.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:38
S13	23,117	345/173.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:39
S14	15,281	g06f1/20-206.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:43
S15	14,127	g06f1/18-189.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:43
S16	203	S6 and S14	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:43
S17	248	S6 and S15	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 01:43
S18	1	"10372167".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:19

S19	1	"10095274".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:25
S20	1	"20040246666"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:27
S21	3,631	g06f1/187.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:55
S22	98	S6 and S21	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 02:55
S23	1	"10228734".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 03:08
S24	2	"20080278856"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/05 03:14
S25	4	("20150169006" | "20160370828" | "20160164852" | "20160370828" | "20160195901").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:00
S26	2	"20160370828"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:01
S27	5	S25 S26	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:01
S28	2	"20180164852"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:01
S29	7	S27 S28	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:01
S30	218	((("LARGE") near3 ("Timothy")) OR (("GHIONI") near3 ("Lincoln")) OR (("BABU") near3 ("Sarat")) OR (("LONGBOTTOM") near3 ("Matthew")) OR (("CARTER") near3 ("Duncan"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:07

			; EPO; JPO; DERWENT			
S31	161	(("20190173041") or ("10143080") or ("9823693") or ("9560751") or ("20160065920") or ("20180052486") or ("20170238412") or ("20160037625") or ("10289163") or ("10201089") or ("20190305237") or ("20170235341") or ("7349203") or ("20150378391") or ("9971382") or ("9848494") or ("20180004252") or ("20170034918") or ("20180054897") or ("20160266672") or ("7136280") or ("6819550") or ("7773371") or ("20170060188") or ("10495941") or ("20190265758") or ("20190207130") or ("20160374228") or ("10345858") or ("20180062094") or ("20180219165") or ("9756757") or ("20040233623") or ("10411205") or ("20180097199") or ("20170075464") or ("10418572") or ("20170162821") or ("10121988") or ("20160179229") or ("20170371465") or ("20170287385") or ("9535522") or ("20180335679") or ("9766737") or ("9983714") or ("20070014084") or ("20190317550") or ("20040228080") or ("7145768") or ("10254795") or ("20160327987") or ("20170160769") or ("20070201197") or ("20050041048") or ("9874904") or ("20160336523") or ("20160181345") or ("9490312") or ("7218510") or ("20130271940") or ("20030086240") or ("20050088814") or ("9655267") or ("20160093685") or ("9812659") or ("7209344") or ("20040218352") or ("9425418") or ("20050088812") or ("20100039350") or ("20180090713") or ("20040257755") or ("20170323934") or ("20190075669") or ("20160240602") or ("20160183364") or ("10068960") or ("20160268546") or ("20170194411") or ("20160093644") or ("9748322") or ("20160155788") or ("9847506") or ("7046509") or ("10229963") or ("20160172623") or ("9349758") or ("20180062090") or ("9627463") or ("D487893") or ("7142415") or ("D489370") or ("9935281") or ("9379355") or ("20060176655") or ("20170179423") or ("7035092") or ("20170263890") or ("20170179215") or ("9818974") or ("20180123060") or ("20130279088") or ("9793334") or ("20070046594") or ("20190296259") or ("7965258") or ("9985086") or ("10186684") or ("20050036283") or ("20110018785") or ("20160099433") or ("D486486") or ("7289315") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 09:08

		("9910458") or ("7042714") or ("20180092166") or ("8724304") or ("7738245") or ("10182474") or ("9558685") or ("20170290106") or ("9698375") or ("20130169515") or ("20160111028") or ("10103179") or ("20190082528") or ("20170301267") or ("20160048169") or ("20180197928")).PN. or (("9980326") or ("20170192460") or ("10212811") or ("20160174304") or ("20190268455") or ("10154562") or ("9274559") or ("10199445") or ("10319265") or ("6755533") or ("20100315575") or ("20170062485") or ("20180076236") or ("9706607") or ("20160181346") or ("6710754") or ("20030098832") or ("20130081756") or ("20110121151") or ("20070052617") or ("9759420") or ("9780157") or ("9684339") or ("8274623") or ("20190081276") or ("20190152129") or ("10304869") or ("10281956") or ("20160035759") or ("20160181572") or ("10245776")).PN.				
S32	1,559	g06f1/182.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:31
S33	14,173	g06f1/18-189.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:31
S34	1,062	g11b33/14,022.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:32
S35	1,744	h05k5/069,026,006,0047,0043,0039,0034.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:33
S36	11,330	G06F1/169,1698,16847,1643,1662.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:39
S37	34,285	G06F3/03547,044.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:39
S38	3,747	H05K5/0226,0239,03.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:39

S39	13,718	G06F1/169,1698,1684,1643,1662.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:41
S40	3,050	((("CHANG") near3 ("Ching")) OR (("MCKITTRICK") near3 ("Allen"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/09 11:41
S41	18	(("20110151780") or ("20170317709") or ("20160006488") or ("9231673") or ("20190369674") or ("20180210508") or ("10429901") or ("6967280") or ("20040105411") or ("7580395") or ("20170179996") or ("9692478") or ("20180210515") or ("20180210514") or ("20170310002") or ("10198044") or ("20190288388") or ("10156871")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 11:45
S42	9	("20020080297" | "20140092532" | "20140146452" | "20150241916" | "20150316090" | "20160266619" | "6744622" | "8066308" | "9461390").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:29
S43	31,883	G06F1/1626,1656,1601,1633,1637,1656,163.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:33
S44	214	((("LARSEN") near3 ("Denica")) OR (("HO") near3 ("Wing"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/09 12:34
S45	268	((("SEO") near3 ("Jae-Il")) OR (("KIM") near3 ("Ki-Jae")) OR (("KIM") near3 ("Ji-Hoon")) OR (("LEE") near3 ("Dong-Ik"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/09 12:34
S46	0	g06f1/1626,1635,1658,1633	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:52

S47	16,483	g06f1/1626,1635,1658,1633.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:52
S48	7,826	361/679.21-679.3,679.55,679.56.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:52
S49	10,564	455/575.1-575.9.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:53
S50	5,977	349/56-60.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:53
S51	1	("20170003716").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 12:56
S52	11	(("20190025880") or ("20100044553") or ("20100044815") or ("20130177302") or ("20180321571") or ("20140176779") or ("8684613") or ("10018891") or ("20180126704") or ("20190158641") or ("20190144332")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:00
S53	12	S51 S52	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:13
S54	12	S53 and camera	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:13
S55	11	S53 and (glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S56	10	S53 and (cover near2 glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S57	10	S53 and (cover$3 near2 glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S58	11	S54 and S55	US-PGPUB;	OR	OFF	2019/12/09 13:14

			USPAT; USOCR			
S59	10	S54 and S56	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S60	10	S54 and S57	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S61	11	S58 S59 S60	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S62	1	S61 and (curv$4 near2 display$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:14
S63	1	S61 and planarizat$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:16
S64	3	S61 and wavelength	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:18
S65	2	S61 and (refract$3 near3 index)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:19
S66	3	S64 S65	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:19
S67	5	S61 and (glass near4 (coat$3 or cur$3 or polymer))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:26
S68	4	S61 and (glass near3 (coat$3 or cur$3 or polymer))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:26
S69	5	S67 S68	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:27

S70	17,161	g06f1/1626,1643,1605.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:32
S71	17,656	g06f3/0412.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:32
S72	209	S70 and planarizat$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:32
S73	1,309	S71 and planarizat$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:32
S74	260	S73 and camera	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S75	118	S72 and camera	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S76	22	S74 and (cover near2 glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S77	25	S75 and (cover near2 glass)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S78	38	S76 S77	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S79	7	S78 and (planarizat$3 near3 material$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:33
S80	31	S78 not S79	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 13:37
S81	7	(US-20160370828-$ or US-20190205596-$ or US-20120242635-$ or US-20110267298-$ or US-20130177302-$ or US-20180126704-$).did. or (US-9632530-$).did.	US-PGPUB; USPAT	OR	OFF	2019/12/09 14:07

S82	1	S81 and polishing	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:07
S83	2	S81 and curv$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:08
S84	51	S53 S54 S55 S56 S57 S58 S59 S60 S61 S62 S63 S64 S65 S66 S67 S68 S69 S76 S77 S78 S79 S80 S81 S82 S83	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:10
S85	2	S84 and (curv$3 near display)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:11
S86	22,595	G06F1/1626,1605,1613,1637,1643,1686.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:19
S87	17,656	G06F3/0412.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:19
S88	13,803	G06F1/1626.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:20
S89	602	S88 AND (COVER NEAR GLASS)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:20
S90	0	S89 AND (curved near dispay)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:20
S91	0	S88 AND (curved near dispay)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:20
S92	24	S89 AND (curved near display)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:21
S93	1	"20180126704"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/09 14:30

S103	9,044	g06f1/1632.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:54
S104	6,987	h02j50/80.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:55
S105	755	S104 and (dock$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:58
S106	755	S104 and (dock$4)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:58
S107	719	S106 and (tablet or computer or ((notebook or portable or laptop or (lap near top) near computer) or laptop or (lap near top)))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:58
S108	564	S107 and (charg$3 near2 (wireless or (wire near less)))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 20:59
S109	544	S108 and (ports or (input$1 and output$1) or peripheral$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:00
S110	0	S109 and (high near speeed)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:01
S111	204	S109 and (high near speed)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:01
S112	225	(("20180307275") or ("20190237985") or ("9401621") or ("20150263565") or ("9729003") or ("20170070076") or ("9608475") or ("20170070077") or ("9577467") or ("9444276") or ("20140191713") or ("20130205060") or ("20150008876") or ("20150084583") or ("9831030") or ("20130307468") or ("9263910") or ("20150222138") or ("9325187") or ("20160141884") or ("9979236") or ("20160118179") or ("20090001929") or ("20190158136") or ("20160006291") or ("20120294463") or ("20160190853") or ("8559659") or ("7825625") or ("9806555") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:02

		("20140347008") or ("20180198312") or ("9461479") or ("20150011160") or ("10305316") or ("9742214") or ("20160043590") or ("9088305") or ("20180054077") or ("9444289") or ("20130062961") or ("20150318898") or ("9293929") or ("20140191717") or ("20170274778") or ("9319109") or ("9969282") or ("20150008756") or ("20160164308") or ("20190058332") or ("9825672") or ("20120299389") or ("10135260") or ("9094059") or ("20160134149") or ("20080119241") or ("9660486") or ("20170090516") or ("9300147") or ("10084338") or ("20130002038") or ("20160372961") or ("20150326053") or ("20190207423") or ("8170623") or ("20160308397") or ("20180074547") or ("20160001663") or ("20190363565") or ("10256666") or ("10461581") or ("10122184") or ("20180069423") or ("20130057078") or ("20160079801") or ("10333333") or ("20140021909") or ("9793744") or ("20160141910") or ("9306401") or ("9722540") or ("20120139484") or ("20140368053") or ("9821672") or ("20150035474") or ("9819216") or ("9124105") or ("20140153491") or ("20110057607") or ("20150115885") or ("20180358826") or ("20160072327") or ("20190310685") or ("20160233728") or ("8928284") or ("20150137746") or ("9503178") or ("10164482") or ("9287732") or ("9252629") or ("20150095533") or ("9961433") or ("9826301") or ("9794673") or ("9967650") or ("9577448") or ("9883277") or ("20180323636") or ("10135498") or ("20170093454") or ("20160329755") or ("20180131847") or ("20150078461") or ("20170347182") or ("20190222052") or ("20160134334") or ("9184802") or ("20180109148") or ("10193398") or ("20190348868") or ("20160285299") or ("20160172895") or ("20180262057") or ("20140009109") or ("20160372960") or ("20150130409") or ("9287039") or ("9997951") or ("20180098366")).PN. or (("20130175986") or ("20170305280") or ("20150091508") or ("20150162785") or ("20190074867") or ("10411517") or ("20180262055") or ("10000133") or ("20150188352") or ("20170093224") or ("20150188356") or ("20170141604") or ("10277056") or ("20150091496") or ("9843226") or ("20140266021") or ("20170201123") or ("9793739") or ("20190222062") or ("9769558") or ("20170018954") or ("20190312460") or ("9923408") or ("20180109147") or				

		("20130005252") or ("20170094399") or ("20190081518") or ("20180375390") or ("20180337548") or ("10291068") or ("10483806") or ("9627918") or ("10230278") or ("10039147") or ("20170117757") or ("9166654") or ("10320245") or ("20160276865") or ("20170207663") or ("20170264341") or ("20170094396") or ("10097913") or ("9397505") or ("10355515") or ("9692248") or ("9843214") or ("9967649") or ("20140145515") or ("10079513") or ("10286862") or ("20160241086") or ("20140242911") or ("10063107") or ("20170094392") or ("20140354223") or ("9883274") or ("10182282") or ("10003880") or ("9692487") or ("20140354222") or ("20170094394") or ("20170094397") or ("20190013687") or ("20170372836") or ("10097041") or ("8437695") or ("10212506") or ("10397683") or ("20120153894") or ("20180115816") or ("9967648") or ("20190027965") or ("20170093453") or ("10068704") or ("10009678") or ("20190165619") or ("20190289382") or ("20160072338") or ("20190023141") or ("9961431") or ("20170094381") or ("20160181849") or ("9883276") or ("20170094398") or ("20190289383") or ("10333355") or ("9559754") or ("20180090998") or ("9379780") or ("10361591") or ("9413175") or ("10003881") or ("20170094393") or ("8527688") or ("20170094395") or ("20190044388")).PN.				
S113	186	S112 not S111	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:02
S114	6	(("20180107253") or ("20140021909") or ("20140036437") or ("20170090516") or ("20170063102") or ("20160320867")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:28
S115	1	"20170090516"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:31
S116	71	("20070217135" | "20130039000" | "20130329360" | "6612668" | "6643124" | "7471506" | "9124105" | "20100271771" | "20040057204" | "20060250764" | "6421235" | "6593859" | "6707666" | "6944012" | "20070101039" | "20090295328" | "8593804" | "20060056143" | "6256192" | "20090179501" | "20140133080" | "7916467" | "20050168937" | "20140273590" | "5719799" | "6093039" | "6430038" | "20080258679" | "20080304688" |	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:32

		"20100081473" | "20120113576" | "20150036275" | "20140098485" | "20140177162" | "20140185220" | "20140312202" | "5317691" | "5793606" | "6654234" | "20070035917" | "20140355190" | "20150198980" | "20010022719" | "7061472" | "8995121" | "9223344" | "20110210617" | "8688037" | "20090141439" | "20140334086" | "20140347802" | "9535456" | "20030128505" | "20100277856" | "20150277491" | "6006243" | "7349201" | "8199476" | "8937803" | "20060013411" | "20170060186" | "5030128" | "5175672" | "6781823" | "6989987" | "7667959" | "20100014235" | "20120188687" | "20130170126" | "7643283" | "9041347").PN.				
S117	43	S116 and wireless	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:33
S118	28	S116 not S117	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:39
S119	14	("6856506" | "6952343" | "5455466" | "5864708" | "5434964" | "D321179" | "20060159158" | "20040233930" | "7052296" | "D322063" | "20040145342" | "20050047055" | "20050083012" | "7054145").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:46
S120	120	("4734874" | "5127050" | "5142446" | "5209583" | "5227953" | "5237663" | "5245169" | "5283714" | "5375226" | "5430567" | "5465038" | "5493542" | "5546211" | "5559501" | "5561446" | "5598539" | "5600471" | "5617236" | "5628055" | "5632020" | "5668566" | "5668977" | "5675524" | "5682379" | "5687717" | "5699226" | "5701302" | "5724168" | "5794164").PN. OR ("5864708").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:56
S121	94	S120 and wireless	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 21:59
S122	26	S120 not S121	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:00
S123	2	"20180098366"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:30

S124	27	("20020119800" | "20040092249" | "20110131358" | "20110136550" | "20130084800" | "20130175986" | "20130210347" | "20130219098" | "20130288600" | "20130324035" | "20140059263" | "20140152235" | "20140349578" | "20150006395" | "20150318898" | "20160150354" | "20160285299" | "7825625" | "8254992" | "8255720" | "8805456" | "8825118" | "8947042" | "9020436" | "9496925" | "9627913" | "9755437").PN. OR ("10039147").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:31
S125	27	("20020119800" | "20040092249" | "20110131358" | "20110136550" | "20130084800" | "20130175986" | "20130210347" | "20130219098" | "20130288600" | "20130324035" | "20140059263" | "20140152235" | "20140349578" | "20150006395" | "20150318898" | "20160150354" | "20160285299" | "7825625" | "8254992" | "8255720" | "8805456" | "8825118" | "8947042" | "9020436" | "9496925" | "9627913" | "9755437").PN. OR ("10039147").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:47
S126	1	"20180323636"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:51
S127	1	"20180358826"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:53
S128	8	("20120299966" | "20090096413" | "20130063873" | "20130113421" | "9531206" | "10037057" | "20060238164" | "20130063084").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:54
S129	120	("4734874" | "5127050" | "5142446" | "5209583" | "5227953" | "5237663" | "5245169" | "5283714" | "5375226" | "5430567" | "5465038" | "5493542" | "5546211" | "5559501" | "5561446" | "5598539" | "5600471" | "5617236" | "5628055" | "5632020" | "5668566" | "5668977" | "5675524" | "5682379" | "5687717" | "5699226" | "5701302" | "5724168" | "5794164").PN. OR ("5864708").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:57
S130	71	("20070217135" | "20130039000" | "20130329360" | "6612668" | "6643124" | "7471506" | "9124105" | "20100271771" | "20040057204" | "20060250764" | "6421235" | "6593859" | "6707666" | "6944012" | "20070101039" | "20090295328" | "8593804" | "20060056143" | "6256192" | "20090179501" | "20140133080" | "7916467" | "20050168937" | "20140273590" | "5719799" | "6093039" | "6430038" | "20080258679" | "20080304688" | "20100081473" | "20120113576" | "20150036275" | "20140098485" | "20140177162" | "20140185220" | "20140312202" | "5317691" | "5793606" |	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:59

		"6654234" | "20070035917" | "20140355190" | "20150198980" | "20010022719" | "7061472" | "8995121" | "9223344" | "20110210617" | "8688037" | "20090141439" | "20140334086" | "20140347802" | "9535456" | "20030128505" | "20100277856" | "20150277491" | "6006243" | "7349201" | "8199476" | "8937803" | "20060013411" | "20170060186" | "5030128" | "5175672" | "6781823" | "6989987" | "7667959" | "20100014235" | "20120188687" | "20130170126" | "7643283" | "9041347").PN.				
S131	14	("6856506" | "6952343" | "5455466" | "5864708" | "5434964" | "D321179" | "20060159158" | "20040233930" | "7052296" | "D322063" | "20040145342" | "20050047055" | "20050083012" | "7054145").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:59
S132	120	("4734874" | "5127050" | "5142446" | "5209583" | "5227953" | "5237663" | "5245169" | "5283714" | "5375226" | "5430567" | "5465038" | "5493542" | "5546211" | "5559501" | "5561446" | "5598539" | "5600471" | "5617236" | "5628055" | "5632020" | "5668566" | "5668977" | "5675524" | "5682379" | "5687717" | "5699226" | "5701302" | "5724168" | "5794164").PN. OR ("5864708").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:59
S133	27	("20020119800" | "20040092249" | "20110131358" | "20110136550" | "20130084800" | "20130175986" | "20130210347" | "20130219098" | "20130288600" | "20130324035" | "20140059263" | "20140152235" | "20140349578" | "20150006395" | "20150318898" | "20160150354" | "20160285299" | "7825625" | "8254992" | "8255720" | "8805456" | "8825118" | "8947042" | "9020436" | "9496925" | "9627913" | "9755437").PN. OR ("10039147").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:59
S134	231	S133 S132 S131 S130 S130	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 22:59
S135	39	(US-20160370828-$ or US-20190205596-$ or US-20120242635-$ or US-20110267298-$ or US-20130177302-$ or US-20180126704-$ or US-20150362333-$ or US-20140145515-$ or US-20160141884-$ or US-20160001663-$ or US-20130281155-$ or US-20130236192-$ or US-20170063102-$ or US-20170090516-$ or US-20180107253-$ or US-20140021909-$ or US-20120113576-$ or US-20100014235-$ or US-20080258679-$ or US-20070035917-$ or US-20170060186-$ or US-20050168937-$ or US-20190013687-$ or US-20180358826-$ or US-20180323636-$ or US-20180109148-$).did. or (US-20180098366-$ or US-20140152235-$ or US-	US-PGPUB; USPAT	OR	OFF	2019/12/10 22:59

		20140059263-$ or US-20130175986-$).did. or (US-9632530-$ or US-6593859-$ or US-5864708-$ or US-5793606-$ or US-9442526-$ or US-9107027-$ or US-9436220-$ or US-6151645-$ or US-10039147-$).did.				
S136	4,340,288	S135 and high speed	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 23:03
S137	12	S135 and (high near speed)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 23:03
S138	10	(("20180107253") or ("20140021909") or ("20140036437") or ("20170090516") or ("20170063102") or ("20160320867") or ("20130236192") or ("20170090516") or ("20080258679") or ("20070035917") or ("5864708")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 23:10
S139	8	S138 AND CONTROL$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 23:16
S140	4	(("5864708") or ("20140059263") or ("20170063102") or ("20170090516")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/10 23:24
S141	8	("20130287622" | "20150220109" | "20160058375" | "20160116941" | "20160139702" | "20160274621" | "20160287102" | "6553667").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:11
S142	8	("20130287622" | "6553667" | "6553667" | "20150220109" | "20160058375" | "20160116941" | "20160287102" | "20160274621" | "20160139702" | "20150220109" | "20130287622").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:12
S143	8	S141 S142	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:12
S144	8	(("20180103902") or ("9861314") or ("20170042477") or ("20110186347") or ("5163499") or ("20130196169") or ("5526867") or ("4120930")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:13
S145	6	S143 and ceramic	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:13

S146	7	S144 and ceramic	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:13
S147	13	S145 S146	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:14
S148	3	S147 and (filler near3 ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:53
S149	3	S147 and (filler$3 near3 ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:53
S150	0	S143 and (filler$3 near3 ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:53
S151	3	S144 and (filler$3 near3 ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:54
S152	8	S147 and (sticker or glue or tape)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 00:54
S153	8,010	g06f1/163.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:22
S154	2,490	S153 and ring	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:22
S155	44	S154 and filler	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:22
S156	3	S154 and (filler$1 near3 ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:22
S157	3	S154 and (filler$1 with ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:23

S158	9	S153 and (filler$1 with ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:23
S159	3	S153 and (filler$1 near3 ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:23
S160	1,074	S154 and (sticker or tape or glue or adhesive)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:24
S161	37	S155 and (sticker or tape or glue or adhesive)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:24
S162	25	S154 and ((sticker or tape or glue or adhesive) near3 (electronic$1))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:25
S163	34	S161 not S162	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:28
S164	11	S147 and (sticker or tape or glue or adhesive)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:38
S165	4	S153 and (filler$1 with color$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:42
S166	3	S153 and (filler$1 near3 ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:43
S167	15,603	A61b5/6801,01,681,6826.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:44
S168	3	S167 and (filler$1 near3 ink$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:44
S169	25	S167 and (filler$1 with color$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:44

S170	29	S167 and (filler$1 with color$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:45
S171	5	S170 and ink$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:45
S172	1,495	S167 and ink$3	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:45
S173	42	S172 and (filler$1 and color$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 01:46
S174	4	(("20110101185") or ("20110228504") or ("20180130389") or ("8384616")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 14:01
S175	0	g06f9/33.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 14:12
S176	2,539	g09f9/33.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 14:12
S177	2,230	S176 and display$1	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 14:12
S178	1,237	S176 and ((multiple or plurality) near3 display$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 14:12
S179	237	g09f9/3023.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/11 14:24
S180	9	("20050193930" | "20090296321" | "20140160636" | "20150116911" | "20160042896" | "20160156163" | "20160233651" | "20160242315" | "6149254").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 00:51
S181	15	("20030168433" | "20050193930" | "20090296321" | "20120218067" | "20130137358" | "20140097734" | "20140118887" | "20140160636" | "20150116911"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 00:54

		| "20150372463" | "20160042896" | "20160156163" | "20160233651" | "20160242315" | "6149254").PN.				
S182	15	S180 S181	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 00:54
S183	4,965	h05k7/1498,1461,16,18,142,1417,14.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:35
S184	13,545	361/679.01,679.02,724-727,679.33-679.39.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:36
S185	299	((("CHEN") near3 ("Chao-Jung")) OR (("LIU") near3 ("Kun-Pei"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 11:36
S186	1	("20190098794").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:37
S187	1,412	(("20190098794") or ("10250447") or ("9699933") or ("10146295") or ("20150256406") or ("9423854") or ("20150257302") or ("20160334860") or ("20150253821") or ("9958178") or ("20150257311") or ("20150253829") or ("9430010") or ("20150256386") or ("10122585") or ("20150253794") or ("10075332") or ("20150256409") or ("9923766") or ("20180205607") or ("20150256394") or ("20150256396") or ("20150256393") or ("20150256390") or ("9964935") or ("10198709") or ("9863659") or ("20150253028") or ("10142822") or ("20150253029") or ("20180322376") or ("20070250410") or ("10187773") or ("10038992") or ("10049240") or ("10140820") or ("9894471") or ("20130027204") or ("8779922") or ("9911290") or ("20170215038") or ("20170213057") or ("20190262204") or ("8094020") or ("20110304463") or ("20140253289") or ("9888337") or ("20190363746") or ("9727515") or ("20140320288") or ("20150325089") or ("8994532") or ("20150236512") or ("20190341954") or ("10355730") or ("20170315950") or ("10169965") or ("8264354") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:38

		("20110084839") or ("20190310685") or ("20130150028") or ("20180024598") or ("9864417") or ("20140020175") or ("20160129960") or ("20140253093") or ("9786153") or ("20160240067") or ("20180096585") or ("9711046") or ("20180017997") or ("10510219") or ("20150074749") or ("20020111819") or ("20190309559") or ("10410506") or ("7136832") or ("20190332838") or ("20170148323") or ("20190309560") or ("20160218934") or ("9337555") or ("20190309561") or ("7733230") or ("20190302764") or ("20080024306") or ("10503942") or ("8471706") or ("20120133510") or ("8410935") or ("20100007498") or ("20130222117") or ("20190003236") or ("7298626") or ("7719422") or ("10318769") or ("8742897") or ("10325596") or ("20170116103") or ("10318772") or ("20190309562") or ("9129496") or ("20190087612") or ("20030046339") or ("20190294832") or ("20190378104") or ("20190162009") or ("20110131269") or ("9594385") or ("20100060452") or ("8239252") or ("20140363992") or ("10253582") or ("20140277807") or ("20170298701") or ("10022614") or ("10186331") or ("20190362716") or ("20140108825") or ("20190234159") or ("20120046982") or ("9111098") or ("20180350462") or ("20140277784") or ("10200834") or ("10380007") or ("9545029") or ("20170308845") or ("20180133583")).PN. or (("8249910") or ("20170008739") or ("8393026") or ("9582010") or ("9495853") or ("8917513") or ("20150309921") or ("20150102101") or ("20110010720") or ("20120046809") or ("20100039247") or ("20140176305") or ("20190370159") or ("9539156") or ("9202186") or ("8701229") or ("20170231108") or ("20110277242") or ("9126571") or ("20150379840") or ("9449202") or ("8239251") or ("9760853") or ("9740822") or ("9152933") or ("20140059768") or ("10108208") or ("20060026017") or ("20110231996") or ("20110162141") or ("20080154691") or ("20120046981") or ("9555778") or ("9183158") or ("20140281614") or ("9983601") or ("10420690") or ("7962981") or ("20170061083") or ("9864669") or ("20140237721") or ("RE46326") or ("20110309931") or ("9182232") or ("20170215303") or ("7690059") or ("20170106738") or ("20120232961") or ("9734693") or ("20140277819") or ("10043593") or ("6919816") or ("20100228405") or				

		("20020190868") or ("20110080264") or ("20140013503") or ("9632506") or ("8060400") or ("20180151260") or ("10404523") or ("9678896") or ("20070239569") or ("10121028") or ("10173876") or ("20060206246") or ("20070157385") or ("20110131074") or ("7187265") or ("10378241") or ("8631247") or ("10102500") or ("20080154712") or ("20080122626") or ("10398233") or ("20150154536") or ("20160041559") or ("20190201117") or ("20100070075") or ("20170248965") or ("20180086615") or ("20190286139") or ("20070169268") or ("20190156940") or ("20190125458") or ("20120102334") or ("20160183687") or ("20160162836") or ("20160189507") or ("20170085413") or ("20160012707") or ("20140135994") or ("20140320308") or ("9208459") or ("20150002274") or ("20110010770") or ("20190286164") or ("9843847") or ("20190242157") or ("20040193449") or ("6965816") or ("20160048462") or ("20190296958") or ("8924548") or ("9198060") or ("7805784") or ("9913642") or ("20080068170") or ("20110063093") or ("20190283648") or ("20140360232") or ("20190125456") or ("20180130331") or ("20190347923") or ("8648709") or ("7861334") or ("20190283962") or ("8531134") or ("7734476") or ("9355055") or ("20070163043") or ("20190035255") or ("20070174964") or ("8786440") or ("20120166693") or ("10488910") or ("9202374") or ("20030125836") or ("8674822") or ("20130201316")).PN. or (("20140213177") or ("20110279261") or ("9815439") or ("9769786") or ("20190287046") or ("20130046884") or ("9510679") or ("8368321") or ("20190283252") or ("20190286138") or ("20190320799") or ("9456958") or ("20150272575") or ("9124655") or ("9881130") or ("20150154556") or ("8805550") or ("20110080267") or ("8866408") or ("20190377399") or ("20160287459") or ("20140329467") or ("10246905") or ("20140159888") or ("9860961") or ("8610376") or ("20070080801") or ("20060064201") or ("8841859") or ("20110298607") or ("10368222") or ("10071891") or ("8552664") or ("20170111759") or ("8339069") or ("20170311280") or ("20190286152") or ("20170344708") or ("8954170") or ("20180066452") or ("20100296285") or ("8754589") or ("9537522") or ("20140215029") or ("8543249") or ("8536802") or ("20160073276") or ("20190283240") or				

		("10361800") or ("20190137991") or ("20190119089") or ("7656273") or ("8373362") or ("20190125361") or ("8138690") or ("8610377") or ("20150156627") or ("9443366") or ("10353483") or ("10067571") or ("20140002239") or ("20190098432") or ("20150009013") or ("20190287047") or ("10189692") or ("20110128163") or ("20180241489") or ("9418263") or ("20170085637") or ("20180346300") or ("9953193") or ("10257268") or ("20080068171") or ("10280054") or ("9686138") or ("10134007") or ("8593135") or ("20190283239") or ("10081525") or ("20160259341") or ("20190125454") or ("20190180539") or ("20180124181") or ("9996119") or ("20100301769") or ("20140351098") or ("20160239794") or ("20180132850") or ("10204244") or ("9967759") or ("20180241488") or ("20190287063") or ("20190260829") or ("20100301774") or ("20180034912") or ("9740293") or ("20100295473") or ("20100301768") or ("9710682") or ("20190287059") or ("20180343304") or ("9858452") or ("20190331613") or ("20100295474") or ("20160124470") or ("20160207497") or ("20100295475") or ("20190125457") or ("20170331899") or ("20100302779") or ("8989053") or ("20190210849") or ("9880635") or ("9617134") or ("20190112171") or ("7436303") or ("8823277") or ("20180375940") or ("20100295482") or ("9234757") or ("9430732") or ("20190074153") or ("20180278694") or ("20100301771") or ("8026814") or ("20170061525") or ("20100270933") or ("10486951") or ("10362658") or ("9402242")).PN. or (("20190125455") or ("20070222597") or ("7213026") or ("20170078400") or ("10445536") or ("9569294") or ("9542577") or ("8452868") or ("20180107281") or ("20100301770") or ("20140244886") or ("10468219") or ("20190132815") or ("20140244881") or ("20190200987") or ("20150372868") or ("20190287062") or ("20190125459") or ("10336592") or ("20190109904") or ("20190002256") or ("9268730") or ("20190098090") or ("20100301834") or ("9974042") or ("10133243") or ("10157363") or ("20190206004") or ("20190218081") or ("20180278693") or ("9256565") or ("20190263644") or ("10346654") or ("20110072132") or ("20170020354") or ("8988223") or ("20150324681") or ("20170160776") or ("20110001436") or				

		("9930635") or ("20170009417") or ("20180005178") or ("20030093187") or ("20110001438") or ("7152040") or ("20140277615") or ("20170242427") or ("20160052762") or ("20160048709") or ("20180096180") or ("20140239718") or ("20170010610") or ("20160037478") or ("20180204029") or ("10389459") or ("10071893") or ("20170061174") or ("20170270323") or ("20160314327") or ("20160259329") or ("10241555") or ("20160048712") or ("9678484") or ("9984350") or ("20150156100") or ("20170300122") or ("9821991") or ("8334779") or ("20030052787") or ("20040039745") or ("10063331") or ("7557702") or ("20170176986") or ("10338653") or ("20190244448") or ("20040260470") or ("9541905") or ("9619989") or ("7683760") or ("9592964") or ("9774410") or ("7010369") or ("20190114450") or ("8207816") or ("8723653") or ("8710980") or ("9591607") or ("20190286243") or ("20180359039") or ("20190332833") or ("20100259931") or ("20150020558") or ("20100264846") or ("10304304") or ("20160182170") or ("20160294493") or ("20120102434") or ("9426773") or ("20160304004") or ("8457781") or ("9674812") or ("20170022015") or ("10152031") or ("20140277594") or ("9842290") or ("8373562") or ("9900119") or ("7667604") or ("9978035") or ("20130176115") or ("20170131753") or ("9769785") or ("20140148944") or ("10031489") or ("20170174490") or ("20110046775") or ("9426774") or ("9424447") or ("8928463") or ("20140215030") or ("10176297") or ("9125254") or ("9854556") or ("9674050") or ("20150156254") or ("9734682") or ("20120161963") or ("20190200863") or ("9510316") or ("7969306")).PN. or (("8368545") or ("20110291813") or ("20170010609") or ("10410176") or ("9904902") or ("8803660") or ("9811059") or ("20150077326") or ("20150053742") or ("9020634") or ("20150061511") or ("20110018707") or ("20090008450") or ("10127521") or ("20170277920") or ("9261922") or ("20030227392") or ("20170185956") or ("20060208890") or ("20100301773") or ("20150156605") or ("10049552") or ("20150156718") or ("7737857") or ("7954712") or ("20180247259") or ("9072133") or ("20170373775") or ("20190205567") or ("20050007249") or ("20140277616") or ("20170086279") or ("9775126") or ("9990604") or				

		("9286441") or ("20070027981") or ("20140346186") or ("20140240914") or ("20150154547") or ("20170118076") or ("9013301") or ("20180348883") or ("7752301") or ("20190201115") or ("10453023") or ("20190200977") or ("20190207773") or ("9949228") or ("8239527") or ("20100295665") or ("20180131455") or ("10315897") or ("10430702") or ("20190304238") or ("20140277595") or ("20190095852") or ("20140273847") or ("9942935") or ("7032037") or ("7679520") or ("20150156747") or ("20100250461") or ("20140293605") or ("8831970") or ("20190206565") or ("20090146832") or ("9875204") or ("20170164319") or ("9984348") or ("20190340396") or ("20190205566") or ("10189691") or ("20140285090") or ("9588504") or ("20140277607") or ("20120235579") or ("9778626") or ("9974041") or ("20140285095") or ("20160260148") or ("7027808") or ("20140195057") or ("20140351406") or ("8232745") or ("20170249431") or ("20100229096") or ("9936603") or ("20080252414") or ("9283054") or ("10351400") or ("9335786") or ("20150347959") or ("10138100") or ("20150156253") or ("9471821") or ("20150053743") or ("10071892") or ("20090135015") or ("9990823") or ("20150154545") or ("20140240909") or ("20110241833") or ("20170134349") or ("20190201033") or ("9766603") or ("20170142769") or ("10130232") or ("20150153175") or ("8793587") or ("10485068") or ("20140282015") or ("20080228346") or ("8025228") or ("20180286205") or ("8058985") or ("20040056779") or ("20170147915") or ("20160260301") or ("20070276548") or ("10381116") or ("9775609") or ("9445813") or ("20150154844") or ("20150156066") or ("20150289405") or ("20140282257") or ("8547226") or ("6611755") or ("20170024806")).PN. or (("20150154548") or ("20150349917") or ("20140277593") or ("20180064443") or ("20090267540") or ("9405950") or ("20160378076") or ("20070005382") or ("9117128") or ("20160320773") or ("8744620") or ("20190119083") or ("10325464") or ("20150154531") or ("9678544") or ("20170017392") or ("8511554") or ("10078811") or ("20190180059") or ("20160117450") or ("10310568") or ("20190380311") or ("9122810") or ("20150154431") or ("20190087774") or				

		("20140000322") or ("20080121700") or ("RE47599") or ("20180068211") or ("6462670") or ("20130339714") or ("9738125") or ("20190201140") or ("20130030566") or ("9913240") or ("20140257699") or ("20170019970") or ("20180064441") or ("10430073") or ("20140203915") or ("20190206569") or ("20170178104") or ("20050222933") or ("20190256334") or ("20150053741") or ("20190207911") or ("20110166891") or ("20160211632") or ("20150154544") or ("20190187690") or ("20170196649") or ("20140297855") or ("20160005284") or ("10031490") or ("20150053749") or ("20170148075") or ("8390456") or ("20190329421") or ("20180011451") or ("20050085248") or ("9504628") or ("20140274123") or ("10078809") or ("8674839") or ("20030105903") or ("20190122765") or ("10102170") or ("20160209887") or ("20190201137") or ("20170010608") or ("8323114") or ("20100210354") or ("20130332719") or ("20150054753") or ("10478973") or ("20190206562") or ("20140339249") or ("8165928") or ("20150048101") or ("7242306") or ("20180346299") or ("8511555") or ("20180077545") or ("20170353943") or ("7791479") or ("20160239696") or ("20090134999") or ("8599012") or ("9463140") or ("20180330293") or ("9021431") or ("20190201136") or ("10265859") or ("10377196") or ("10229382") or ("20150348498") or ("20150154538") or ("20140121789") or ("8719066") or ("20150154557") or ("20170368897") or ("20150154542") or ("20100252517") or ("20190101910") or ("20170007246") or ("20140339248") or ("20170007244") or ("20170007245") or ("20140223230") or ("8928456") or ("10074069") or ("20150154585") or ("8334781") or ("9456959") or ("20170264493") or ("20110128118") or ("20190371157") or ("20190359018") or ("8009034") or ("20140257754") or ("20100065632") or ("20160260161") or ("20180343024") or ("8854207") or ("20050141997") or ("20190110792")).PN. or (("20040015418") or ("20110137489") or ("20150053748") or ("7911349") or ("20120280834") or ("10195513") or ("10414052") or ("7154397") or ("20150130593") or ("10508010") or ("20190099180") or ("20190201143") or ("20180064442") or ("20120286969") or				

		("20130131870") or ("9984349") or ("20140195844") or ("20150302234") or ("9700310") or ("10022613") or ("7489993") or ("20180264347") or ("7667573") or ("20150154539") or ("20100134257") or ("20160257212") or ("10229082") or ("9788297") or ("20180352920") or ("10384351") or ("20180181906") or ("20180064440") or ("20140244325") or ("10239738") or ("9886013") or ("20160259028") or ("20190084814") or ("20040056091") or ("20170132168") or ("20150053739") or ("7374096") or ("20180332434") or ("10046228") or ("20190284034") or ("20180055513") or ("20190102930") or ("9182231") or ("20190290265") or ("20120046978") or ("20080135613") or ("20130325998") or ("6837427") or ("20140277617") or ("7450024") or ("20170225334") or ("20190113896") or ("9329654") or ("20190358515") or ("20190302231") or ("10435279") or ("20050035862") or ("10486313") or ("20160232483") or ("8547222") or ("20170340498") or ("10102494") or ("20140277596") or ("10201349") or ("20190205001") or ("8113425") or ("20110266338") or ("10235447") or ("9639722") or ("20070069018") or ("20170225336") or ("20160244311") or ("20190193276") or ("20180277241") or ("20100212087") or ("20150154543") or ("9116897") or ("7549579") or ("9211811") or ("20170225332") or ("20190169005") or ("8886985") or ("7786844") or ("20180326291") or ("20180117446") or ("20160012390") or ("20190200998") or ("20190099178") or ("20040222297") or ("20150154532") or ("20160224048") or ("20160260054") or ("7627666") or ("20140115353") or ("20180206843") or ("20160132046") or ("20130117078") or ("20080197193") or ("7486180") or ("10262172") or ("8458329") or ("20170032022") or ("7518500") or ("20060208892") or ("20140277605") or ("10360760") or ("20120028680") or ("20190206551") or ("20170225321") or ("20140258052") or ("20190099179") or ("9355531") or ("8120467") or ("20190201141") or ("20170257841") or ("20150154540") or ("20120062363") or ("20190361917") or ("20150154551") or ("20180117447") or ("20180321356") or ("20120185590") or ("9536405")).PN. or (("20190041637") or ("20150142137") or ("8738177") or				

		("20180289999") or ("20060208891") or ("20060142913") or ("20150156109") or ("20110016342") or ("20190219996") or ("20110192901") or ("20190200986") or ("20140277618") or ("8583314") or ("20170178066") or ("9068374") or ("7864047") or ("7665071") or ("20150154370") or ("10286792") or ("10078812") or ("20080174485") or ("20150154552") or ("20120143401") or ("20100005331") or ("20100154124") or ("20170308984") or ("20150054627") or ("9201933") or ("20190200844") or ("20100013639") or ("20090237258") or ("20070247316") or ("9860965") or ("20070120689") or ("8456286") or ("20170196560") or ("20150053746") or ("20080116269") or ("20160258762") or ("20150053737") or ("9924942") or ("7952485") or ("7440767") or ("10441281") or ("8508367") or ("20140166745") or ("20180262891") or ("20120109797") or ("9358894") or ("20100141445") or ("20180033244") or ("6658586") or ("9928713") or ("9235979") or ("20050127177") or ("20170103239") or ("20150053744") or ("20050125312") or ("20050040952") or ("20160035246") or ("9949540") or ("9510828") or ("20180074156") or ("20040222298") or ("20130231779") or ("20090088924") or ("10470008") or ("20020183882") or ("20180211465") or ("8803669") or ("20190340876") or ("20100194604") or ("10037449") or ("20050085180") or ("20150154555") or ("10322675") or ("20150076209") or ("20150076210") or ("20190108691") or ("20050194437") or ("9129493") or ("20150154553") or ("9361568") or ("20170318919") or ("20080121690") or ("20080088437") or ("10109124") or ("20170223807") or ("8169304") or ("20100127880") or ("20090270174") or ("10412110") or ("10158654") or ("9721418") or ("20170039833") or ("9808249") or ("20190146482") or ("7956746") or ("20080122691") or ("10403069") or ("8947201") or ("9367195") or ("20170347333") or ("7938326") or ("9452684") or ("20160313744") or ("20080052027") or ("20120109401") or ("20190119978") or ("20080122656") or ("8874817") or ("9928054") or ("7661591") or ("20080088438") or ("20110140913") or ("20180190056") or ("7548826") or ("8400268") or ("9463574") or ("20060181400") or ("9594998") or				

		("20170069148") or ("9665521") or ("20090212925") or ("8248252") or ("20120004770") or ("9792542") or ("20180146960")).PN. or (("20180153542") or ("20180368833") or ("20190110791") or ("20090174550") or ("20150053745") or ("20150154541") or ("10469993") or ("20120143383") or ("10199715") or ("10395021") or ("8825535") or ("9655217") or ("20150019008") or ("20180125489") or ("20110068921") or ("20140347174") or ("20150053740") or ("20160232479") or ("20060288101") or ("20190045325") or ("20170008162") or ("9720479") or ("9809169") or ("10032123") or ("20140145845") or ("20130205069") or ("20170296173") or ("20170305349") or ("20170021260") or ("8577759") or ("20190201116") or ("20120109403") or ("20150278219") or ("20170318923") or ("20090309732") or ("9490920") or ("20180124072") or ("20060250249") or ("20180072223") or ("20170228566") or ("20180109955") or ("20120109798") or ("9288117") or ("20090144010") or ("9367980") or ("20110040440") or ("20190073209") or ("20160266891") or ("7974809") or ("9283857") or ("20100127881") or ("20120194327") or ("20170214117") or ("20130257600") or ("20170105086") or ("20140297180") or ("20080086349") or ("9921559") or ("20120047050") or ("20120271742") or ("9857234") or ("6647328") or ("7668754") or ("20180004176") or ("20160330825") or ("20180089410") or ("20170168472") or ("20150369671") or ("20100164736") or ("20190025354") or ("9082260") or ("9715814") or ("20080313006") or ("20140265577") or ("8242926") or ("20150129666") or ("20190025355") or ("8938366") or ("20110153614") or ("20150163626") or ("20190180533") or ("10104496") or ("20120005344") or ("20150053738") or ("8461725") or ("20060154642") or ("20040078503") or ("9987006") or ("20160116961") or ("9380274") or ("20160162772") or ("8983875") or ("20100116885") or ("20120109402") or ("20190025353") or ("10448211") or ("20190173154") or ("10432473") or ("20160260145") or ("9541454") or ("6636983") or ("20190294131") or ("20190187641") or ("6658585") or ("20120233006") or ("20150221160") or ("20180077546") or				

		("10453572") or ("20180124095") or ("20190201146") or ("7319853") or ("20170082498") or ("10026033") or ("20160117583") or ("20050080956") or ("20190141063") or ("10380511") or ("20180066996") or ("9390362") or ("20110068906") or ("20140187172") or ("7254468") or ("20010056544") or ("8171142") or ("20190350582") or ("9355508")).PN. or (("20110187503") or ("20050086366") or ("20160321480") or ("20070034264") or ("20180024700") or ("20190116478") or ("9117342") or ("8700420") or ("20150126234") or ("8819855") or ("8674806") or ("7782194") or ("7117169") or ("20110298301") or ("20170308143") or ("20190146481") or ("7082528") or ("20160284185") or ("20190201144") or ("20030114206") or ("20190156280") or ("9619951") or ("9830483") or ("20080198015") or ("20130339479") or ("20100031043") or ("10354315") or ("9902539") or ("20190125486") or ("20190222652") or ("10034359") or ("20180109417") or ("20130262170") or ("20020169696") or ("9355510") or ("20180184506") or ("20180077521") or ("20170308797") or ("8311765") or ("20090189767") or ("20190317564") or ("9037881") or ("8491159") or ("8941470") or ("9026462") or ("20170193417") or ("10089505") or ("20130026220") or ("9352887") or ("20170308795") or ("20120106672") or ("20180007504") or ("9373241") or ("10181167") or ("20180165565") or ("8725345") or ("9965564") or ("9602976") or ("20150348396") or ("9571211") or ("20090270175") or ("20070205894") or ("9043332") or ("20180125488") or ("20160343181") or ("20190012705") or ("10085332") or ("20140108827") or ("20150051749") or ("20190108355") or ("9711038") or ("9781548") or ("8138925") or ("20170324896") or ("10448491") or ("10448489") or ("10349744") or ("20150102901") or ("9641969") or ("9351353") or ("20190201138") or ("7510110") or ("20150223019") or ("8416064") or ("20190206561") or ("20110133908") or ("20160132822") or ("20190303848") or ("20170308975") or ("8248239") or ("20160355308") or ("20180192501") or ("9691198") or ("20030195644") or ("20180271286") or ("9098818") or ("20170308799") or ("7714723") or ("20170126505") or ("20190099224") or ("20180249561") or ("20070285241") or				

		("20110313893") or ("20090029766") or ("8764242") or ("8004397") or ("10068467") or ("20180271287") or ("10342104") or ("20150154549") or ("20180302477") or ("9811949") or ("20190122321") or ("7451238") or ("9807858") or ("7741808") or ("20120253508") or ("20170332750") or ("20150163867") or ("20090222349") or ("20190295369") or ("10357107") or ("20070197262") or ("20080061979") or ("7518502") or ("10257217") or ("8994276") or ("10025337") or ("20130268199")).PN. or (("20170280274") or ("10098211") or ("20080091309") or ("20140361869") or ("9142116") or ("20050108096") or ("8279065") or ("7323991") or ("9849364") or ("9943174") or ("20040049324") or ("8600932") or ("20150332211") or ("20170017815") or ("20140075514") or ("20180177032") or ("8855794") or ("9953289") or ("20130278067") or ("6654816") or ("10390413") or ("20190201105") or ("8294579") or ("20170163515") or ("9004352") or ("20190292030") or ("9908239") or ("10438271") or ("20140187173") or ("10262656") or ("8610574") or ("8325011") or ("8558699") or ("20090195363") or ("20110191058") or ("10102703") or ("9896315") or ("20130285558") or ("9442789") or ("9870773") or ("20080215727") or ("8269630") or ("20160275731") or ("20170111451") or ("7898403") or ("20180107188") or ("9465559") or ("9442876") or ("8248238") or ("20090216775") or ("20080026625") or ("8253567") or ("20180310389") or ("6421571") or ("20170276573") or ("20190201104") or ("10437658") or ("8284055") or ("20100327766") or ("20120080944") or ("10346792") or ("20160249439") or ("9047181") or ("20180084627") or ("20120194354") or ("20190137989") or ("8000850") or ("10499478") or ("7685026") or ("7364452") or ("20080231431") or ("20170171359") or ("20130204984") or ("8421630") or ("10296194") or ("9019104") or ("8242907") or ("7953849") or ("8947233") or ("20030030993") or ("20160029160") or ("8682541") or ("20170074617") or ("20190201145") or ("6775576") or ("20130293378") or ("8242908") or ("20170232300") or ("20080084333") or ("10089850") or ("7291032") or ("20130158736") or ("9739763") or ("10351399") or ("20120169469") or ("20190272498") or ("20160147589") or ("20160364129") or ("10117059") or ("20080125965") or ("9530295") or ("8451120") or				

		("20120228243") or ("20190137988") or ("10204297") or ("20180263098") or ("20180161225") or ("20190280438") or ("20070055470") or ("7302320") or ("9543788") or ("20080084334") or ("8359248") or ("20140062730") or ("20080125964") or ("9857133") or ("20160132532") or ("20030191877") or ("9682598") or ("10154555") or ("20180131715") or ("8519566") or ("9730518") or ("20140058616") or ("6882917") or ("20190050784") or ("10284589") or ("20140196761") or ("8770140")).PN.				
S188	116	((("CHANG") near3 ("Cheng-Wen")) OR (("TSAI") near3 ("CHEN-YU")) OR (("WANG") near3 ("CHUN-YUAN")) OR (("LEE") near3 ("CHENG-YI"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 11:41
S189	3	(("20190324502") or ("20170311461") or ("10045448")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:49
S190	114	(("20190324502") or ("20170311461") or ("10045448") or ("20160363960") or ("9864412") or ("9772657") or ("20160320804") or ("10162387") or ("20170329369") or ("20180235440") or ("20150366090") or ("9477267") or ("20090101405") or ("8153896") or ("20190141843") or ("20190261520") or ("4507769") or ("20060176655") or ("7289315") or ("20190339742") or ("20010042990") or ("20170280571") or ("10188002") or ("5926167") or ("6499788") or ("20190056768") or ("9603271") or ("20150257289") or ("10001810") or ("10430923") or ("20190098783") or ("20190387633") or ("20180011515") or ("20180225804") or ("20120277530") or ("20140197289") or ("20180160554") or ("10506726") or ("20040061683") or ("20190087016") or ("8306575") or ("7196692") or ("8795158") or ("8876074") or ("20190374233") or ("20080013264") or ("7830460") or ("9791892") or ("20150378397") or ("7272423") or ("20190371214") or ("20020146960") or ("20080192419") or ("20180032108") or ("10152089") or ("20090075702") or ("20160324021") or ("4674859") or ("4426695") or ("10347160") or ("7949312") or ("20060293095") or ("20190079561") or ("20060055607") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:49

		("8638321") or ("20130167600") or ("20170234478") or ("10400942") or ("20090290077") or ("2680581") or ("9823697") or ("20140357954") or ("RE32996") or ("8302925") or ("7046204") or ("9678539") or ("7817410") or ("4582271") or ("10433438") or ("20150116921") or ("20120074802") or ("4555173") or ("9992888") or ("20160216737") or ("20160179141") or ("20160374228") or ("20070210223") or ("20180077810") or ("20110182007") or ("20180188637") or ("9271634") or ("20090272870") or ("9836087") or ("9756757") or ("8456834") or ("20180270971") or ("20050088814") or ("20060162122") or ("20030209212") or ("20030086240") or ("4685792") or ("20150164514") or ("8052101") or ("20080302741") or ("6819550") or ("20040228080") or ("9103349") or ("20190380218") or ("20040202316") or ("4668076") or ("20190098774") or ("20040218352") or ("7209344")).PN.				
S191	18,778	G06F1/1652,1626,1613.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:50
S192	3,149	G06F2203/04105.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 11:50
S193	1,552	361/679.17,679.41-679.44.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:09
S194	6,319	G06F1/1624,1633,1662,1667,1669,1671.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:09
S195	1,132	(("20190215975") or ("8395465") or ("20130100055") or ("8665044") or ("20160226183") or ("20160226182") or ("9494980") or ("8988876") or ("8264310") or ("20190278329") or ("20140049911") or ("8390411") or ("20120068919") or ("8390412") or ("20120069503") or ("10037054") or ("10303215") or ("8289114") or ("20190064878") or ("20180012691") or ("10236106") or ("8928437") or ("20190180898") or ("20170010633") or ("20150153783") or ("8344836") or ("20150160696") or ("20130162668") or ("8975991") or ("20160209883") or ("20120194308") or ("20120068942") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:15

		("8143982") or ("20130162669") or ("20140334098") or ("8143983") or ("9329630") or ("8576031") or ("9773598") or ("9568954") or ("20170125144") or ("20120066865") or ("20130162554") or ("8648679") or ("9627803") or ("20190004764") or ("10212506") or ("20140321040") or ("8242868") or ("8884730") or ("20120069540") or ("20120068798") or ("8253518") or ("8514042") or ("20170093453") or ("8390413") or ("20180115816") or ("8934226") or ("20170094391") or ("20120068799") or ("8138869") or ("9967644") or ("9883272") or ("9967648") or ("20130214887") or ("20120066873") or ("9588550") or ("10225637") or ("20160268729") or ("20190289382") or ("20120300383") or ("10003880") or ("10003881") or ("20190052739") or ("20130027867") or ("20170093079") or ("9973840") or ("20170094397") or ("20170094398") or ("20170094390") or ("20170245038") or ("20170094393") or ("20170264046") or ("20170094381") or ("10446948") or ("9769558") or ("8665045") or ("10397683") or ("10397682") or ("9883281") or ("20190289383") or ("9973845") or ("10009678") or ("9794673") or ("9967650") or ("20170094396") or ("9826301") or ("9883277") or ("20120068797") or ("20170093454") or ("20190289381") or ("20170094392") or ("10182282") or ("9883274") or ("9531119") or ("20160268730") or ("20170238087") or ("10097913") or ("20120069502") or ("9961433") or ("20170094399") or ("20170094394") or ("9967649") or ("20100225429") or ("8073324") or ("20170347182") or ("9326576") or ("9961431") or ("9883276") or ("9954571") or ("20160323006") or ("20170177037") or ("20190024683") or ("10203728") or ("20160003270") or ("20170094395") or ("20160240966") or ("20140043748") or ("20160320808") or ("20160202734") or ("9502819")).PN. or (("20130294020") or ("20140043741") or ("20140043121") or ("8953310") or ("9615476") or ("20150076185") or ("20150119114") or ("9848071") or ("20180103135") or ("8878637") or ("10104211") or ("9071672") or ("20180212455") or ("10401902") or ("20170062999") or ("10505386") or ("9653844") or ("10090877") or ("10404089") or ("9072352") or ("20170237460") or ("20160098016") or ("20160378072") or ("10050378") or ("20160094076") or ("20170257146") or ("10063009") or ("20130027862") or ("20120314354") or ("9753436") or ("20180337704") or				

		("20190386507") or ("9300344") or ("8531834") or ("9627130") or ("9660684") or ("9559741") or ("20160099741") or ("10396843") or ("20130334072") or ("20190072911") or ("20190278232") or ("20150111398") or ("8995126") or ("20140233167") or ("5112247") or ("20150270046") or ("20130217246") or ("20150171913") or ("8401219") or ("20160239047") or ("9172178") or ("9854343") or ("20080165982") or ("20100134964") or ("9276626") or ("9287657") or ("20080166007") or ("20160111815") or ("20170048604") or ("20130273752") or ("20170035170") or ("20180337467") or ("20170245040") or ("10433043") or ("20150117141") or ("20160204545") or ("8180093") or ("9312633") or ("20150117137") or ("9729791") or ("9815037") or ("9967646") or ("9625944") or ("9032130") or ("20190090045") or ("20140072312") or ("20180028991") or ("20080164934") or ("10313775") or ("10231044") or ("20120268878") or ("20180255389") or ("20170065947") or ("20190132665") or ("20180255388") or ("20150201723") or ("20090174990") or ("9118990") or ("10213756") or ("10165346") or ("20080166001") or ("20100254111") or ("7997906") or ("9555384") or ("9300081") or ("20150277491") or ("8311255") or ("20160058375") or ("20080166006") or ("9886006") or ("20160378070") or ("7762817") or ("20160378071") or ("20160378069") or ("5105095") or ("10054990") or ("20150227178") or ("9665125") or ("8853998") or ("9317076") or ("20180136613") or ("20170149171") or ("20140217862") or ("20130002193") or ("20160150861") or ("9584709") or ("20160241761") or ("9583871") or ("8915361") or ("20140355200") or ("20080166005") or ("10234828") or ("20150116926") or ("9019698") or ("8712071") or ("20170093087") or ("9941627") or ("20160040698") or ("20180248406")).PN. or (("9877549") or ("10264857") or ("20150318709") or ("20170085283") or ("20160040695") or ("9853507") or ("8867758") or ("20160037870") or ("20160191101") or ("20080164770") or ("9229494") or ("20180226747") or ("10085523") or ("9852844") or ("20070035917") or ("7715187") or ("9450634") or ("20120224710") or ("9819850") or ("9898048") or ("9900041") or ("9294830") or ("20190216178") or ("20160277649") or ("8185084") or ("20160259374") or ("7352567") or ("20190371504") or ("20170318375") or ("20170345536") or ("20150270058") or				

		("20120212063") or ("20180062454") or ("20070247800") or ("20080278899") or ("20160072327") or ("9634728") or ("20170205855") or ("20130326829") or ("20150102879") or ("7916467") or ("20100177476") or ("20150349847") or ("10192665") or ("20190296497") or ("9773601") or ("20140091686") or ("10511127") or ("20190053584") or ("9126237") or ("20180311795") or ("20140265765") or ("20140028243") or ("20180332445") or ("20150117139") or ("10312039") or ("20080163663") or ("9611881") or ("8650925") or ("20100194503") or ("20090126155") or ("20160040825") or ("20140263908") or ("10321279") or ("20160217953") or ("9689527") or ("20120021619") or ("9977460") or ("20100194375") or ("20130082840") or ("20160254837") or ("20190293232") or ("20170207042") or ("20180306380") or ("8248059") or ("9818559") or ("20190220059") or ("9324487") or ("9548785") or ("20170070076") or ("8963666") or ("20180242064") or ("20190283823") or ("20160037876") or ("20160215923") or ("20180324964") or ("9608475") or ("20150116927") or ("9894964") or ("20160102805") or ("20110028041") or ("20170256883") or ("10442367") or ("20180125178") or ("5128835") or ("20060098403") or ("10491725") or ("9869423") or ("10123593") or ("20120326819") or ("20180094769") or ("20130082919") or ("7942678") or ("20190132018") or ("20130082918") or ("20170371374") or ("9590352") or ("20120023597") or ("9825399") or ("10401905") or ("7826205") or ("20170070077") or ("20180309232") or ("8823477") or ("20130100601") or ("20190132019") or ("10454515") or ("10125921") or ("5226634") or ("9577467") or ("20130077236") or ("20190220065") or ("9778705") or ("9497697") or ("10381144") or ("20150311741") or ("9748689") or ("10485115") or ("20180241429")).PN. or (("20160127643") or ("20170068286") or ("9709111") or ("20080166907") or ("20180250557") or ("10389399") or ("20170083049") or ("20170106298") or ("9450446") or ("20180364769") or ("20170110229") or ("8711554") or ("8811648") or ("20170317533") or ("20150126934") or ("9901147") or ("20170364125") or ("20130157477") or ("5192832") or ("20170047767") or ("20160088880") or				

		("20140066128") or ("20060272725") or ("9943332") or ("20180298636") or ("10317953") or ("20170106300") or ("20120250928") or ("10065081") or ("10082840") or ("9252627") or ("20130033844") or ("9950267") or ("10372159") or ("7578628") or ("7798831") or ("9425543") or ("20150358439") or ("10184506") or ("9602639") or ("20140177139") or ("20140240085") or ("8794980") or ("8811032") or ("20160093979") or ("20150199858") or ("20180330859") or ("20170098916") or ("20160190736") or ("20160069371") or ("9628707") or ("20170216734") or ("20130082924") or ("9643096") or ("9761068") or ("20150195937") or ("9282662") or ("20060046792") or ("20080081505") or ("20160182826") or ("10164688") or ("20120004602") or ("10437359") or ("20190025889") or ("9445633") or ("20120029385") or ("20180295896") or ("9647755") or ("20180351393") or ("20180064224") or ("20180207539") or ("20180056306") or ("20140342579") or ("20180224897") or ("10206474") or ("10014624") or ("10049801") or ("20160261166") or ("9954330") or ("20160065702") or ("20140065847") or ("8029309") or ("8939773") or ("8882710") or ("20170070001") or ("20160091922") or ("20110178461") or ("9814995") or ("8435209") or ("20110031287") or ("8932256") or ("10238981") or ("20180108190") or ("20160064996") or ("20190238170") or ("20130005179") or ("9706026") or ("20130190683") or ("20170222359") or ("8798675") or ("9534852") or ("20160198838") or ("10345866") or ("10300497") or ("20180203482") or ("20170085020") or ("20150185771") or ("20120112552") or ("20180185060") or ("20180234127") or ("20150126047") or ("9905964") or ("9913526") or ("9946297") or ("20160309010") or ("20190217213") or ("20170150049") or ("20140131007") or ("20170264037") or ("20170177039") or ("8545247") or ("9927836") or ("9610405") or ("8104816") or ("10270484") or ("20190110567") or ("9787129") or ("9576409") or ("9768538") or ("4491791")).PN. or (("9086835") or ("10483614") or ("20130085705") or ("10390594") or ("10511341") or ("20180133871") or ("20150153765") or ("20180246548") or ("20180246547") or ("20080232071") or ("9961793") or ("9742085") or ("20140273546") or ("9946315") or ("20180091879") or ("9197011") or ("20190089395") or ("10248171") or ("20190235587") or ("10254805") or ("9064356") or				

		("10050658") or ("20130083477") or ("20190089037") or ("9787022") or ("20180091878") or ("20110272959") or ("20170308134") or ("9600029") or ("20190158136") or ("20190238728") or ("8031461") or ("10257608") or ("20170257147") or ("20160032952") or ("10298075") or ("20160069712") or ("20170250578") or ("20180366893") or ("9161484") or ("20180183622") or ("10322233") or ("9883610") or ("9553403") or ("20170157321") or ("8188851") or ("9829350") or ("9363904") or ("20140047677") or ("20180091901") or ("20170157322") or ("10350353") or ("20190282756") or ("20180085283") or ("20100277304") or ("10254802") or ("9559456") or ("4491792") or ("9267638") or ("20180213921") or ("9329295") or ("20130134291") or ("10197891") or ("20150214760") or ("20190198212") or ("8382059") or ("20040198245") or ("10236649") or ("20160126675") or ("20160020557") or ("9538675") or ("20180059512") or ("20190190193") or ("20100331059") or ("20190363565") or ("20190335868") or ("8960634") or ("20150163936") or ("20040239460") or ("20090061794") or ("20180091889") or ("20190110561") or ("20120199501") or ("20130048464") or ("9879596") or ("7003333") or ("20100242332") or ("20160329658") or ("9286024") or ("20170251313") or ("20130328825") or ("20170179661") or ("9843150") or ("20140070036") or ("20180088724") or ("20190057799") or ("20180087767") or ("10182623") or ("9702741") or ("9967653") or ("8978854") or ("20180091897") or ("20190348791") or ("20160084683") or ("8218306") or ("10425241") or ("10025352") or ("20110175601") or ("20190103751") or ("20180091894") or ("20180227661") or ("7841120") or ("20170235339") or ("10129667") or ("20160037897") or ("20160313669") or ("10298037") or ("9432490") or ("9930444") or ("9457730") or ("20030030342") or ("20130084921") or ("20150271961") or ("20130183000") or ("20190230434") or ("9733669") or ("20180054077") or ("9429940") or ("20160094090")).PN. or (("9588462") or ("20130187020") or ("9342073") or ("20130328914") or ("9035872") or ("10250783") or ("20190186857") or ("20180091888") or ("9974206") or ("20140144624") or ("20180091896") or ("20180227664") or				

		("20190346653") or ("9876266") or ("10123608") or ("9904501") or ("20160217896") or ("20160037896") or ("9964999") or ("20180217669") or ("10004142") or ("9682451") or ("20180013934") or ("10117504") or ("20150224941") or ("8947076") or ("20160037877") or ("9829655") or ("10377459") or ("20160301157") or ("20150318100") or ("10401982") or ("10458736") or ("20190230259") or ("20130050958") or ("20150221460") or ("20140152890") or ("20150083838") or ("10290440") or ("20070104340") or ("20190053610") or ("20130076597") or ("20160022374") or ("20190046993") or ("8847979") or ("20190228927") or ("20180281914") or ("9007157") or ("20170205847") or ("20170068276") or ("20170123348") or ("20160246248") or ("20060230297") or ("9755355") or ("9145666") or ("10020668") or ("20180088690") or ("9478339") or ("20140328621") or ("20180249079") or ("20170215293") or ("20130206942") or ("20150077372") or ("20190233075") or ("20170070801") or ("20160373870") or ("20180181361") or ("5933330") or ("10225640") or ("20170033567") or ("20130082585") or ("9469469") or ("9904209") or ("9417600") or ("20090059485") or ("20170269641") or ("9838085") or ("20160118179") or ("4027278") or ("10469635") or ("9291989") or ("20170150539") or ("20180218859") or ("20180237214") or ("9377807") or ("9447619") or ("20150300839") or ("20130100605") or ("20170300095") or ("20180187828") or ("20190141846") or ("20100156345") or ("9826302") or ("20180013229") or ("8576034") or ("20180063433") or ("20130169391") or ("20110253895") or ("20190291191") or ("7974662") or ("8762704") or ("7152440") or ("9883273") or ("20130176626") or ("20130083470") or ("20090088227") or ("20150359367") or ("10073499") or ("9729683") or ("20180364699") or ("20120154288") or ("9575555") or ("20180249078") or ("9787346") or ("10367300") or ("20190313025") or ("9948719") or ("10003333") or ("20180259285") or ("20180011390") or ("20160198824") or ("9019718") or ("10423155") or ("20150270900") or ("20160266606") or ("20180217668") or ("9170608") or ("8242741") or ("20170222681")).PN. or (("9386872") or ("20170318376") or ("20160349748") or ("20140187057") or ("20090297136") or				

		("20150318655") or ("20100081377") or ("20150024809") or ("20180107247") or ("9930257") or ("9086836") or ("9317243") or ("20190158946") or ("10228208") or ("9882305") or ("20140062629") or ("20170011834") or ("20190036363") or ("20150179324") or ("8548541") or ("20080143954") or ("10348965") or ("8581739") or ("20150049426") or ("20130343025") or ("7645143") or ("20090147471") or ("10294016") or ("9827504") or ("20170170677") or ("10416537") or ("20110006611") or ("20130048463") or ("9836083") or ("9083111") or ("8564950") or ("20150007431") or ("20130342159") or ("8455826") or ("20190289716") or ("9501108") or ("10044232") or ("20190141854") or ("9518840") or ("20190137728") or ("9041347") or ("20080002355") or ("8866571") or ("10401590") or ("7845953") or ("20180245374") or ("10133308") or ("9419378") or ("20160091925") or ("20180013221") or ("20130077221") or ("9474345") or ("9118143") or ("8233948") or ("9497054") or ("20150362962") or ("20140209503") or ("20170220077") or ("20130164949") or ("20120281346") or ("9093234") or ("7641477") or ("9281109") or ("20080132302") or ("20130083464") or ("20160101741") or ("7583495") or ("20150236444") or ("20130309935") or ("10250064") or ("7517222") or ("20130113423") or ("10005611") or ("6595608") or ("20160377891") or ("20090176391") or ("10170851") or ("9899132") or ("6155126") or ("10465422") or ("20190296482") or ("9050932") or ("9090214") or ("20160094691") or ("7810750") or ("9461431") or ("9886032") or ("20160344136") or ("4756312") or ("20180315563") or ("4273976") or ("9690385") or ("20190074729") or ("20140345957") or ("7917028") or ("20170202598") or ("20040226424") or ("9116655") or ("20120082317") or ("10468919") or ("7577467") or ("20170040825") or ("20170138101") or ("10466510") or ("9569002") or ("20060230296") or ("20180062420") or ("20160198782") or ("20110051982") or ("20160015887") or ("20180136584") or ("20160015886") or ("20130088828") or ("10381881") or ("9917468") or ("8803701") or ("8688037") or ("20140078462") or ("20180073275") or ("20140254077") or ("20190074724") or ("9606375") or ("20180013271") or ("9597607") or ("20130120106") or ("7652888")).PN. or (("8373310") or ("20170227793") or ("8540363") or				

		("8967355") or ("8644519") or ("20120315864") or ("10036186") or ("9417678") or ("20160015911") or ("10248048") or ("20120282124") or ("8890369") or ("20180212358") or ("8467829") or ("20170149474") or ("20160015885") or ("20190131847") or ("20180245375") or ("20180220213") or ("20140072261") or ("20170179622") or ("20130048462") or ("20160015956") or ("20170092402") or ("20190192367") or ("20180059791") or ("20190074719") or ("20080252476") or ("20180013272") or ("10105149") or ("20160057879") or ("20190281715") or ("10431360") or ("20150237750") or ("20160015957") or ("20170070131") or ("8342325") or ("9831599") or ("20120211382") or ("9164246") or ("9329641") or ("20180234529") or ("20190310706") or ("20180136686") or ("7311526") or ("9693609") or ("20170196086") or ("20180077810") or ("10481417") or ("10389858") or ("20160015888") or ("20140077954") or ("10455306") or ("20150056847") or ("20130088130") or ("20180012710") or ("10082241") or ("20090252488") or ("20180077806") or ("9917937") or ("20130188312") or ("9992888") or ("20130048461") or ("20170366652") or ("20140227026") or ("9280084") or ("20180164537") or ("20190312421") or ("20170303026") or ("20140281633") or ("20080024964") or ("20170049973") or ("20160213414") or ("8526180") or ("9229675") or ("4025885") or ("20180169324") or ("9502873") or ("20160208580") or ("20140027317") or ("9246551") or ("20180206607") or ("8780548") or ("6517777") or ("20140045559") or ("9452255") or ("9380723") or ("20170312421") or ("20180252359") or ("9918395") or ("10165814") or ("20130092576") or ("10256568") or ("20120163754") or ("20170333620") or ("20070141860") or ("10303216") or ("9601286") or ("20120044081") or ("20170072135") or ("20150084357") or ("20130082955") or ("20170072136") or ("20180183916") or ("20150311011") or ("20170250563") or ("20180169323") or ("10474108") or ("20160284497") or ("20130083468") or ("20180169325") or ("20170086551") or ("9452256") or ("8769772") or ("8887890") or ("20190094811") or ("20180245373") or ("20160066460") or ("20160131358") or ("9778690") or ("20180186242") or ("8570737") or ("20180245372") or ("20110170256") or				

		("20190072999") or ("20170333621") or ("20140372940")).PN. or (("20130083558") or ("9549598") or ("20130077226") or ("10387020") or ("20150237748") or ("8497753") or ("10244630") or ("10268274") or ("9744291") or ("20110136351") or ("20190070358") or ("20180129078") or ("20190076597") or ("9722450") or ("20190290297") or ("9744290") or ("9925330") or ("9439314") or ("10133314") or ("9789245") or ("9785188") or ("20190074706") or ("9277661") or ("10376632") or ("9517299") or ("20120118773") or ("20160066459") or ("20070072442") or ("10376631") or ("9098069") or ("10172998") or ("8881882") or ("20180239431") or ("9692147") or ("8783457") or ("20190033917") or ("20150086210") or ("9931460") or ("9931459") or ("6367344") or ("10299554") or ("8531824") or ("20150090748") or ("20150220111") or ("9926953") or ("20180157401") or ("20150137978") or ("20170012661") or ("20130120459") or ("8973753") or ("10491041") or ("8087939") or ("9262900") or ("20100081473") or ("20170138763") or ("20160084434") or ("20160322745") or ("9548576") or ("20160048165") or ("10291059") or ("7351066") or ("20130175986") or ("10166327") or ("20140262847") or ("20160352385") or ("20140217863") or ("9822611") or ("7515405") or ("20190138073") or ("20150022324") or ("10172999") or ("20160006288") or ("9288922") or ("20190101960") or ("9125506") or ("10107646") or ("9107299") or ("20180327981") or ("20180028818") or ("20130043777") or ("7331793") or ("20160029844") or ("8393466") or ("9696752") or ("10070871") or ("9998166") or ("10340969") or ("9247661") or ("9423671") or ("9627163") or ("20170076885") or ("10429722") or ("9370279") or ("9899753") or ("10370872") or ("20140016217")).PN.				
S196	1	("20190215975").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:15
S197	4	(("20110101185") or ("20110228504") or ("20180130389") or ("8384616")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:36
S198	186	(("7742289") or ("20100014228") or ("20150238073") or ("10131280") or ("20070097618") or ("20070097619") or ("9782159") or ("20080151489") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:39

		("20180256145") or ("20150018622") or ("7317613") or ("7606026") or ("10231607") or ("7499272") or ("9783114") or ("20150146000") or ("20190380566") or ("20120236152") or ("8908039") or ("20070097617") or ("20180029534") or ("20140239139") or ("7502226") or ("9492065") or ("9723976") or ("20140005486") or ("20180064316") or ("9615728") or ("9681796") or ("20140005489") or ("8882662") or ("20140005484") or ("20160100908") or ("20190096174") or ("20150141759") or ("9216068") or ("20180064317") or ("20140005487") or ("20140005485") or ("9936863") or ("9642606") or ("20180055348") or ("20180070804") or ("9492073") or ("9629523") or ("20140005488") or ("20180353059") or ("20180055502") or ("10022041") or ("20140005555") or ("20150272694") or ("20190046021") or ("20150197879") or ("20100134964") or ("7821495") or ("20070057914") or ("20140247612") or ("8934226") or ("20120268878") or ("9476575") or ("9588550") or ("9538675") or ("20090065667") or ("8960634") or ("20100155265") or ("20070247800") or ("20170251558") or ("20140125875") or ("20150163936") or ("9924603") or ("8171761") or ("20120199501") or ("8313072") or ("20140171843") or ("20130271940") or ("9655267") or ("20180279490") or ("20070257178") or ("20080000477") or ("20090257603") or ("10098246") or ("20180228687") or ("20100193650") or ("7497412") or ("20170112707") or ("20150227267") or ("20110315844") or ("20070257181") or ("7891624") or ("20110108692") or ("6215518") or ("8460223") or ("9702500") or ("7922139") or ("20160255731") or ("9792758") or ("20160005266") or ("7988119") or ("9968511") or ("20160001188") or ("8297578") or ("20090192421") or ("8582316") or ("8194133") or ("20130063920") or ("20060164230") or ("20130086797") or ("9247683") or ("8462103") or ("20160202734") or ("20160320808") or ("7370983") or ("20080266389") or ("20170343150") or ("20050200696") or ("6604831") or ("20190102980") or ("9939100") or ("7789756") or ("20050264543") or ("20190371117") or ("8964298") or ("20110031287") or ("10395466") or ("20050146844") or ("20160005262") or ("20110002110") or ("20130127980") or ("20130235282")).PN. or (("20060205504") or				

		("20180141499") or ("10220797") or ("9983620") or ("20090243970") or ("20070252489") or ("20050202879") or ("8542499") or ("9082325") or ("20080156949") or ("20170086309") or ("10359145") or ("20060119539") or ("8400371") or ("20120224347") or ("20130278631") or ("8075384") or ("7871048") or ("8687352") or ("10495255") or ("20170006727") or ("6967632") or ("9185782") or ("20180038543") or ("7542012") or ("9267638") or ("20130134291") or ("20190075944") or ("20150220300") or ("20100066640") or ("20160210886") or ("20190166704") or ("9945509") or ("8382059") or ("9506281") or ("20090269943") or ("20050127260") or ("8342857") or ("10485362") or ("10290177") or ("20110136350") or ("20070197896") or ("20160005261") or ("5407519") or ("7963773") or ("20140203727") or ("8190238") or ("20160062416") or ("7175152") or ("20190197666") or ("20170159876") or ("9845816") or ("20190206183") or ("20190295459") or ("20190206182") or ("20170322634") or ("20130107137")).PN.				
S199	4,622	G06F1/1601.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:45
S200	4,858	G06F3/147.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:45
S201	775	G09F9/3026.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
S202	429	G09F7/20.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
S203	5,254	345/1.1,1.3,33,55.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
S204	2,087	248/917,919,920,921,922,923.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:46
S205	215	361/679.04.CCLS.	US-PGPUB;	OR	OFF	2019/12/23 12:46

			USPAT; USOCR			
S206	215	361/679.04.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:52
S207	81	S205 AND WALL	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:52
S208	57	("20030039094" | "20030090866" | "20030154673" | "20040212745" | "20060238967" | "20060243872" | "20070007411" | "20070170325" | "20070252060" | "20080123284" | "20090184221" | "20100171014" | "20110002129" | "4657316" | "4866530" | "4919287" | "4920458" | "5299017" | "5321579" | "5348324" | "5351176" | "5579597" | "5636101" | "5786995" | "5805117" | "6054968" | "6359775" | "6594078" | "6688518" | "6692093" | "6841790" | "6883563" | "6989800" | "7019786" | "7176380" | "7334766" | "7408596" | "7430111" | "7438269" | "7510156" | "7513469" | "7546745" | "7661643" | "7663706" | "7712717" | "7719480" | "7780124" | "7866622" | "7869201" | "7891622" | "D390143").PN. OR ("8313072").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:54
S209	2,443	g06f1/1647.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:59
S210	11,517	g06f3/147,1446,1423.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:59
S211	775	g09f9/3026.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 12:59
S212	354	(("20190364656") or ("20190311968") or ("20060232940") or ("10091894") or ("20170086313") or ("20140072855") or ("20140087231") or ("20150359107") or ("8317525") or ("20110256749") or ("20070175656") or ("5218516") or ("20170006711") or ("10098240") or ("7807931") or ("20180302999") or ("20110134610") or ("20150211718") or ("7911051") or ("20110170258") or ("20160212835") or ("20150173227") or ("8477502") or ("10015875") or ("4698729") or ("20180359874") or ("20180352666") or ("9237679") or ("10462915") or	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:24

		("20130314876") or ("20170082466") or ("20110017497") or ("8344258") or ("20190230804") or ("20160088771") or ("9930809") or ("6851598") or ("9060454") or ("20120057320") or ("20030038157") or ("20100226098") or ("8339789") or ("20040028315") or ("20080094805") or ("8547701") or ("6661664") or ("20020172010") or ("20090056980") or ("20100230151") or ("6504722") or ("7746653") or ("20180303009") or ("20090168360") or ("8964392") or ("7697300") or ("6929975") or ("20080144290") or ("4665467") or ("7995351") or ("20150098193") or ("8366297") or ("20010046121") or ("20120182731") or ("20040048414") or ("7095614") or ("20090161319") or ("5712765") or ("20060067054") or ("6552903") or ("7775708") or ("20050231918") or ("20090052146") or ("7215551") or ("20180132353") or ("20130208425") or ("20120127736") or ("9769945") or ("20080212647") or ("20150043177") or ("10085345") or ("10237979") or ("20150208541") or ("7804030") or ("20180177058") or ("20020003692") or ("20080037229") or ("20190045628") or ("8089768") or ("5510958") or ("9699929") or ("20190324372") or ("20180376597") or ("20070107511") or ("20060076686") or ("8811019") or ("20130044436") or ("20130329370") or ("20120222808") or ("6185100") or ("9345139") or ("7373816") or ("9433130") or ("20120040541") or ("20150257309") or ("8579637") or ("9241424") or ("6459585") or ("20120240396") or ("20140038474") or ("20180151968") or ("20090213552") or ("20080293261") or ("7780469") or ("20110255850") or ("9532460") or ("20110255250") or ("9472486") or ("10366939") or ("20150022976") or ("9763344") or ("20090301765") or ("7583504") or ("7179140") or ("20030067754") or ("6757171") or ("20080266808") or ("20160172267") or ("20160100505") or ("20180203490")).PN. or (("20150243937") or ("20180114742") or ("20160021730") or ("20140362535") or ("6225559") or ("10120424") or ("20040266244") or ("10034412") or ("9756717") or ("8253026") or ("20130121759") or ("20080043441") or ("20140307403") or ("20030227760") or ("8789271") or ("5276584") or ("20110100598") or ("7609527") or ("6985366") or ("20110069448") or ("20060105495") or ("20190057923") or ("20190335577") or ("9107295") or				

		("20190335621") or ("5901036") or ("6674344") or ("5402313") or ("20160353616") or ("9408291") or ("20160128208") or ("7299546") or ("9642288") or ("20180124956") or ("20130314878") or ("8792242") or ("20130146352") or ("20020137391") or ("9562548") or ("9265148") or ("20110044005") or ("20060218782") or ("6088228") or ("20150029669") or ("20190335576") or ("20140113171") or ("10014232") or ("20150216038") or ("20070227761") or ("9532459") or ("8488324") or ("8076586") or ("20110051384") or ("8837141") or ("9642266") or ("20150096800") or ("20100202110") or ("8468691") or ("20090217519") or ("20160165727") or ("5999407") or ("4994937") or ("9531094") or ("7115821") or ("20140104786") or ("20160064841") or ("20150043169") or ("9516748") or ("20150107882") or ("9706694") or ("5528461") or ("8087943") or ("10057989") or ("20130301231") or ("10426040") or ("20140347821") or ("20140104776") or ("4953059") or ("20190234602") or ("7754977") or ("20060120060") or ("5305185") or ("20160044794") or ("20110100681") or ("20180359860") or ("20090194884") or ("20150092350") or ("9568259") or ("5943213") or ("7217043") or ("20120037403") or ("20140102626") or ("7450400") or ("7557442") or ("8164904") or ("20090040727") or ("7237724") or ("6921973") or ("20040140554") or ("20140240927") or ("20140182898") or ("7172347") or ("6507108") or ("20080192445") or ("7808785") or ("4441140") or ("6230397") or ("20190150272") or ("20050230820") or ("9500793") or ("20090097208") or ("8817458") or ("9338895") or ("20170354036") or ("9746879") or ("9912211") or ("20060072881") or ("8998454") or ("20080253089") or ("20150177779") or ("20060226240") or ("20140104775") or ("20090190310") or ("8632346") or ("20150109812") or ("20140268780") or ("20090290301") or ("20070131349") or ("8885343") or ("9706668") or ("6045396")).PN. or (("20100000655") or ("8902606") or ("6606254") or ("20130078828") or ("20190035709") or ("5812374") or ("7881059") or ("9801286") or ("5483420") or ("20140104766") or ("6222732") or ("20160227652") or ("9041196") or ("20130135883") or ("20080198557") or ("5966288") or ("20080151487") or ("5883784") or ("5986886") or ("20020118527") or ("20130141913") or ("8861220") or ("7768785") or				

		("20140035118") or ("5107404") or ("20120108083") or ("5321582") or ("8630092") or ("9585280") or ("20120176764") or ("20180269828") or ("20110205711") or ("20080017174") or ("9620873") or ("20160057882") or ("20110036627") or ("7483271") or ("9991435") or ("7645998") or ("20140106578") or ("20150124411") or ("7575443") or ("20070211442") or ("8072768") or ("6820798") or ("6042388") or ("20160043485") or ("20100163210") or ("7542291") or ("8436711") or ("20090314522") or ("20090122494") or ("20050124224") or ("8834182") or ("9418930") or ("20110234356") or ("20070297145") or ("20090041994") or ("20070212920") or ("10212802") or ("20140000941") or ("9913376") or ("7520781") or ("4373259") or ("4508163") or ("6923580") or ("7796399") or ("20090166339") or ("20070034807") or ("6035513") or ("4330812") or ("4912601") or ("6538196") or ("20140104811") or ("20080207020") or ("9271399") or ("6243269") or ("9736968") or ("7397662") or ("20180115027") or ("9883612") or ("4222090") or ("7666003") or ("9253888") or ("5783881") or ("10270138") or ("20180007779") or ("6038130") or ("20090002959") or ("20090168363") or ("4809134") or ("8966747") or ("20130148320") or ("20100202114")).PN.				
S213	573	((("ROBIN") near3 ("Hermann")) OR (("HEMPEN") near3 ("Martin")) OR (("MAIER") near3 ("Thomas"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
S214	128	((("NAKANO") near3 ("Yuzo"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
S215	65	((("ALVA") near3 ("Samarth")) OR (("VARADARAJAN") near3 ("Krishnakumar")) OR (("CHANNAIAH") near3 ("Yogesh")) OR (("PILLAI") near3 ("Prakash")) OR (("PAWAR") near3 ("Sagar")) OR (("TULJAPURKAR") near3 ("Aneesh")) OR (("N") near3 ("Raghavendra"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	OFF	2019/12/23 13:25

			DERWENT			
S216	116	((("CHANG") near3 ("Cheng-Wen")) OR (("TSAI") near3 ("CHEN-YU")) OR (("WANG") near3 ("CHUN-YUAN")) OR (("LEE") near3 ("CHENG-YI"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
S217	299	((("CHEN") near3 ("Chao-Jung")) OR (("LIU") near3 ("Kun-Pei"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2019/12/23 13:25
S218	15,375	G06F1/20,203,206.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:35
S219	8,481	H05K1/0207,181.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:36
S220	1,847	H05K3/303.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:36
S221	1,307	H05K7/20472,2049,20509.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:36
S222	7,240	361/704,707,711,709.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:37
S223	167	S212 AND FILM	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:38
S224	56	S223 and (PCB or (circuirt near board))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:38

S225	165	S223 and (PCB or (circuit near board))	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:38
S226	89	S225 and (heat near conduct$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:38
S227	89	S226 and component$1	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:39
S228	3	"20150220109"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:53
S229	1	"20160070393"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:53
S230	55	(US-20160370828-$ or US-20190205596-$ or US-20120242635-$ or US-20110267298-$ or US-20130177302-$ or US-20180126704-$ or US-20150362333-$ or US-20140145515-$ or US-20160141884-$ or US-20160001663-$ or US-20130281155-$ or US-20130236192-$ or US-20170063102-$ or US-20170090516-$ or US-20180107253-$ or US-20140021909-$ or US-20120113576-$ or US-20100014235-$ or US-20080258679-$ or US-20070035917-$ or US-20170060186-$ or US-20050168937-$ or US-20190013687-$ or US-20180358826-$ or US-20180323636-$ or US-20180109148-$).did. or (US-20180098366-$ or US-20140152235-$ or US-20140059263-$ or US-20130175986-$ or US-20150077438-$ or US-20190072912-$ or US-20170042477-$ or US-20160287102-$ or US-20160139702-$ or US-20160116941-$ or US-20150220109-$ or US-20130287622-$ or US-20130196169-$ or US-20160061726-$ or US-20160070393-$).did. or (US-9632530-$ or US-6593859-$ or US-5864708-$ or US-5793606-$ or US-9442526-$ or US-9107027-$ or US-9436220-$ or US-6151645-$ or US-10039147-$ or US-6553667-$ or US-5526867-$ or US-5163499-$ or US-4120930-$ or US-9582749-$).did.	US-PGPUB; USPAT	OR	OFF	2019/12/23 13:54
S231	13	S230 and ink	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:54

S232	19	S230 and (ink or color)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:54
S233	16	S232 and (fill$4)	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 13:54
S234	4	S228 S229	US-PGPUB; USPAT; USOCR	OR	OFF	2019/12/23 14:00
S248	1	"7948758".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 12:42
S249	5	("20100310225" | "20020117942" | "20100172087" | "20060018622" | "20140204537").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 12:56
S250	267	haughton.xa.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:02
S251	1,375	haughton.xp.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:02
S252	3,862	361/724-727.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:02
S253	29	S251 and S252	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:02
S254	23	S250 and S252	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:13
S255	11	("20020078290" | "20020079791" | "20020090846" | "20030005199" | "20030049105" | "5388032" | "5604662" | "6031795" | "6243328" | "6272573" | "6856505").PN. OR ("7808794").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:14
S256	48	("20040042168" | "20080023416" | "4589659" | "4762378" | "5161028" | "5168423" | "5168426" | "5173686" | "5175672" | "5566048" | "5708561" | "5838536" | "5870280" | "5923528" | "6144549" |	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:15

		"6185092" | "6189850" | "6219323" | "6233138" | "6407933" | "6433791" | "6445573" | "6510049" | "6530784" | "6587333" | "6654236" | "6657857" | "6778381" | "6791826" | "6816361" | "6816389" | "6827581" | "8616177").PN. OR ("7436674").URPN.				
S257	19	("20010023141" | "5216411" | "6018456" | "6462670" | "6597566" | "6636426" | "6654239" | "6702412" | "6717802" | "6754084" | "6778381" | "6919816" | "6962397" | "6976745" | "7436674").PN. OR ("7474229").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:24
S258	26	("20020171334" | "20030149840" | "20060010456" | "20060133050" | "20070115627" | "20070230111" | "20080106871" | "20100061064" | "2566064" | "3586410" | "5506750" | "5584396" | "6535391" | "6621693" | "6788544" | "6826055" | "6988626" | "6999306" | "7042721" | "7474229" | "7724543" | "8120922" | "8538226" | "8797732").PN. OR ("9516777").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:36
S259	9	("20100238620" | "20130010405" | "20130170126" | "20150146069" | "20160232856" | "20180120895" | "9274562" | "9395070" | "9697941").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:48
S260	8	S259 and touch	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:49
S261	5	S260 and batter$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:50
S262	4	S259 not S261	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 13:51
S263	1	S259 and sealant	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:01
S264	2	"20150146069"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:04
S265	55	("10054988" | "20030160892" | "20040071285" | "20050151830" | "20050156952" | "20090097691" | "20100065832" | "20100117975" | "20100123160" | "20100156887" | "20100253902" | "20110001709" | "20110050657" | "20110128241" | "20110134144" | "20120105400" | "20120307423" | "20130002133" | "20130002583" | "20130076649" | "20130222208" |	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:04

		"20140029212" | "20140063719" | "20140099999" | "20140111954" | "20140247405" | "20140306260" | "20140375660" | "20150009128" | "20150014681" | "20150022515" | "20150022561" | "20150023031" | "20150048349" | "20150077615" | "20150084029" | "20150103023" | "20150138041" | "20160116941" | "20160343777" | "20170206835" | "5995025" | "7184086" | "7453426" | "8199471" | "8531411" | "8610155" | "8723824" | "8736162" | "8907868" | "8976141" | "9104262" | "9430180" | "9448592" | "9891815").PN. OR ("10142547").URPN.				
S266	12	S265 and sealant	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:05
S267	8	S266 and touch	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:06
S268	1,235	g06f1/1692.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:08
S269	4,010	g06f1/1643.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:09
S270	812	S268 and (touch near screen)	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:09
S271	2,250	S269 and (touch near screen)	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:09
S272	0	S270 and sealant	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:09
S273	22	S271 and sealant	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:09
S274	0	"2009037383"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:14

S275	2	"20090037383"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:14
S276	3	(("20090037383") or ("20030214485") or ("20060284856")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:14
S277	0	S276 and sealant	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:14
S278	1	S276 and seal$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:15
S279	267	S271 and seal$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:15
S280	72	S270 and seal$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:15
S281	3	"20150116920"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/20 14:22
S282	1	"20100238620"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 01:43
S283	15	(("7436674") or ("7808794") or ("7474229") or ("6778381") or ("6407933") or ("5173686") or ("5161028") or ("9516777") or ("6754084") or ("20070115627") or ("9943002") or ("8538226") or ("6788544") or ("6535391") or ("3586410")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:01
S284	2	(("7474229") or ("6535391")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:02
S285	5,584	h02m7/003,487.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:18
S286	5,222	H05K1/0231,144.cpc.	US-PGPUB;	OR	OFF	2020/01/21 02:18

			USPAT; USOCR			
S287	1,112	H05K7/209.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:18
S288	2,670	361/707,602,637,648,611.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:19
S289	238	((("DAME") near3 ("Mark")) OR (("HE") near3 ("Jiangbiao")) OR (("ZHANG") near3 ("Di"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/01/21 02:21
S290	12,115	g06f1/32,16,1601,1603,1605,1607,1609,1611.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:31
S291	56	((("MAYFIELD") near3 ("Walter")) OR (("VALDEZ") near3 ("Daniel"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/01/21 02:31
S292	12,380	361/679.01,679.02,679.21-679.3.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:32
S293	1,367	B08B1/002,006.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:32
S294	3	("0000003" | "0000016" | "0000510").PN.	US-PGPUB; USPAT	OR	OFF	2020/01/21 02:40
S295	3	(("4742864") or ("20030224717") or ("20160165750")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 02:43
S296	5	(("4742864") or ("20030224717") or ("20160165750") or ("20060073783") or ("20170339803")).PN.	US-PGPUB;	OR	OFF	2020/01/21 02:48

			USPAT; USOCR			
S300	31	("20040001049" | "20060183505" | "20090244016" | "20100238620" | "20100321275" | "20150103014" | "20170069299" | "20170255320" | "20170344120" | "20180088632" | "20180121012" | "20180129391" | "20180188774" | "20180232010" | "5739810" | "5847698" | "6510048" | "6700773" | "6922333" | "7061472" | "7551428" | "7663602" | "7990702" | "7991442" | "8310823" | "8331098" | "8803816" | "8988876" | "9684342" | "9740237" | "9874908").PN.	US-PGPUB; USPAT	OR	OFF	2020/01/21 10:41
S301	1,236	g06f1/1692.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:57
S302	1,016	g06f1/1669.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:57
S303	18	S301 and S302	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:57
S304	1,073	g06f1/1671.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:57
S305	2,466	g06f1/1647.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:58
S306	74	S302 and S304	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:58
S307	37	S302 and S305	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:58
S308	157	S304 and S305	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:58
S309	46	S304 and S301	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:58

S310	231	S303 S308 S309 S307	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 10:59
S311	28	("20030026068" | "20050052835" | "20050083308" | "20060034042" | "20060044286" | "20090190295" | "20090262494" | "20100245209" | "5241303" | "5375076" | "5440502" | "5550712" | "5579487" | "5739810" | "5768164" | "6259597" | "6266241" | "6487069" | "6643124" | "6654234" | "6700773" | "6865075" | "6930881" | "7145766").PN. OR ("7990702").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:05
S312	267	haughton.xa.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:07
S313	1,378	haughton.xp.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:07
S314	1,645	S312 S313	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:07
S315	6	S310 and S314	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:07
S316	6	S310 and S314	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:07
S317	25	S302 and S314	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:08
S318	13,975	g06f1/1626.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:10
S319	98	S314 and S318	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:10
S320	49	S319 and (keyboard$1 or keypad$1 or (key near board$1) or (key near pad$1))	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:11

S321	7	("20050052831" | "5375076" | "6788527" | "7136282" | "7742290" | "8289688").PN. OR ("9671829").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:12
S322	1	"20050052835"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:17
S323	16	("2005/0052835").URPN.	USPAT	OR	OFF	2020/01/21 11:17
S324	0	("20170003757").PN.	USPAT	OR	OFF	2020/01/21 11:18
S325	6	("20050052835" | "20090244016" | "20100245209" | "20170023972" | "20180188774" | "6700773" | "6922333" | "7061472" | "7990702" | "8331098" | "9053250").PN.	USPAT	OR	OFF	2020/01/21 11:19
S326	11	("20050052835" | "20090244016" | "20100245209" | "20170023972" | "20180188774" | "6700773" | "6922333" | "7061472" | "7990702" | "8331098" | "9053250").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:19
S327	1	("20170003757").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:19
S328	12	S326 S327	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:19
S329	21	("20040001049" | "20090244016" | "20100238620" | "20100321275" | "20150103014" | "5739810" | "5847698" | "6510048" | "6700773" | "6922333" | "7061472" | "7551428" | "7663602" | "7990702" | "7991442" | "8310823" | "8331098" | "8988876" | "9684342" | "9740237" | "9874908").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:22
S330	27	S328 S329	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:22
S331	13	("20050188899" | "20090244016" | "20130070408" | "20160294113" | "5503361" | "6044758" | "6046571" | "6173933" | "7052296" | "7380759" | "7492579" | "8634188" | "8724312").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:22
S332	39	S330 S331	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:28

S333	1	"6700773".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:28
S334	28	("20030026068" | "20050052835" | "20050083308" | "20060034042" | "20060044286" | "20090190295" | "20090262494" | "20100245209" | "5241303" | "5375076" | "5440502" | "5550712" | "5579487" | "5739810" | "5768164" | "6259597" | "6266241" | "6487069" | "6643124" | "6654234" | "6700773" | "6865075" | "6930881" | "7145766").PN. OR ("7990702").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:36
S335	28	S311 S334	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:36
S336	64	("5262926" | "5414444" | "5508720" | "5644338" | "5739810" | "5926364" | "5949643" | "5966284" | "6006243" | "6144358" | "6295038" | "6297752" | "6304431" | "6327482" | "6341061" | "6492974" | "6700773" | "6836404").PN. OR ("7061472").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:38
S337	82	S335 S321 S323 S325 S326 S327 S328 S329 S330 S331 S332 S333	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:39
S338	57	S336 not S337	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:39
S339	43	("6366440" | "6493215" | "6510048" | "6672796").PN. OR ("6922333").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:41
S340	139	S337 S338	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:42
S341	38	S339 not S340	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:42
S342	177	S339 S340	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:42
S343	1,016	g06f1/1669.cpc.	US-PGPUB;	OR	OFF	2020/01/21 11:43

			USPAT; USOCR			
S344	1,236	g06f1/1692.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:44
S345	125	S343 and ((first and second) near2 (display$3))	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:44
S346	856	S344 and (keyboard$1 or keypad$1 or (key near board$1) or (key near pad$1))	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:45
S347	1	"8300389".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:52
S348	483	S346 and ((first and second) near2 (display$3))	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:58
S349	118	S345 and (keyboard$1 or keypad$1 or (key near board$1) or (key near pad$1))	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:58
S350	47	S348 and ((keyboard$1 or keypad$1 or (key near board$1) or (key near pad$1)) with (stor$3 or compartment or holder or latch$3))	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:59
S351	42	S349 and ((keyboard$1 or keypad$1 or (key near board$1) or (key near pad$1)) with (stor$3 or compartment or holder or latch$3))	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 11:59
S352	86	S350 S351	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:00
S353	1	"20180046225"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:03
S354	0	("2018/0046225").URPN.	USPAT	OR	OFF	2020/01/21 12:03

S355	29	("20050207102" | "20060148541" | "20070217129" | "20080062625" | "20090322967" | "20100041439" | "20100128428" | "20110002096" | "20110216415" | "20110279992" | "20120147535" | "20120194448" | "20120212924" | "20170102740" | "5796575" | "6094341" | "6256192" | "6259597" | "6700773" | "7542273" | "7821780" | "8264599" | "8264829" | "8284549" | "8289688" | "8405978" | "8467186" | "8624844" | "9137917").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:04
S356	3	("20050128676" | "20120162889" | "7755882").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:06
S357	32	S355 S356	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:06
S358	1	"20160320810"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:06
S359	3	("20120039023" | "20130335327" | "20140333542").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:06
S360	3	("20120039023" | "20130335327" | "20140333542").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:07
S361	3	S359 S360	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:07
S362	2	"20100039764"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:11
S363	7	("20070076362" | "20080062625" | "20080203817" | "6421235").PN. OR ("8730669").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:11
S364	3	(("8300389") or ("20080062625") or ("20100039764")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:16
S365	9,106	g06f1/1632.cpc.	US-PGPUB;	OR	OFF	2020/01/21 12:20

			USPAT; USOCR			
S366	1,236	g06f1/1692.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:21
S367	71	S365 and S366	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:27
S368	406	((("QUINN") near3 ("Liam")) OR (("ROBINETTE") near3 ("Christopher")) OR (("KNOPPERT") near3 ("Michiel"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/01/21 12:35
S369	884	(("10495254") or ("20190107245") or ("10296053") or ("10503215") or ("10254803") or ("10503207") or ("10296052") or ("8576562") or ("20120206873") or ("9983620") or ("20100197165") or ("7959459") or ("20190272020") or ("20090122019") or ("20110050388") or ("8988190") or ("9521477") or ("7876566") or ("10080073") or ("20160011754") or ("20170094383") or ("20180046214") or ("6383051") or ("20190004568") or ("20160299526") or ("6537123") or ("20160135619") or ("9713397") or ("20020061699") or ("10459485") or ("7940520") or ("20090231794") or ("20090115197") or ("7471511") or ("7815228") or ("20150098602") or ("8035961") or ("9983637") or ("20190011950") or ("6647652") or ("20190243420") or ("10303213") or ("20180321891") or ("20110080705") or ("6971197") or ("20050274682") or ("20040212610") or ("20180137789") or ("9497697") or ("8812748") or ("20130077236") or ("20080103637") or ("8144119") or ("20050236347") or ("7306096") or ("20160010673") or ("7219808") or ("20060091027") or ("20160306393") or ("20160025119") or ("20170300084") or ("20160003269") or ("20170235341") or ("9575707") or ("20200019368") or ("20100268860") or ("9851749") or ("20040014347") or ("10372164") or ("10289163") or ("6769927") or ("9926953") or ("6263602") or ("20190129558") or ("20150235337") or ("10132340") or ("6272779") or ("10452191") or ("20110192857") or ("20150185879") or	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:36

		("9465455") or ("20130277529") or ("20160282899") or ("6941691") or ("20200021115") or ("20030126778") or ("20160374418") or ("20080268696") or ("20070270016") or ("10149517") or ("20050236848") or ("7545629") or ("6850208") or ("9904501") or ("7686638") or ("20100290212") or ("7082035") or ("20090036219") or ("8274784") or ("20110286171") or ("7570486") or ("20190004764") or ("20130076597") or ("20060268509") or ("8052534") or ("10106292") or ("8432688") or ("20170341805") or ("20170208911") or ("9477269") or ("20180181361") or ("20080278269") or ("7262958") or ("20190280513") or ("20160085271") or ("20160037876") or ("20060012965") or ("20170034918") or ("20120120587") or ("20180054897") or ("7203067") or ("20150378391") or ("20130235282") or ("20170026498") or ("20160166060") or ("20190053584") or ("20120008277") or ("20180125178") or ("6659516") or ("8437133")).PN. or (("9654605") or ("20110055594") or ("9848494") or ("20170124603") or ("10201089") or ("9894964") or ("20190243600") or ("9717339") or ("20190115780") or ("20020089190") or ("20090100732") or ("6536147") or ("20070015120") or ("20180190162") or ("9082325") or ("20180180894") or ("20180020850") or ("10437070") or ("20140077515") or ("10123593") or ("20130083464") or ("20060196841") or ("20100024271") or ("20160189578") or ("10327572") or ("20170031434") or ("8939482") or ("20190147196") or ("10489613") or ("20180039348") or ("20190313815") or ("20070247825") or ("20170118851") or ("8016135") or ("10339840") or ("10225636") or ("20150089851") or ("10228783") or ("9706677") or ("7374052") or ("20130232835") or ("9872413") or ("20050247835") or ("9727896") or ("20160073545") or ("20050166076") or ("20150262240") or ("20170084208") or ("20070241254") or ("20200018975") or ("20150043151") or ("20130082955") or ("10514877") or ("9690385") or ("8275999") or ("20100188812") or ("8120904") or ("20110064401") or ("20090259963") or ("20140265765") or ("20150124996") or ("7210046") or ("9858835") or ("7583515") or ("20100187386") or ("9286024") or ("20050231898") or ("9229496") or				

		("20080142457") or ("9582235") or ("9449538") or ("10452096") or ("9611881") or ("9727134") or ("10184506") or ("20130077221") or ("20150116364") or ("10452135") or ("20160037870") or ("20160040698") or ("20160069371") or ("20180180895") or ("10217388") or ("9588550") or ("20190350094") or ("20160040695") or ("20130083470") or ("10365493") or ("20190260862") or ("7400516") or ("9013867") or ("7016187") or ("10228750") or ("20190037712") or ("20130083466") or ("20070291461") or ("9877549") or ("9524139") or ("9317243") or ("10115375") or ("20170171371") or ("8439698") or ("20180374264") or ("20020095840") or ("8878794") or ("10264857") or ("8355031") or ("7131546") or ("20180120922") or ("9116655") or ("20150062097") or ("20120320514") or ("20160062393") or ("20190107869") or ("10013228") or ("20170140739") or ("20190285948") or ("9606664") or ("8879250") or ("20170052751") or ("20190121399") or ("20080246771") or ("20130083468") or ("20190339787") or ("20090290076") or ("20150279328") or ("20190104635") or ("20150130725") or ("20100238196")).PN. or (("10116776") or ("10176784") or ("20190216178") or ("20160051902") or ("10509484") or ("10085523") or ("10345953") or ("20080007931") or ("9086836") or ("10251299") or ("20130083467") or ("20110026203") or ("20050098510") or ("20130241720") or ("20160116943") or ("9182935") or ("9229675") or ("20150116362") or ("7359003") or ("9645607") or ("20130082585") or ("20170220186") or ("20140092546") or ("20160205804") or ("7583517") or ("20160124465") or ("20090079304") or ("8934226") or ("9235237") or ("20200019367") or ("20190171023") or ("20160110207") or ("9176701") or ("20110096490") or ("9582057") or ("20060000788") or ("20130083558") or ("20190189062") or ("20080093535") or ("9798357") or ("20150262463") or ("9946505") or ("20180235093") or ("20160254837") or ("20130083469") or ("9741271") or ("9658670") or ("20170201119") or ("20160365184") or ("9964995") or ("20170319953") or ("8199482") or ("20160098064") or ("20180232191") or ("20110026228") or ("10051752") or ("7510092") or ("20160327987") or ("7423256") or ("10524369") or ("9772863") or ("9548785") or ("20180036635") or ("20090047824") or ("10256660") or ("9652954") or ("8773581") or ("9839842") or ("10013226") or				

		("20140151248") or ("20150116094") or ("20120267374") or ("10514769") or ("20180107341") or ("8907906") or ("20170105297") or ("10092830") or ("6643965") or ("9128582") or ("20170085283") or ("20130080931") or ("20130094142") or ("20180365875") or ("20160202734") or ("20160320808") or ("20020189145") or ("9131756") or ("9747475") or ("20150227245") or ("20090238395") or ("20110006181") or ("9477438") or ("10254795") or ("20160041757") or ("20170098435") or ("20180307456") or ("8404053") or ("8166684") or ("20100002366") or ("20170184861") or ("9877403") or ("20160249750") or ("8045339") or ("20120325695") or ("9495012") or ("10146494") or ("20160324335") or ("9900041") or ("10121455") or ("20160001928") or ("8139809") or ("10061346") or ("20190018458") or ("20110048988") or ("20130088447") or ("20160154434") or ("8801054") or ("20170255441") or ("20170257969") or ("10082839") or ("20180173488") or ("20170315626") or ("20080072655") or ("9785188") or ("20130258573") or ("20190139515") or ("20140047674") or ("10429904") or ("20130293581") or ("8302923")).PN. or (("9728110") or ("8267245") or ("20160048369") or ("20180107242") or ("10015897") or ("20170315586") or ("10503454") or ("20130076656") or ("20070138806") or ("20140028243") or ("9747067") or ("9998166") or ("7309045") or ("20130080932") or ("20180084092") or ("7775567") or ("20160266672") or ("20170115691") or ("20120226369") or ("9807903") or ("20130148272") or ("20190113986") or ("9864561") or ("9532659") or ("20080278408") or ("20060091257") or ("20160349800") or ("9946308") or ("9474021") or ("20180060012") or ("10288890") or ("10445044") or ("10480711") or ("20150186093") or ("20160048165") or ("9841786") or ("20170156464") or ("20130076591") or ("9511903") or ("20050010708") or ("20190208655") or ("20190387645") or ("20130076657") or ("9229494") or ("10222833") or ("20150288942") or ("20100281723") or ("10089054") or ("7895784") or ("20180210507") or ("9158494") or ("9811302") or ("20160048300") or ("8841556") or ("20180217382") or ("20120081846") or ("7085871") or ("9645649") or ("10459676") or ("20140184471") or ("20160005341") or				

		("10031557") or ("20070133156") or ("20150227178") or ("9189773") or ("9639320") or ("20160078591") or ("20080307482") or ("20160309865") or ("20160054880") or ("20180107440") or ("9524027") or ("8842057") or ("9734743") or ("20180360234") or ("9008856") or ("10271031") or ("20180249798") or ("20090205876") or ("20080172915") or ("9086835") or ("20140217862") or ("20120266098") or ("20130100001") or ("20130319796") or ("20170031641") or ("20040183313") or ("20160061549") or ("8990711") or ("9998706") or ("20130050265") or ("20140071117") or ("20070113454") or ("20130144463") or ("9259639") or ("7583500") or ("20130083477") or ("20030131513") or ("20120275104") or ("20060268505") or ("20190339769") or ("10429903") or ("9317076") or ("10120421") or ("20160102805") or ("20160085406") or ("20150365123") or ("20170039019") or ("8582306") or ("8848355") or ("20160066717") or ("20170305144") or ("20190033925") or ("20140049911") or ("20150227206") or ("20130080929") or ("20150366374") or ("20190149643") or ("20160062631") or ("9046925") or ("20130076654") or ("10318129") or ("8915361") or ("20190324509") or ("7260962") or ("20160275829") or ("20190253886") or ("20180297353")).PN. or (("20160109061") or ("20160291920") or ("20160208507") or ("9235828") or ("20140092108") or ("8836842") or ("20160203107") or ("10129376") or ("20190278387") or ("20130076655") or ("20190018459") or ("10324499") or ("20120240055") or ("20150153783") or ("9668593") or ("20100302380") or ("8988876") or ("20100066640") or ("9395818") or ("9869423") or ("20160283086") or ("10470540") or ("20150309392") or ("9733665") or ("20090266951") or ("20190042082") or ("10359148") or ("20160313964") or ("20120309462") or ("10393157") or ("20160277052") or ("20120111881") or ("20120113572") or ("20130313387") or ("20120240054") or ("20160110149") or ("20180094769") or ("20170198890") or ("20140320696") or ("20150027911") or ("20170273200") or ("10404842") or ("20050201047") or ("20070293085") or ("10001335") or ("20130076929") or ("20160246381") or ("10082838") or ("20160142675") or ("20120240056") or				

		("20190084343") or ("20150359325") or ("7126816") or ("9494980") or ("9351237") or ("8540088") or ("20190000166") or ("9189018") or ("9195119") or ("9766707") or ("20180095499") or ("20100138675") or ("20150305591") or ("10019035") or ("20120266082") or ("10029453") or ("20090268401") or ("10514831") or ("9588545") or ("20190278329") or ("20160148558") or ("20160054902") or ("20170220310") or ("7542052") or ("20120225694") or ("20170242456") or ("10395566") or ("9668371") or ("7570485") or ("20170035170") or ("20160048370") or ("20090194492") or ("10125921") or ("20060209522") or ("20020023853") or ("8994713") or ("20190064878") or ("20180180893") or ("20130076598") or ("8564672") or ("10156969") or ("20160044152") or ("20130080937") or ("20100200523") or ("9436217") or ("20160210769") or ("20120081319") or ("20040173477") or ("9885466") or ("20180231222") or ("9208477") or ("10534184") or ("9433337") or ("9993065") or ("20130245882") or ("20150201723") or ("20110255289") or ("20160062593") or ("20120218202") or ("9582035") or ("20120081310") or ("20160037625") or ("20120225693") or ("20170118852") or ("7085132") or ("20100192171") or ("20030205546") or ("20110051339") or ("9980402") or ("7257971") or ("20050111181") or ("20120220340") or ("9019397") or ("10037054") or ("9001103") or ("20160103597") or ("20120103855") or ("20020050548")).PN. or (("9110630") or ("10303215") or ("20120084682") or ("20160266606") or ("20120214552") or ("20190171405") or ("20170038934") or ("20160191101") or ("20150309535") or ("20180295264") or ("10010789") or ("20160210886") or ("10172400") or ("20190059481") or ("20130138945") or ("20120242702") or ("20120242703") or ("20140267457") or ("20120220341") or ("10237394") or ("7465189") or ("20040129587") or ("20100039372") or ("20100007646") or ("10429888") or ("20170010633") or ("7508657") or ("20180294831") or ("20170059087") or ("20190257506") or ("20130033477") or ("20150301393") or ("9910462") or ("20100020482") or ("8520837") or ("8386672") or ("9560751") or ("20190341030") or ("20170238412") or ("20160133203") or ("10208934") or ("7952863") or ("20160051901") or				

		("20170182410") or ("10419648") or ("9713272") or ("8659565") or ("20170052750") or ("10231349") or ("20180373326") or ("10483681") or ("20190069619") or ("10143080") or ("9450634") or ("20170326447") or ("7643272") or ("8612652") or ("20160178993") or ("20120218302") or ("8035481") or ("9507243") or ("10514757") or ("20090272862") or ("20080170838") or ("20160034175") or ("10466951") or ("20140177156") or ("8919583") or ("9619008") or ("20140053442") or ("20160291646") or ("20160085384") or ("20140123882") or ("10136689") or ("8199498") or ("20160349790") or ("9836083") or ("20170197558") or ("20170159876") or ("20170326448") or ("20170021775") or ("20170313467") or ("8917221") or ("8384518") or ("20100128374") or ("9152176") or ("9757649") or ("9257061") or ("20180129460") or ("20180091707") or ("9725028") or ("8937805") or ("6672551") or ("20160110273") or ("20120327061") or ("8565829") or ("20160048222") or ("8525925") or ("20080159712") or ("9964993") or ("7830650") or ("8959445") or ("20120081311") or ("10496193") or ("9808713") or ("7610782") or ("9830121") or ("8890768") or ("20100283270") or ("10345873") or ("10340970") or ("20170177034") or ("20150062802") or ("20190377245") or ("20160048363") or ("10055186") or ("9640118") or ("20100323237") or ("9441830") or ("20190328136") or ("7652879") or ("9262117") or ("20120084687") or ("10301060") or ("20110085287") or ("20180373292") or ("10530915") or ("9619979") or ("20120081318") or ("8884841")).PN. or (("20080074831") or ("9841824") or ("20160179350") or ("9592453") or ("20150296104") or ("20120081399") or ("20140012641") or ("20130076662") or ("20160106210") or ("20120081303") or ("10342340") or ("10474410") or ("20180117460") or ("20160054869") or ("20170205854") or ("10452105") or ("20090198853") or ("20190038983") or ("20130128110") or ("8348450") or ("20150159860") or ("20120081306") or ("9712728") or ("8043122") or ("20130076961") or ("9261924") or ("20080137277") or ("20150138724") or ("20060042330") or ("9845816") or ("20160062554") or ("9855498") or ("20170220444") or ("9606884") or ("9681028") or ("20110164410") or ("20100162515") or ("9910455") or ("10055325") or ("20120081269") or ("10306036") or ("20130076663") or				

		("20180337704") or ("20190118082") or ("20190372262") or ("9300344") or ("20140270687") or ("20130294740") or ("8773378") or ("20120081271") or ("20190339749") or ("20100165188") or ("20140002725") or ("10530914") or ("20080294830") or ("20160110150") or ("9603439") or ("8060977") or ("9785200") or ("9058153") or ("20160291639") or ("20120081312") or ("20130076963") or ("9164546") or ("10459493") or ("10495255") or ("20120081403") or ("9201626") or ("9019214") or ("20180059738") or ("9195335") or ("10159895") or ("9113129") or ("20150289629") or ("20150046858") or ("20080146075") or ("20160077548") or ("20120081398") or ("10133305") or ("9809049") or ("9092190") or ("20130310172") or ("9226579") or ("20170352303") or ("8527892") or ("20200021601") or ("10024490") or ("20160051900") or ("8634189") or ("20020125387") or ("10528312") or ("10338650") or ("7325343") or ("9195330") or ("20120084694") or ("8477238") or ("20060045755") or ("20130076681") or ("20120084726") or ("10398203") or ("20150106763") or ("10048827") or ("8870651") or ("20130076782") or ("20170134063") or ("20120018390") or ("20180356864") or ("20190052297") or ("20130145279")).PN.				
S370	884	(("10495254") or ("20190107245") or ("10296053") or ("10503215") or ("10254803") or ("10503207") or ("10296052") or ("8576562") or ("20120206873") or ("9983620") or ("20100197165") or ("7959459") or ("20190272020") or ("20090122019") or ("20110050388") or ("8988190") or ("9521477") or ("7876566") or ("10080073") or ("20160011754") or ("20170094383") or ("20180046214") or ("6383051") or ("20190004568") or ("20160299526") or ("6537123") or ("20160135619") or ("9713397") or ("20020061699") or ("10459485") or ("7940520") or ("20090231794") or ("20090115197") or ("7471511") or ("7815228") or ("20150098602") or ("8035961") or ("9983637") or ("20190011950") or ("6647652") or ("20190243420") or ("10303213") or ("20180321891") or ("20110080705") or ("6971197") or ("20050274682") or ("20040212610") or ("20180137789") or ("9497697") or ("8812748") or ("20130077236") or ("20080103637") or ("8144119") or ("20050236347") or ("7306096") or	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:36

		("20160010673") or ("7219808") or ("20060091027") or ("20160306393") or ("20160025119") or ("20170300084") or ("20160003269") or ("20170235341") or ("9575707") or ("20200019368") or ("20100268860") or ("9851749") or ("20040014347") or ("10372164") or ("10289163") or ("6769927") or ("9926953") or ("6263602") or ("20190129558") or ("20150235337") or ("10132340") or ("6272779") or ("10452191") or ("20110192857") or ("20150185879") or ("9465455") or ("20130277529") or ("20160282899") or ("6941691") or ("20200021115") or ("20030126778") or ("20160374418") or ("20080268696") or ("20070270016") or ("10149517") or ("20050236848") or ("7545629") or ("6850208") or ("9904501") or ("7686638") or ("20100290212") or ("7082035") or ("20090036219") or ("8274784") or ("20110286171") or ("7570486") or ("20190004764") or ("20130076597") or ("20060268509") or ("8052534") or ("10106292") or ("8432688") or ("20170341805") or ("20170208911") or ("9477269") or ("20180181361") or ("20080278269") or ("7262958") or ("20190280513") or ("20160085271") or ("20160037876") or ("20060012965") or ("20170034918") or ("20120120587") or ("20180054897") or ("7203067") or ("20150378391") or ("20130235282") or ("20170026498") or ("20160166060") or ("20190053584") or ("20120008277") or ("20180125178") or ("6659516") or ("8437133")).PN. or (("9654605") or ("20110055594") or ("9848494") or ("20170124603") or ("10201089") or ("9894964") or ("20190243600") or ("9717339") or ("20190115780") or ("20020089190") or ("20090100732") or ("6536147") or ("20070015120") or ("20180190162") or ("9082325") or ("20180180894") or ("20180020850") or ("10437070") or ("20140077515") or ("10123593") or ("20130083464") or ("20060196841") or ("20100024271") or ("20160189578") or ("10327572") or ("20170031434") or ("8939482") or ("20190147196") or ("10489613") or ("20180039348") or ("20190313815") or ("20070247825") or ("20170118851") or ("8016135") or ("10339840") or ("10225636") or ("20150089851") or ("10228783") or ("9706677") or ("7374052") or ("20130232835") or ("9872413") or ("20050247835") or ("9727896") or				

		("20160073545") or ("20050166076") or ("20150262240") or ("20170084208") or ("20070241254") or ("20200018975") or ("20150043151") or ("20130082955") or ("10514877") or ("9690385") or ("8275999") or ("20100188812") or ("8120904") or ("20110064401") or ("20090259963") or ("20140265765") or ("20150124996") or ("7210046") or ("9858835") or ("7583515") or ("20100187386") or ("9286024") or ("20050231898") or ("9229496") or ("20080142457") or ("9582235") or ("9449538") or ("10452096") or ("9611881") or ("9727134") or ("10184506") or ("20130077221") or ("20150116364") or ("10452135") or ("20160037870") or ("20160040698") or ("20160069371") or ("20180180895") or ("10217388") or ("9588550") or ("20190350094") or ("20160040695") or ("20130083470") or ("10365493") or ("20190260862") or ("7400516") or ("9013867") or ("7016187") or ("10228750") or ("20190037712") or ("20130083466") or ("20070291461") or ("9877549") or ("9524139") or ("9317243") or ("10115375") or ("20170171371") or ("8439698") or ("20180374264") or ("20020095840") or ("8878794") or ("10264857") or ("8355031") or ("7131546") or ("20180120922") or ("9116655") or ("20150062097") or ("20120320514") or ("20160062393") or ("20190107869") or ("10013228") or ("20170140739") or ("20190285948") or ("9606664") or ("8879250") or ("20170052751") or ("20190121399") or ("20080246771") or ("20130083468") or ("20190339787") or ("20090290076") or ("20150279328") or ("20190104635") or ("20150130725") or ("20100238196")).PN. or (("10116776") or ("10176784") or ("20190216178") or ("20160051902") or ("10509484") or ("10085523") or ("10345953") or ("20080007931") or ("9086836") or ("10251299") or ("20130083467") or ("20110026203") or ("20050098510") or ("20130241720") or ("20160116943") or ("9182935") or ("9229675") or ("20150116362") or ("7359003") or ("9645607") or ("20130082585") or ("20170220186") or ("20140092546") or ("20160205804") or ("7583517") or ("20160124465") or ("20090079304") or ("8934226") or ("9235237") or ("20200019367") or ("20190171023") or ("20160110207") or ("9176701") or ("20110096490") or ("9582057") or ("20060000788") or ("20130083558") or ("20190189062") or ("20080093535") or				

		("9798357") or ("20150262463") or ("9946505") or ("20180235093") or ("20160254837") or ("20130083469") or ("9741271") or ("9658670") or ("20170201119") or ("20160365184") or ("9964995") or ("20170319953") or ("8199482") or ("20160098064") or ("20180232191") or ("20110026228") or ("10051752") or ("7510092") or ("20160327987") or ("7423256") or ("10524369") or ("9772863") or ("9548785") or ("20180036635") or ("20090047824") or ("10256660") or ("9652954") or ("8773581") or ("9839842") or ("10013226") or ("20140151248") or ("20150116094") or ("20120267374") or ("10514769") or ("20180107341") or ("8907906") or ("20170105297") or ("10092830") or ("6643965") or ("9128582") or ("20170085283") or ("20130080931") or ("20130094142") or ("20180365875") or ("20160202734") or ("20160320808") or ("20020189145") or ("9131756") or ("9747475") or ("20150227245") or ("20090238395") or ("20110006181") or ("9477438") or ("10254795") or ("20160041757") or ("20170098435") or ("20180307456") or ("8404053") or ("8166684") or ("20100002366") or ("20170184861") or ("9877403") or ("20160249750") or ("8045339") or ("20120325695") or ("9495012") or ("10146494") or ("20160324335") or ("9900041") or ("10121455") or ("20160001928") or ("8139809") or ("10061346") or ("20190018458") or ("20110048988") or ("20130088447") or ("20160154434") or ("8801054") or ("20170255441") or ("20170257969") or ("10082839") or ("20180173488") or ("20170315626") or ("20080072655") or ("9785188") or ("20130258573") or ("20190139515") or ("20140047674") or ("10429904") or ("20130293581") or ("8302923")).PN. or (("9728110") or ("8267245") or ("20160048369") or ("20180107242") or ("10015897") or ("20170315586") or ("10503454") or ("20130076656") or ("20070138806") or ("20140028243") or ("9747067") or ("9998166") or ("7309045") or ("20130080932") or ("20180084092") or ("7775567") or ("20160266672") or ("20170115691") or ("20120226369") or ("9807903") or ("20130148272") or ("20190113986") or ("9864561") or ("9532659") or ("20080278408") or ("20060091257") or ("20160349800") or ("9946308") or ("9474021") or ("20180060012") or ("10288890") or ("10445044") or ("10480711") or ("20150186093") or ("20160048165") or				

		("9841786") or ("20170156464") or ("20130076591") or ("9511903") or ("20050010708") or ("20190208655") or ("20190387645") or ("20130076657") or ("9229494") or ("10222833") or ("20150288942") or ("20100281723") or ("10089054") or ("7895784") or ("20180210507") or ("9158494") or ("9811302") or ("20160048300") or ("8841556") or ("20180217382") or ("20120081846") or ("7085871") or ("9645649") or ("10459676") or ("20140184471") or ("20160005341") or ("10031557") or ("20070133156") or ("20150227178") or ("9189773") or ("9639320") or ("20160078591") or ("20080307482") or ("20160309865") or ("20160054880") or ("20180107440") or ("9524027") or ("8842057") or ("9734743") or ("20180360234") or ("9008856") or ("10271031") or ("20180249798") or ("20090205876") or ("20080172915") or ("9086835") or ("20140217862") or ("20120266098") or ("20130100001") or ("20130319796") or ("20170031641") or ("20040183313") or ("20160061549") or ("8990711") or ("9998706") or ("20130050265") or ("20140071117") or ("20070113454") or ("20130144463") or ("9259639") or ("7583500") or ("20130083477") or ("20030131513") or ("20120275104") or ("20060268505") or ("20190339769") or ("10429903") or ("9317076") or ("10120421") or ("20160102805") or ("20160085406") or ("20150365123") or ("20170039019") or ("8582306") or ("8848355") or ("20160066717") or ("20170305144") or ("20190033925") or ("20140049911") or ("20150227206") or ("20130080929") or ("20150366374") or ("20190149643") or ("20160062631") or ("9046925") or ("20130076654") or ("10318129") or ("8915361") or ("20190324509") or ("7260962") or ("20160275829") or ("20190253886") or ("20180297353")).PN. or (("20160109061") or ("20160291920") or ("20160208507") or ("9235828") or ("20140092108") or ("8836842") or ("20160203107") or ("10129376") or ("20190278387") or ("20130076655") or ("20190018459") or ("10324499") or ("20120240055") or ("20150153783") or ("9668593") or ("20100302380") or ("8988876") or ("20100066640") or ("9395818") or ("9869423") or ("20160283086") or ("10470540") or ("20150309392") or ("9733665") or ("20090266951") or ("20190042082") or ("10359148") or ("20160313964") or				

		("20120309462") or ("10393157") or ("20160277052") or ("20120111881") or ("20120113572") or ("20130313387") or ("20120240054") or ("20160110149") or ("20180094769") or ("20170198890") or ("20140320696") or ("20150027911") or ("20170273200") or ("10404842") or ("20050201047") or ("20070293085") or ("10001335") or ("20130076929") or ("20160246381") or ("10082838") or ("20160142675") or ("20120240056") or ("20190084343") or ("20150359325") or ("7126816") or ("9494980") or ("9351237") or ("8540088") or ("20190000166") or ("9189018") or ("9195119") or ("9766707") or ("20180095499") or ("20100138675") or ("20150305591") or ("10019035") or ("20120266082") or ("10029453") or ("20090268401") or ("10514831") or ("9588545") or ("20190278329") or ("20160148558") or ("20160054902") or ("20170220310") or ("7542052") or ("20120225694") or ("20170242456") or ("10395566") or ("9668371") or ("7570485") or ("20170035170") or ("20160048370") or ("20090194492") or ("10125921") or ("20060209522") or ("20020023853") or ("8994713") or ("20190064878") or ("20180180893") or ("20130076598") or ("8564672") or ("10156969") or ("20160044152") or ("20130080937") or ("20100200523") or ("9436217") or ("20160210769") or ("20120081319") or ("20040173477") or ("9885466") or ("20180231222") or ("9208477") or ("10534184") or ("9433337") or ("9993065") or ("20130245882") or ("20150201723") or ("20110255289") or ("20160062593") or ("20120218202") or ("9582035") or ("20120081310") or ("20160037625") or ("20120225693") or ("20170118852") or ("7085132") or ("20100192171") or ("20030205546") or ("20110051339") or ("9980402") or ("7257971") or ("20050111181") or ("20120220340") or ("9019397") or ("10037054") or ("9001103") or ("20160103597") or ("20120103855") or ("20020050548")).PN. or (("9110630") or ("10303215") or ("20120084682") or ("20160266606") or ("20120214552") or ("20190171405") or ("20170038934") or ("20160191101") or ("20150309535") or ("20180295264") or ("10010789") or ("20160210886") or ("10172400") or ("20190059481") or ("20130138945") or ("20120242702") or ("20120242703") or				

		("20140267457") or ("20120220341") or ("10237394") or ("7465189") or ("20040129587") or ("20100039372") or ("20100007646") or ("10429888") or ("20170010633") or ("7508657") or ("20180294831") or ("20170059087") or ("20190257506") or ("20130033477") or ("20150301393") or ("9910462") or ("20100020482") or ("8520837") or ("8386672") or ("9560751") or ("20190341030") or ("20170238412") or ("20160133203") or ("10208934") or ("7952863") or ("20160051901") or ("20170182410") or ("10419648") or ("9713272") or ("8659565") or ("20170052750") or ("10231349") or ("20180373326") or ("10483681") or ("20190069619") or ("10143080") or ("9450634") or ("20170326447") or ("7643272") or ("8612652") or ("20160178993") or ("20120218302") or ("8035481") or ("9507243") or ("10514757") or ("20090272862") or ("20080170838") or ("20160034175") or ("10466951") or ("20140177156") or ("8919583") or ("9619008") or ("20140053442") or ("20160291646") or ("20160085384") or ("20140123882") or ("10136689") or ("8199498") or ("20160349790") or ("9836083") or ("20170197558") or ("20170159876") or ("20170326448") or ("20170021775") or ("20170313467") or ("8917221") or ("8384518") or ("20100128374") or ("9152176") or ("9757649") or ("9257061") or ("20180129460") or ("20180091707") or ("9725028") or ("8937805") or ("6672551") or ("20160110273") or ("20120327061") or ("8565829") or ("20160048222") or ("8525925") or ("20080159712") or ("9964993") or ("7830650") or ("8959445") or ("20120081311") or ("10496193") or ("9808713") or ("7610782") or ("9830121") or ("8890768") or ("20100283270") or ("10345873") or ("10340970") or ("20170177034") or ("20150062802") or ("20190377245") or ("20160048363") or ("10055186") or ("9640118") or ("20100323237") or ("9441830") or ("20190328136") or ("7652879") or ("9262117") or ("20120084687") or ("10301060") or ("20110085287") or ("20180373292") or ("10530915") or ("9619979") or ("20120081318") or ("8884841")).PN. or (("20080074831") or ("9841824") or ("20160179350") or ("9592453") or ("20150296104") or ("20120081399") or ("20140012641") or ("20130076662") or ("20160106210") or ("20120081303") or ("10342340") or ("10474410") or ("20180117460") or ("20160054869") or ("20170205854") or ("10452105") or ("20090198853") or				

		("20190038983") or ("20130128110") or ("8348450") or ("20150159860") or ("20120081306") or ("9712728") or ("8043122") or ("20130076961") or ("9261924") or ("20080137277") or ("20150138724") or ("20060042330") or ("9845816") or ("20160062554") or ("9855498") or ("20170220444") or ("9606884") or ("9681028") or ("20110164410") or ("20100162515") or ("9910455") or ("10055325") or ("20120081269") or ("10306036") or ("20130076663") or ("20180337704") or ("20190118082") or ("20190372262") or ("9300344") or ("20140270687") or ("20130294740") or ("8773378") or ("20120081271") or ("20190339749") or ("20100165188") or ("20140002725") or ("10530914") or ("20080294830") or ("20160110150") or ("9603439") or ("8060977") or ("9785200") or ("9058153") or ("20160291639") or ("20120081312") or ("20130076963") or ("9164546") or ("10459493") or ("10495255") or ("20120081403") or ("9201626") or ("9019214") or ("20180059738") or ("9195335") or ("10159895") or ("9113129") or ("20150289629") or ("20150046858") or ("20080146075") or ("20160077548") or ("20120081398") or ("10133305") or ("9809049") or ("9092190") or ("20130310172") or ("9226579") or ("20170352303") or ("8527892") or ("20200021601") or ("10024490") or ("20160051900") or ("8634189") or ("20020125387") or ("10528312") or ("10338650") or ("7325343") or ("9195330") or ("20120084694") or ("8477238") or ("20060045755") or ("20130076681") or ("20120084726") or ("10398203") or ("20150106763") or ("10048827") or ("8870651") or ("20130076782") or ("20170134063") or ("20120018390") or ("20180356864") or ("20190052297") or ("20130145279")).PN.				
S371	2	"20110216485"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:39
S372	2	"20100039764"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:39

S373	2	"20080062625"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:39
S374	6	S371 S372 S373	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:39
S375	14	("20170325343" | "20180077808" | "9823697" | "20150153777" | "20100246113" | "20110132557" | "20170103735" | "7310050" | "20180259451" | "20100177020" | "20180160554" | "20120002357" | "20100177020" | "20180160554" | "20180070467" | "20180114471").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:54
S376	7	S375 and sensor	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:54
S377	9	S375 and angle	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:54
S378	11	S376 S377	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:54
S379	5	S375 and detect$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:55
S380	12	S378 S379	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 12:55
S381	3	S380 and magnetic$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:01
S382	6	S380 and gear$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:01
S383	8	S381 S382	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:01

S384	9,125	g06f1/1652,1633,1637.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:19
S385	930	G09F11/08,02,04,10.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:19
S386	14,405	361/679.01,679.02,679.21-679.3,679.55,679.56.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:20
S387	5,977	349/56-60.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:20
S388	68	((("KIM") near3 ("Hoyoung")) OR (("KIM") near3 ("Kyeongdong")) OR (("KIM") near3 ("Byunghee"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/01/21 14:21
S389	8	S375 and gear$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:22
S390	2	S389 NOT S382	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:22
S391	15	(("20190371214") or ("10534402") or ("10410549") or ("20160374228") or ("9756757") or ("20190029131") or ("10506726") or ("20180160554") or ("20170013726") or ("10111344") or ("20190098774") or ("10531582") or ("20180070466") or ("20190174644") or ("10201103")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/21 14:25
S392	1	("20150138723").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/29 11:03
S393	1	"20170068276"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/31 13:04

S394	12	("20050139740" | "20110096513" | "20130031289" | "20130242490" | "20140043743" | "20160179142" | "20160357224" | "20170068276" | "8937803" | "9013863" | "9072174" | "9600034").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/01/31 13:04
S395	9	(("20200029462") or ("20100294385") or ("20110128703") or ("8747056") or ("9718180") or ("20140338948") or ("6058725") or ("6434968") or ("20010025506")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 01:53
S396	8	S395 and valv$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 01:55
S397	8	S396 and pressur$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 01:56
S398	1	S395 not S396	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:00
S399	8	S397 and inlet$1	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:12
S400	3	(("20030224717") or ("20160165750") or ("4742864")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:21
S401	2	(("20060073783") or ("20170339803")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:22
S402	5	S400 S401	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:22
S403	27	("4742864").URPN.	USPAT	OR	OFF	2020/02/03 02:32
S404	36	("2859270" | "3407869" | "4027206" | "4142091" | "4237521" | "4616693" | "4628992").PN. OR ("4742864").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:32
S405	13	S404 and pressur$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:35

S406	41	("3194307" | "3422888" | "4233644" | "4417295" | "4628992" | "4672509" | "4674004" | "4742864" | "4896716" | "4953634" | "5029236" | "5195576" | "5294831" | "5313362" | "5370178" | "5493457" | "5597035" | "5646822" | "5676198" | "5691883" | "5765743" | "5894987" | "6397927" | "6397930" | "6435267" | "6474409" | "6914782").PN. OR ("7028753").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:36
S407	25	S406 and pressur$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:36
S408	6	S407 and valv$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:37
S409	35	("20050076661" | "20070277538" | "20080087039" | "2333309" | "2628482" | "2963879" | "4014179" | "4399665" | "4437320" | "4840036" | "4966005" | "4969509" | "5112010" | "5137230" | "5369960" | "5491979" | "5513500" | "5899085" | "5939800" | "6124646" | "6394760" | "6401473" | "6571574" | "6845627" | "6880351" | "6886782" | "7024874" | "7028753" | "7059148" | "7121100").PN. OR ("9555892").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:38
S410	28	S409 and pressur$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:38
S411	28	S410 and valv$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:38
S412	19	S411 and inlet$1	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 02:38
S413	816	(("20130256478") or ("20130105662") or ("9791097") or ("20160312950") or ("20190281976") or ("20130048802") or ("9317076") or ("20150227178") or ("9229494") or ("20120300378") or ("20140028243") or ("8995126") or ("9276626") or ("9383777") or ("20150171913") or ("20140233167") or ("20130334072") or ("8531834") or ("4913390") or ("20160099741") or ("9900041") or ("8915361") or ("20130027862") or ("9559741") or ("9615476") or ("20140217862") or ("20170085283") or ("20130294020") or ("9450634") or ("20160191101") or ("9660684") or ("9548785") or	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:25

		("20120314354") or ("20130342087") or ("20160254837") or ("10396843") or ("10090877") or ("20180337704") or ("20170237460") or ("20130140837") or ("9427071") or ("20150201723") or ("20170035170") or ("20100090489") or ("20140049060") or ("9300344") or ("8136217") or ("20170068270") or ("5828547") or ("9894192") or ("7886903") or ("20140076748") or ("20160072933") or ("20190343274") or ("9580209") or ("6217351") or ("20050269225") or ("20130213825") or ("9980561") or ("6355885") or ("7009111") or ("6904001") or ("20190376668") or ("6608253") or ("9128284") or ("8616422") or ("20140202493") or ("20140077054") or ("20130334070") or ("8596599") or ("7273983") or ("20130032617") or ("5857568") or ("9551459") or ("9032576") or ("8003886") or ("9344539") or ("20160334084") or ("6028765") or ("20150245703") or ("20140139999") or ("20030038045") or ("20160230968") or ("20130021743") or ("10207651") or ("20160297375") or ("6749061") or ("10429040") or ("20050050694") or ("20090101784") or ("6504710") or ("8456836") or ("7748667") or ("9069527") or ("9991640") or ("5416479") or ("20140029185") or ("20120260698") or ("9399432") or ("20100090488") or ("20110061885") or ("20130026897") or ("20180277995") or ("20130113346") or ("20140252818") or ("20150295362") or ("20120201000") or ("20020078291") or ("7686270") or ("9846452") or ("20140233108") or ("20140331417") or ("8453983") or ("9867439") or ("9562644") or ("20160010788") or ("20190376320") or ("20130014330") or ("9296340") or ("7914059") or ("10455955") or ("20130193174") or ("20190393689") or ("8797721") or ("20160062398") or ("9635907") or ("10368457") or ("8551283") or ("20170055661") or ("7874539") or ("9360892") or ("8727290")).PN. or (("9326623") or ("20120307448") or ("20070075206") or ("20140075743") or ("20170196112") or ("9606579") or ("20160033997") or ("20180092471") or ("20110186345") or ("20010002691") or ("20170172267") or ("8784939") or ("8711553") or ("9185816") or ("20140060878") or ("9274568") or ("20190297741") or ("6318687") or ("8724312") or ("20110188180") or ("8587939") or ("7878476") or ("20100090490") or ("20120194998") or ("5913466") or ("20110170252") or ("8223488") or ("5253142") or ("9372513") or ("20190350326") or				

		("20150043141") or ("20160192774") or ("9728947") or ("20190118778") or ("20120275100") or ("20110170257") or ("9278648") or ("10076050") or ("20130328462") or ("20120327579") or ("20020179781") or ("20140166706") or ("20130200119") or ("6101087") or ("20020011544") or ("20190216227") or ("9414686") or ("10474193") or ("6426872") or ("6863252") or ("8157310") or ("20190384143") or ("9496665") or ("9121546") or ("20160242564") or ("20160205800") or ("9232670") or ("20020017119") or ("9710017") or ("9527456") or ("20010013234") or ("RE44727") or ("20090249705") or ("20130017330") or ("20150140868") or ("20050150263") or ("9577694") or ("20180312118") or ("20170308123") or ("6749158") or ("20150329062") or ("9680317") or ("9924805") or ("20130193909") or ("20160276852") or ("20020076512") or ("10009449") or ("20180292666") or ("20150047493") or ("20110187245") or ("20180271301") or ("10136737") or ("10442371") or ("8568829") or ("10198090") or ("20180116430") or ("20060238967") or ("5723821") or ("10349760") or ("6131347") or ("20140224953") or ("9605792") or ("6397533") or ("20180101196") or ("20120212896") or ("7608780") or ("9297495") or ("20090205864") or ("20170341463") or ("20160054537") or ("20170097698") or ("20070170230") or ("5971506") or ("20140263939") or ("8959845") or ("10232665") or ("6364265") or ("20160030696") or ("9644783") or ("20040206138") or ("20100090075") or ("20120127651") or ("20170152990") or ("20130165012") or ("20120194991") or ("8894445") or ("20080197248") or ("20130244496") or ("20100270052") or ("20060248803") or ("6903924") or ("20010015567") or ("5189259") or ("5435737") or ("20150103245") or ("6115977") or ("8905792") or ("20130148289") or ("9056696") or ("20170239588")).PN. or (("20070099681") or ("8104411") or ("6400561") or ("20180263136") or ("20150335139") or ("20020089820") or ("10443274") or ("5618141") or ("20120018605") or ("9004432") or ("20170310096") or ("20130260615") or ("9864403") or ("20030101778") or ("20170281390") or ("8025016") or ("8649169") or ("9414685") or ("9261912") or ("20130026324") or ("8338703") or ("20100090487") or ("20110128689") or ("9060609") or ("5934454") or ("4964017") or				

		("20110267774") or ("20080283148") or ("6158699") or ("9669324") or ("6553794") or ("10117353") or ("7143614") or ("9979172") or ("20070056337") or ("20050150262") or ("20110292666") or ("6497391") or ("20180358824") or ("9044087") or ("8098488") or ("20130140965") or ("7201029") or ("20120322301") or ("20060288745") or ("6644748") or ("20150111626") or ("20170108703") or ("9206626") or ("8814128") or ("8717758") or ("10312700") or ("20140182876") or ("20150121772") or ("8602817") or ("9375073") or ("7121125") or ("7100404") or ("RE43869") or ("20080035029") or ("20150052957") or ("6400562") or ("20160076276") or ("20170339800") or ("10125523") or ("20070220931") or ("20040026582") or ("9562375") or ("9874903") or ("8837144") or ("20090213536") or ("8437132") or ("6481683") or ("20020167205") or ("20120104185") or ("10420407") or ("10004476") or ("20140093303") or ("9078350") or ("20120272693") or ("20180360208") or ("20190078355") or ("7111479") or ("9310841") or ("10478580") or ("20140238091") or ("20190039574") or ("6702372") or ("8929065") or ("20140367136") or ("20080151488") or ("10058155") or ("10070707") or ("6089520") or ("10120199") or ("7978466") or ("4356712") or ("8955905") or ("7744172") or ("7100403") or ("6000252") or ("5502989") or ("20170145719") or ("8453981") or ("20070099680") or ("20190029380") or ("9074722") or ("5493878") or ("6735990") or ("20110297050") or ("20150301562") or ("7827920") or ("5764474") or ("20170099922") or ("20090244862") or ("8459191") or ("20110084182") or ("9498034") or ("9700114") or ("20140361584") or ("6000251") or ("20070278361") or ("9185953") or ("6155088") or ("6588241") or ("20140168885") or ("6810295") or ("9575516") or ("20190025881") or ("8763795") or ("6612665") or ("20150357751") or ("6112562") or ("6446285") or ("5755420")).PN. or (("4544323") or ("20090049791") or ("20180231228") or ("8472186") or ("8281542") or ("9146584") or ("20130178161") or ("20020011193") or ("20130040470") or ("7891719") or ("5924807") or ("20130043290") or ("20170065044") or ("20160058145") or ("20030000429") or ("20140360893") or ("20170303654") or ("20140210237") or ("20090107083") or ("9065205") or ("9660376") or ("20150003907") or ("20110102994") or ("20100299876") or				

		("8472177") or ("9472888") or ("20190289740") or ("20150380862") or ("20050185370") or ("7864518") or ("20140001324") or ("6385036") or ("20120085356") or ("20020141148") or ("20020151226") or ("20020101709") or ("20140246354") or ("6736073") or ("9055796") or ("5651456") or ("9723113") or ("8254097") or ("8467179") or ("8467178") or ("20150277509") or ("20140202890") or ("10178903") or ("9141136") or ("7184261") or ("8467185") or ("20150182197") or ("20120106078") or ("7322653") or ("20120106062") or ("9904333") or ("20120106059") or ("8467183") or ("20180013271") or ("5743503") or ("6158829") or ("20050279905") or ("6628516") or ("20060045495") or ("20110267757") or ("7787245") or ("20180325229") or ("5913907") or ("6574096") or ("20070223186") or ("20180084903") or ("20120106061") or ("20120106060") or ("8800569") or ("20040126197") or ("20130285522") or ("9462093") or ("6266236") or ("9383774") or ("20170156497") or ("10093377") or ("20040254020") or ("20060278504") or ("10067537") or ("20130178155") or ("9167906") or ("8708151") or ("20080100106") or ("20140225402") or ("9431190") or ("20180099714") or ("8891230") or ("9774713") or ("20090266954") or ("20160176356") or ("7530541") or ("9902335") or ("20050269477") or ("20140166832") or ("20190100267") or ("20130068706") or ("20150237750") or ("7823973") or ("8995125") or ("20060278794") or ("6967836") or ("20180140427") or ("10112670") or ("20150105127") or ("20090288543") or ("5944210") or ("8950593") or ("6540350") or ("20150111623") or ("20170360223") or ("20160204588") or ("20110309212") or ("6644605") or ("20170017268") or ("20140312086") or ("20130181584") or ("6714188") or ("7900489") or ("9049785") or ("7226027") or ("20140043744") or ("9188275") or ("10474189") or ("9991922") or ("9328865") or ("7348504") or ("6417842") or ("6267607")).PN. or (("20180013272") or ("20090025436") or ("20090212184") or ("20190064877") or ("20110112399") or ("8250830") or ("20170237843") or ("20020135732") or ("8934226") or ("9655434") or ("20050185373") or ("20140111933") or ("20190133280") or ("6926477") or ("20160297491") or ("20110267773") or ("20190308493") or ("10477968") or ("20190372614") or				

		("20090161062") or ("20130301216") or ("9711957") or ("6883694") or ("20030075578") or ("6439134") or ("20180092440") or ("9592871") or ("20020125798") or ("20150169007") or ("9588550") or ("5813873") or ("20170331237") or ("20170183052") or ("10396514") or ("10159336") or ("20090064627") or ("6070269") or ("20120119040") or ("20120049027") or ("10457127") or ("20120273630") or ("10104957") or ("20160352380") or ("20190269241") or ("7896573") or ("8072767") or ("9743757") or ("6543832") or ("20200000611") or ("8601617") or ("7625082") or ("10328776") or ("20140168877") or ("7261270") or ("5451168") or ("20120145835") or ("20190248299") or ("7365971") or ("20160235190") or ("20070201201") or ("10250783") or ("20040150628") or ("5787533") or ("20100091442") or ("20180192777") or ("5295089") or ("20100051769") or ("8888058") or ("7485820") or ("10352496") or ("9962003") or ("20130216067") or ("20190160651") or ("5000602") or ("8867202") or ("20200033912") or ("20120229882") or ("9058727") or ("20150208799") or ("10372161") or ("20170332778") or ("9807211") or ("20020120365") or ("9307131") or ("6532152") or ("9267641") or ("9056584") or ("20190230259") or ("20070002530") or ("20140092531") or ("8687359") or ("20120229009") or ("7614149") or ("20050152106") or ("20120030930") or ("5673982") or ("7707718") or ("20120241567") or ("20170019512") or ("20190323651") or ("10375844") or ("10390974") or ("20060260102") or ("20140197048") or ("20020017066") or ("6016248") or ("20140008513") or ("20100155099") or ("20180340646") or ("20110138739") or ("9424721") or ("20160169491") or ("20140085814") or ("20080078903") or ("6301101") or ("20080230266") or ("7611117") or ("5802988") or ("4180955") or ("8425286") or ("8702055") or ("9277825") or ("9589428") or ("10152081") or ("10187106") or ("20060260044") or ("20170344066") or ("9581286") or ("20070242426") or ("20150366356") or ("7242576")).PN. or (("20130147326") or ("20100130070") or ("20130229764") or ("20180013934") or ("20150329054") or ("9295778") or ("20110240830") or ("6856506") or ("7169141") or ("20200004113") or ("5805075") or ("20140191523") or ("20170261830") or ("9881290") or ("5392913") or ("20020144833") or ("20140077542") or ("20100221958") or				

		("20160132852") or ("9179777") or ("20010054861") or ("20130279110") or ("20180093608") or ("20050199672") or ("9257018") or ("20160144779") or ("20060268506") or ("20150220114") or ("6149001") or ("9207724") or ("9701248") or ("20160195899") or ("10191348") or ("20090098837") or ("20180257255") or ("7947903") or ("20130036949") or ("7789875") or ("20190024683") or ("7461483") or ("20130278122") or ("20100220434") or ("8345410") or ("5101736") or ("20090044736") or ("9840195") or ("20030191467") or ("9901713") or ("20020142650") or ("9173491") or ("20140110276") or ("5993227") or ("9563239") or ("7347484") or ("6279861") or ("20160202734") or ("20160320808") or ("20110138557") or ("20050026493") or ("5680721") or ("9993054") or ("20090009936") or ("6005209") or ("6557310") or ("7930006") or ("10245374") or ("9345328") or ("8733857") or ("9916570") or ("20170353209") or ("9643629") or ("7509891") or ("20170151972") or ("9145158") or ("20110180297") or ("20150305505") or ("9489020") or ("20180323559") or ("10089615") or ("7041103") or ("7650230") or ("20060044262") or ("10345672") or ("7736196") or ("20190305571") or ("20140376999") or ("6520607") or ("20160003270") or ("9486935") or ("20080226389") or ("20170161708") or ("8458847") or ("10245754") or ("7938689") or ("20150164227") or ("20150328020") or ("9631767") or ("9568947") or ("20110166947") or ("20170068143") or ("9882305") or ("20170354220") or ("10463120") or ("9189017") or ("20160358147") or ("8655422") or ("20140077571") or ("6545214") or ("20170221035") or ("10071683") or ("20150108317") or ("9451826") or ("20130284684") or ("6709039") or ("20130282501") or ("20060124133") or ("20120257341") or ("20110166690") or ("20160046309") or ("6115931") or ("6452793") or ("8896991") or ("9742458") or ("5337464") or ("9351552") or ("9466228") or ("10043495") or ("20060167453") or ("20170367503") or ("20100103602") or ("20080023508") or ("20160367029")).PN. or (("20120311941") or ("20150192953") or ("20080251680") or ("9010597") or ("20120327588") or ("7933123") or ("10490961") or ("8519326") or ("20060035767") or ("20110297578") or ("20160018847") or ("20080111032") or ("20190277441") or				

		("20030122457") or ("8138469") or ("20120256071") or ("8827234") or ("7206618") or ("20110043990") or ("20160294433") or ("5605311") or ("20090257207") or ("20170086535") or ("7875030")).PN.				
S414	98	S413 and (face near plate)	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:29
S415	9	S414 and tablet$1	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:29
S416	2	S415 and magnet$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:35
S417	1	"20130342087"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:49
S418	16	("D488139" | "D346286" | "D393853" | "D652045" | "20090009945" | "D480731" | "D587256" | "D597975" | "D455131" | "D597764" | "20070138356" | "D661291" | "6328270" | "D460055" | "D535106" | "20090166482").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:49
S419	18	("D488139" | "D346286" | "D393853" | "D652045" | "20090009945" | "D480731" | "D587256" | "D597975" | "D455131" | "D597764" | "20070138356" | "D661291" | "20120193496" | "6328270" | "7946067" | "D460055" | "D535106" | "20030221876").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:50
S420	19	S418 S419	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:50
S421	418	S413 and tablet$1	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 03:59
S422	237	S421 and magnet$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:00
S423	209	S422 and mount$3	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:02

S425	816	(("20130256478") or ("20130105662") or ("9791097") or ("20160312950") or ("20190281976") or ("20130048802") or ("9317076") or ("20150227178") or ("9229494") or ("20120300378") or ("20140028243") or ("8995126") or ("9276626") or ("9383777") or ("20150171913") or ("20140233167") or ("20130334072") or ("8531834") or ("4913390") or ("20160099741") or ("9900041") or ("8915361") or ("20130027862") or ("9559741") or ("9615476") or ("20140217862") or ("20170085283") or ("20130294020") or ("9450634") or ("20160191101") or ("9660684") or ("9548785") or ("20120314354") or ("20130342087") or ("20160254837") or ("10396843") or ("10090877") or ("20180337704") or ("20170237460") or ("20130140837") or ("9427071") or ("20150201723") or ("20170035170") or ("20100090489") or ("20140049060") or ("9300344") or ("8136217") or ("20170068270") or ("5828547") or ("9894192") or ("7886903") or ("20140076748") or ("20160072933") or ("20190343274") or ("9580209") or ("6217351") or ("20050269225") or ("20130213825") or ("9980561") or ("6355885") or ("7009111") or ("6904001") or ("20190376668") or ("6608253") or ("9128284") or ("8616422") or ("20140202493") or ("20140077054") or ("20130334070") or ("8596599") or ("7273983") or ("20130032617") or ("5857568") or ("9551459") or ("9032576") or ("8003886") or ("9344539") or ("20160334084") or ("6028765") or ("20150245703") or ("20140139999") or ("20030038045") or ("20160230968") or ("20130021743") or ("10207651") or ("20160297375") or ("6749061") or ("10429040") or ("20050050694") or ("20090101784") or ("6504710") or ("8456836") or ("7748667") or ("9069527") or ("9991640") or ("5416479") or ("20140029185") or ("20120260698") or ("9399432") or ("20100090488") or ("20110061885") or ("20130026897") or ("20180277995") or ("20130113346") or ("20140252818") or ("20150295362") or ("20120201000") or ("20020078291") or ("7686270") or ("9846452") or ("20140233108") or ("20140331417") or ("8453983") or ("9867439") or ("9562644") or ("20160010788") or ("20190376320") or ("20130014330") or ("9296340") or ("7914059") or ("10455955") or ("20130193174") or ("20190393689") or ("8797721") or ("20160062398") or ("9635907") or ("10368457") or ("8551283") or ("20170055661") or ("7874539") or	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:17

		("9360892") or ("8727290")).PN. or (("9326623") or ("20120307448") or ("20070075206") or ("20140075743") or ("20170196112") or ("9606579") or ("20160033997") or ("20180092471") or ("20110186345") or ("20010002691") or ("20170172267") or ("8784939") or ("8711553") or ("9185816") or ("20140060878") or ("9274568") or ("20190297741") or ("6318687") or ("8724312") or ("20110188180") or ("8587939") or ("7878476") or ("20100090490") or ("20120194998") or ("5913466") or ("20110170252") or ("8223488") or ("5253142") or ("9372513") or ("20190350326") or ("20150043141") or ("20160192774") or ("9728947") or ("20190118778") or ("20120275100") or ("20110170257") or ("9278648") or ("10076050") or ("20130328462") or ("20120327579") or ("20020179781") or ("20140166706") or ("20130200119") or ("6101087") or ("20020011544") or ("20190216227") or ("9414686") or ("10474193") or ("6426872") or ("6863252") or ("8157310") or ("20190384143") or ("9496665") or ("9121546") or ("20160242564") or ("20160205800") or ("9232670") or ("20020017119") or ("9710017") or ("9527456") or ("20010013234") or ("RE44727") or ("20090249705") or ("20130017330") or ("20150140868") or ("20050150263") or ("9577694") or ("20180312118") or ("20170308123") or ("6749158") or ("20150329062") or ("9680317") or ("9924805") or ("20130193909") or ("20160276852") or ("20020076512") or ("10009449") or ("20180292666") or ("20150047493") or ("20110187245") or ("20180271301") or ("10136737") or ("10442371") or ("8568829") or ("10198090") or ("20180116430") or ("20060238967") or ("5723821") or ("10349760") or ("6131347") or ("20140224953") or ("9605792") or ("6397533") or ("20180101196") or ("20120212896") or ("7608780") or ("9297495") or ("20090205864") or ("20170341463") or ("20160054537") or ("20170097698") or ("20070170230") or ("5971506") or ("20140263939") or ("8959845") or ("10232665") or ("6364265") or ("20160030696") or ("9644783") or ("20040206138") or ("20100090075") or ("20120127651") or ("20170152990") or ("20130165012") or ("20120194991") or ("8894445") or ("20080197248") or ("20130244496") or ("20100270052") or ("20060248803") or ("6903924") or ("20010015567") or ("5189259") or ("5435737") or				

		("20150103245") or ("6115977") or ("8905792") or ("20130148289") or ("9056696") or ("20170239588")).PN. or (("20070099681") or ("8104411") or ("6400561") or ("20180263136") or ("20150335139") or ("20020089820") or ("10443274") or ("5618141") or ("20120018605") or ("9004432") or ("20170310096") or ("20130260615") or ("9864403") or ("20030101778") or ("20170281390") or ("8025016") or ("8649169") or ("9414685") or ("9261912") or ("20130026324") or ("8338703") or ("20100090487") or ("20110128689") or ("9060609") or ("5934454") or ("4964017") or ("20110267774") or ("20080283148") or ("6158699") or ("9669324") or ("6553794") or ("10117353") or ("7143614") or ("9979172") or ("20070056337") or ("20050150262") or ("20110292666") or ("6497391") or ("20180358824") or ("9044087") or ("8098488") or ("20130140965") or ("7201029") or ("20120322301") or ("20060288745") or ("6644748") or ("20150111626") or ("20170108703") or ("9206626") or ("8814128") or ("8717758") or ("10312700") or ("20140182876") or ("20150121772") or ("8602817") or ("9375073") or ("7121125") or ("7100404") or ("RE43869") or ("20080035029") or ("20150052957") or ("6400562") or ("20160076276") or ("20170339800") or ("10125523") or ("20070220931") or ("20040026582") or ("9562375") or ("9874903") or ("8837144") or ("20090213536") or ("8437132") or ("6481683") or ("20020167205") or ("20120104185") or ("10420407") or ("10004476") or ("20140093303") or ("9078350") or ("20120272693") or ("20180360208") or ("20190078355") or ("7111479") or ("9310841") or ("10478580") or ("20140238091") or ("20190039574") or ("6702372") or ("8929065") or ("20140367136") or ("20080151488") or ("10058155") or ("10070707") or ("6089520") or ("10120199") or ("7978466") or ("4356712") or ("8955905") or ("7744172") or ("7100403") or ("6000252") or ("5502989") or ("20170145719") or ("8453981") or ("20070099680") or ("20190029380") or ("9074722") or ("5493878") or ("6735990") or ("20110297050") or ("20150301562") or ("7827920") or ("5764474") or ("20170099922") or ("20090244862") or ("8459191") or ("20110084182") or ("9498034") or ("9700114") or ("20140361584") or ("6000251") or ("20070278361") or ("9185953") or ("6155088") or ("6588241") or ("20140168885") or ("6810295") or				

		("9575516") or ("20190025881") or ("8763795") or ("6612665") or ("20150357751") or ("6112562") or ("6446285") or ("5755420")).PN. or (("4544323") or ("20090049791") or ("20180231228") or ("8472186") or ("8281542") or ("9146584") or ("20130178161") or ("20020011193") or ("20130040470") or ("7891719") or ("5924807") or ("20130043290") or ("20170065044") or ("20160058145") or ("20030000429") or ("20140360893") or ("20170303654") or ("20140210237") or ("20090107083") or ("9065205") or ("9660376") or ("20150003907") or ("20110102994") or ("20100299876") or ("8472177") or ("9472888") or ("20190289740") or ("20150380862") or ("20050185370") or ("7864518") or ("20140001324") or ("6385036") or ("20120085356") or ("20020141148") or ("20020151226") or ("20020101709") or ("20140246354") or ("6736073") or ("9055796") or ("5651456") or ("9723113") or ("8254097") or ("8467179") or ("8467178") or ("20150277509") or ("20140202890") or ("10178903") or ("9141136") or ("7184261") or ("8467185") or ("20150182197") or ("20120106078") or ("7322653") or ("20120106062") or ("9904333") or ("20120106059") or ("8467183") or ("20180013271") or ("5743503") or ("6158829") or ("20050279905") or ("6628516") or ("20060045495") or ("20110267757") or ("7787245") or ("20180325229") or ("5913907") or ("6574096") or ("20070223186") or ("20180084903") or ("20120106061") or ("20120106060") or ("8800569") or ("20040126197") or ("20130285522") or ("9462093") or ("6266236") or ("9383774") or ("20170156497") or ("10093377") or ("20040254020") or ("20060278504") or ("10067537") or ("20130178155") or ("9167906") or ("8708151") or ("20080100106") or ("20140225402") or ("9431190") or ("20180099714") or ("8891230") or ("9774713") or ("20090266954") or ("20160176356") or ("7530541") or ("9902335") or ("20050269477") or ("20140166832") or ("20190100267") or ("20130068706") or ("20150237750") or ("7823973") or ("8995125") or ("20060278794") or ("6967836") or ("20180140427") or ("10112670") or ("20150105127") or ("20090288543") or ("5944210") or ("8950593") or ("6540350") or ("20150111623") or ("20170360223") or ("20160204588") or ("20110309212") or ("6644605") or ("20170017268") or ("20140312086") or ("20130181584") or				

		("6714188") or ("7900489") or ("9049785") or ("7226027") or ("20140043744") or ("9188275") or ("10474189") or ("9991922") or ("9328865") or ("7348504") or ("6417842") or ("6267607")).PN. or (("20180013272") or ("20090025436") or ("20090212184") or ("20190064877") or ("20110112399") or ("8250830") or ("20170237843") or ("20020135732") or ("8934226") or ("9655434") or ("20050185373") or ("20140111933") or ("20190133280") or ("6926477") or ("20160297491") or ("20110267773") or ("20190308493") or ("10477968") or ("20190372614") or ("20090161062") or ("20130301216") or ("9711957") or ("6883694") or ("20030075578") or ("6439134") or ("20180092440") or ("9592871") or ("20020125798") or ("20150169007") or ("9588550") or ("5813873") or ("20170331237") or ("20170183052") or ("10396514") or ("10159336") or ("20090064627") or ("6070269") or ("20120119040") or ("20120049027") or ("10457127") or ("20120273630") or ("10104957") or ("20160352380") or ("20190269241") or ("7896573") or ("8072767") or ("9743757") or ("6543832") or ("20200000611") or ("8601617") or ("7625082") or ("10328776") or ("20140168877") or ("7261270") or ("5451168") or ("20120145835") or ("20190248299") or ("7365971") or ("20160235190") or ("20070201201") or ("10250783") or ("20040150628") or ("5787533") or ("20100091442") or ("20180192777") or ("5295089") or ("20100051769") or ("8888058") or ("7485820") or ("10352496") or ("9962003") or ("20130216067") or ("20190160651") or ("5000602") or ("8867202") or ("20200033912") or ("20120229882") or ("9058727") or ("20150208799") or ("10372161") or ("20170332778") or ("9807211") or ("20020120365") or ("9307131") or ("6532152") or ("9267641") or ("9056584") or ("20190230259") or ("20070002530") or ("20140092531") or ("8687359") or ("20120229009") or ("7614149") or ("20050152106") or ("20120030930") or ("5673982") or ("7707718") or ("20120241567") or ("20170019512") or ("20190323651") or ("10375844") or ("10390974") or ("20060260102") or ("20140197048") or ("20020017066") or ("6016248") or ("20140008513") or ("20100155099") or ("20180340646") or ("20110138739") or ("9424721") or ("20160169491") or ("20140085814") or ("20080078903") or ("6301101") or ("20080230266") or ("7611117") or ("5802988") or				

		("4180955") or ("8425286") or ("8702055") or ("9277825") or ("9589428") or ("10152081") or ("10187106") or ("20060260044") or ("20170344066") or ("9581286") or ("20070242426") or ("20150366356") or ("7242576")).PN. or (("20130147326") or ("20100130070") or ("20130229764") or ("20180013934") or ("20150329054") or ("9295778") or ("20110240830") or ("6856506") or ("7169141") or ("20200004113") or ("5805075") or ("20140191523") or ("20170261830") or ("9881290") or ("5392913") or ("20020144833") or ("20140077542") or ("20100221958") or ("20160132852") or ("9179777") or ("20010054861") or ("20130279110") or ("20180093608") or ("20050199672") or ("9257018") or ("20160144779") or ("20060268506") or ("20150220114") or ("6149001") or ("9207724") or ("9701248") or ("20160195899") or ("10191348") or ("20090098837") or ("20180257255") or ("7947903") or ("20130036949") or ("7789875") or ("20190024683") or ("7461483") or ("20130278122") or ("20100220434") or ("8345410") or ("5101736") or ("20090044736") or ("9840195") or ("20030191467") or ("9901713") or ("20020142650") or ("9173491") or ("20140110276") or ("5993227") or ("9563239") or ("7347484") or ("6279861") or ("20160202734") or ("20160320808") or ("20110138557") or ("20050026493") or ("5680721") or ("9993054") or ("20090009936") or ("6005209") or ("6557310") or ("7930006") or ("10245374") or ("9345328") or ("8733857") or ("9916570") or ("20170353209") or ("9643629") or ("7509891") or ("20170151972") or ("9145158") or ("20110180297") or ("20150305505") or ("9489020") or ("20180323559") or ("10089615") or ("7041103") or ("7650230") or ("20060044262") or ("10345672") or ("7736196") or ("20190305571") or ("20140376999") or ("6520607") or ("20160003270") or ("9486935") or ("20080226389") or ("20170161708") or ("8458847") or ("10245754") or ("7938689") or ("20150164227") or ("20150328020") or ("9631767") or ("9568947") or ("20110166947") or ("20170068143") or ("9882305") or ("20170354220") or ("10463120") or ("9189017") or ("20160358147") or ("8655422") or ("20140077571") or ("6545214") or ("20170221035") or ("10071683") or ("20150108317") or ("9451826") or ("20130284684") or ("6709039") or				

		("20130282501") or ("20060124133") or ("20120257341") or ("20110166690") or ("20160046309") or ("6115931") or ("6452793") or ("8896991") or ("9742458") or ("5337464") or ("9351552") or ("9466228") or ("10043495") or ("20060167453") or ("20170367503") or ("20100103602") or ("20080023508") or ("20160367029")).PN. or (("20120311941") or ("20150192953") or ("20080251680") or ("9010597") or ("20120327588") or ("7933123") or ("10490961") or ("8519326") or ("20060035767") or ("20110297578") or ("20160018847") or ("20080111032") or ("20190277441") or ("20030122457") or ("8138469") or ("20120256071") or ("8827234") or ("7206618") or ("20110043990") or ("20160294433") or ("5605311") or ("20090257207") or ("20170086535") or ("7875030")).PN.				
S426	418	S425 and tablet$1	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:17
S427	237	S426 and magnet$4	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:17
S428	38	S427 and (mount$3 near2 wall)	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:17
S429	21	S427 and (mount$3 near2 screw$1)	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:17
S430	44	S428 S429	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:17
S431	2,429,498	S430 and junction box	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:17
S432	0	S430 and (junction near box)	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:18
S433	0	S427 and (junction near box)	US-PGPUB;	OR	OFF	2020/02/03 04:18

			USPAT; USOCR			
S434	1	S426 and (junction near box)	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:18
S435	1	S425 and (junction near box)	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:18
S436	0	("2019/0376320").URPN.	USPAT	OR	OFF	2020/02/03 04:19
S437	44	S430 and tablet$1	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 04:21
S438	0	h05k7/20181,20145,2019	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:15
S439	15,609	G06F1/20,203,206.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:15
S440	3,386	h05k7/20181,20145,2019,20209,20136.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:17
S441	64	((("GUILLOT") near3 ("François")) OR (("BLINEAU") near3 ("Jean-Marc")) OR (("AVIGNON") near3 ("Philippe")) OR (("ROQUES") near3 ("Serge")) OR (("ALBERO") near3 ("Franck"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/02/03 10:22
S442	108	E05B65/0067.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:39
S443	1,675	E05B73/0082,0005.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:39
S444	24,640	G06F1/1616,1632,1656,1679.cpc.	US-PGPUB;	OR	OFF	2020/02/03 10:39

			USPAT; USOCR			
S445	9	((("YONEMURA") near3 ("Masayuki"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/02/03 10:39
S446	11,062	g06f1/1601,1603,1679,1681.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:56
S447	11,062	G06F1/1601,1603,1679,1681.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:56
S448	1,253	H04N1/00554,00519.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:56
S449	1,828	F16C11/10,103,12.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:56
S450	19,497	G06F1/1601,1603,1679,1681,1632.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 10:59
S451	8	((("ROHMAN") near3 ("Stephen"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/02/03 11:01
S452	1	"20180328402"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:04
S453	1,159	(("20180328402") or ("8631528") or ("8533884") or ("8166594") or ("8813290") or ("8517659") or ("20110268544") or ("8925131") or ("20130315697") or ("9783094") or ("20140248109") or ("9271883") or ("5673459") or ("8869333") or ("20140245548") or ("6877806") or ("8635729") or ("20040075308") or	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:04

		("20050146170") or ("7267400") or ("8375496") or ("9820899") or ("8250693") or ("9050229") or ("6047444") or ("20190247248") or ("20170174412") or ("10259642") or ("20150371482") or ("7753753") or ("9959696") or ("20190283555") or ("9108742") or ("20130256453") or ("20080081536") or ("20080187425") or ("20160297344") or ("6179545") or ("20190168656") or ("20130136567") or ("9341212") or ("10239435") or ("20190168655") or ("6446906") or ("5259827") or ("20120279417") or ("20110027054") or ("8561549") or ("6802095") or ("8359691") or ("6290297") or ("20060193469") or ("8534979") or ("20070194580") or ("6210098") or ("8505141") or ("20090145156") or ("9781963") or ("8943631") or ("6412849") or ("20050276412") or ("7900470") or ("8832893") or ("7604142") or ("7373692") or ("20030218094") or ("20040177457") or ("6688099") or ("20070131680") or ("20150074925") or ("7062813") or ("20060207040") or ("9102482") or ("8156595") or ("20060151909") or ("20110247990") or ("10442067") or ("20110135432") or ("7225493") or ("20180193992") or ("7908695") or ("20090255067") or ("3251488") or ("20040096304") or ("10293921") or ("20170101172") or ("4734939") or ("6260801") or ("20190023381") or ("5391041") or ("8132281") or ("10124884") or ("7427196") or ("8701898") or ("20120198980") or ("8936419") or ("6602041") or ("9624703") or ("5832555") or ("20010048870") or ("7255399") or ("4917526") or ("4835978") or ("3315483") or ("20120280080") or ("20060061183") or ("8876039") or ("8122553") or ("20170318958") or ("8181300") or ("20190233092") or ("7527467") or ("20080271266") or ("9963883") or ("20140253731") or ("8234737") or ("5042186") or ("7367597") or ("8839702") or ("6511129") or ("20120087716") or ("10499739") or ("20060103148") or ("20060016205") or ("4502638") or ("20070069527") or ("20120144712") or ("7013654") or ("6311928") or ("20180249834") or ("20110072598") or ("3524381") or ("8032963") or ("20040206858") or ("8375473") or ("8376375")).PN. or (("7029049") or ("20180207779") or ("7682368") or ("7152892") or ("7036785") or ("20050220294") or ("9504348") or ("20060016207") or ("20100299814") or ("6843635") or ("20100308552") or ("20170335618") or ("10004289") or ("20140245523") or ("20020197141") or				

		("20130174359") or ("20080271267") or ("6220658") or ("6409458") or ("6761331") or ("6010298") or ("20130182381") or ("9788835") or ("20100069934") or ("20120280547") or ("8475474") or ("20180170319") or ("8820212") or ("10514126") or ("6238168") or ("20060086135") or ("20140271072") or ("10391981") or ("8955913") or ("7032391") or ("7870630") or ("20110145981") or ("8753025") or ("20100080678") or ("20030178527") or ("20130028588") or ("20160058441") or ("20200029962") or ("20080271268") or ("10470761") or ("20190380706") or ("20110269371") or ("6203265") or ("20170321841") or ("20180000479") or ("20040023700") or ("4620680") or ("9463015") or ("20040045114") or ("20170049451") or ("8562279") or ("20050184549") or ("20160220245") or ("6079853") or ("9759369") or ("6905093") or ("20040144888") or ("20170334331") or ("6935712") or ("9764674") or ("20170122685") or ("3984082") or ("10279997") or ("8734201") or ("20090174748") or ("20070235978") or ("9650796") or ("9682490") or ("20110023246") or ("20030007853") or ("10160369") or ("20040136820") or ("20140331844") or ("4502639") or ("20190049199") or ("20150113884") or ("6898888") or ("20170361692") or ("8430440") or ("20140007367") or ("7988255") or ("20040200110") or ("2968935") or ("9980622") or ("20190195552") or ("6186733") or ("20180072240") or ("20030177605") or ("20150259139") or ("7533433") or ("6598253") or ("7533434") or ("20180298844") or ("7762570") or ("7681272") or ("20190049201") or ("20190368807") or ("3048986") or ("20090035112") or ("4771507") or ("10106070") or ("20110211015") or ("4269108") or ("7533432") or ("6658694") or ("20060290159") or ("6604355") or ("10495376") or ("20100032545") or ("20090143116") or ("10266126") or ("7384093") or ("20150225021") or ("20140165619") or ("5152109") or ("7904128") or ("20180066467") or ("20190183498") or ("20090035113") or ("10099629") or ("9074803") or ("20190092209") or ("20080273956") or ("9376048") or ("9713977") or ("7350850") or ("20060242971")).PN. or (("RE33610") or ("3789620") or ("7437885") or ("6575503") or ("20160167587") or ("20090035111") or ("7972188") or ("20150257585") or ("7371243") or ("20190185263") or ("10485725") or				

		("20160172797") or ("4715644") or ("9517731") or ("20060181110") or ("4900217") or ("4796944") or ("2607520") or ("20180141478") or ("6113160") or ("2984859") or ("8984665") or ("20190029915") or ("20040262946") or ("7216491") or ("20180056845") or ("20200008990") or ("10160133") or ("10065570") or ("20060091697") or ("10370120") or ("RE33631") or ("20120025555") or ("9568232") or ("20040262949") or ("20050137000") or ("3506102") or ("10525898") or ("8336940") or ("9452717") or ("20160167593") or ("20180326918") or ("9975465") or ("20110239354") or ("20040262947") or ("10295318") or ("20170067725") or ("6357841") or ("7434296") or ("8651545") or ("20170210273") or ("20080238119") or ("20150209973") or ("20050001449") or ("7552970") or ("3206940") or ("5556250") or ("20130081336") or ("9501108") or ("3563050") or ("10370121") or ("20060005353") or ("4866948") or ("5212955") or ("20140165598") or ("20070131883") or ("20190084469") or ("20050035254") or ("20060043778") or ("7744142") or ("4283607") or ("7198320") or ("20080201900") or ("20080012394") or ("20050110236") or ("6445573") or ("7503474") or ("6398479") or ("20050136715") or ("4498823") or ("20180215025") or ("9855998") or ("6983979") or ("6988760") or ("7234716") or ("7121612") or ("8061255") or ("20190150919") or ("20150362962") or ("20160368570") or ("7100987") or ("20100219660") or ("20190359146") or ("9114327") or ("8038193") or ("20170095626") or ("3299656") or ("7653968") or ("9151527") or ("20170197498") or ("20130153626") or ("5303635") or ("20180093743") or ("6955550") or ("10241548") or ("7121613") or ("3623336") or ("9173657") or ("2934916") or ("8739313") or ("10292703") or ("10144276") or ("20060261644") or ("9289211") or ("20010008606") or ("4142378") or ("20150233154") or ("4651896") or ("20010005478") or ("20190241238") or ("10533353") or ("9668729") or ("20030127482") or ("9113868") or ("20060213923") or ("7556177") or ("9566064") or ("9814463") or ("5309788") or ("20140263569") or ("4594838") or ("20140263566") or ("20130153624") or ("6161899") or ("5222277")).PN. or (("10294692") or ("9888921") or ("20140165620") or ("20060220417") or ("20160100836") or ("10422600") or ("20140263545") or ("20180252488") or ("20090190088") or ("20130153622") or ("20140265372") or				

		("6467847") or ("10471336") or ("9668728") or ("20190239876") or ("10538215") or ("20140263568") or ("20140182315") or ("2991083") or ("20190234104") or ("20140263567") or ("20160377361") or ("20010043853") or ("10196008") or ("20020096928") or ("20020185904") or ("20180065029") or ("9113866") or ("20180171686") or ("20120115393") or ("10182815") or ("3951342") or ("20030061658") or ("4993772") or ("20140263559") or ("20070182187") or ("6983980") or ("20070228694") or ("20160157863") or ("7905591") or ("9080800") or ("7311358") or ("5855408") or ("5697274") or ("20170282387") or ("20060091705") or ("9945629") or ("20130153642") or ("3074248") or ("6309170") or ("20190183496") or ("20140159410") or ("7543837") or ("20180272976") or ("9119615") or ("10139146") or ("20020180251") or ("9079542") or ("20150082816") or ("3488977") or ("5823001") or ("6669299") or ("6264060") or ("7422260") or ("20190269239") or ("9788834") or ("20190364685") or ("20150210220") or ("6394859") or ("20190389287") or ("20130051900") or ("20090146016") or ("2497219") or ("20060137114") or ("3258230") or ("7188888") or ("9380881") or ("20160332552") or ("2903864") or ("20070067956") or ("20150210377") or ("9580166") or ("6216471") or ("6533357") or ("20070235980") or ("20080209937") or ("20150246660") or ("5764481") or ("20070266516") or ("20180001496") or ("20140240235") or ("9423881") or ("20140165618") or ("9764487") or ("7475899") or ("20190183490") or ("20180079095") or ("20130256377") or ("20200016782") or ("20030234326") or ("20190061187") or ("7766282") or ("8695503") or ("7048241") or ("7216392") or ("20110157799") or ("10112313") or ("20030151339") or ("9113879") or ("10406707") or ("5842360") or ("20150233153") or ("20040177455") or ("20130153625") or ("9113867") or ("20130153623") or ("20180281966") or ("8395893") or ("8651815") or ("20100037634") or ("6648579") or ("7452175") or ("9074802") or ("20180250471") or ("7350369") or ("7520036") or ("7213859") or ("20190170420") or ("5774938") or ("7628031") or ("20110229309") or ("4329106")).PN. or (("6050097") or ("20050107824") or ("8448977") or ("20140123687") or ("4529150") or ("20120025492") or ("20100263514") or				

		("4085863") or ("3182611") or ("4194224") or ("8151678") or ("6232924") or ("20180345874") or ("20170043492") or ("20180164855") or ("6554362") or ("8186015") or ("5237709") or ("20090273264") or ("3306064") or ("3280578") or ("20150201776") or ("3327335") or ("20100043457") or ("6305897") or ("3362181") or ("20100043456") or ("20180186301") or ("20050155174") or ("20100037633") or ("7857186") or ("6293495") or ("7152900") or ("20040146385") or ("3074593") or ("20100043458") or ("8602736") or ("20120186288") or ("20180327002") or ("6859972") or ("20050136998") or ("20160102805") or ("10345024") or ("2253482") or ("20110000233") or ("3380342") or ("5479678") or ("10494082") or ("20020076313") or ("20170050579") or ("20060208520") or ("20170152017") or ("20100037632") or ("20060174646") or ("7047584") or ("20080051724") or ("4197049") or ("8520382") or ("20110229342") or ("4647117") or ("9913552") or ("7975638") or ("20070052256") or ("2680052") or ("9869423") or ("5785362") or ("20140183907") or ("20160166013") or ("9642767") or ("20050052063") or ("20050063807") or ("20190183499") or ("4578919") or ("20130092707") or ("20130048664") or ("5785327") or ("10391950") or ("7841191") or ("8381535") or ("2198168") or ("4538729") or ("6058953") or ("20060061173") or ("7553296") or ("6860701") or ("6026536") or ("20040013507") or ("9016773") or ("20130048667") or ("20100072252") or ("20100072253") or ("7243453") or ("7261379") or ("3276225") or ("6431923") or ("8096142") or ("20100043459") or ("8863984") or ("6964335") or ("5261248") or ("20100087857") or ("9109536") or ("7891207") or ("20050229462") or ("8991646") or ("10024088") or ("5476307") or ("20180166842") or ("20080040905") or ("20090067965") or ("20060065005") or ("10315828") or ("20060255637") or ("20160161045") or ("20140166654") or ("9775410") or ("20070079626") or ("20160115711") or ("6811067") or ("20080014844") or ("6156050") or ("7913514") or ("20170066387") or ("4763962") or ("8303604") or ("6477732") or ("20030000980") or ("10010461") or ("10337594") or ("5868351") or ("7552518") or ("6176169") or ("20100236121") or ("9447608")).PN. or (("7240881") or ("8967414") or ("5380231") or ("3005560") or ("20200011581") or ("5599197") or ("20070068189") or ("9010010") or				

		("20140270935") or ("20160201778") or ("20130305583") or ("7393056") or ("20110253766") or ("20170355507") or ("4655344") or ("5329786") or ("20150275821") or ("20120292970") or ("20020160639") or ("20040228713") or ("9790892") or ("9567060") or ("20160347478") or ("7946125") or ("5427049") or ("3517838") or ("8205781") or ("5529381") or ("9586532") or ("7810268") or ("5368493") or ("7832612") or ("2826379") or ("9650991") or ("8359993") or ("20150000305") or ("RE35938") or ("10082241") or ("20060118681") or ("20180356858") or ("6533303") or ("8882199") or ("10214947") or ("4176610") or ("20150129719") or ("20170233078") or ("2510400") or ("20180155035") or ("10364598") or ("20180266153") or ("7146820") or ("2960204") or ("7712323") or ("20160312504") or ("20070204437") or ("20100072251") or ("20110018413") or ("2864535") or ("8833783") or ("10293944") or ("5182984") or ("10301004") or ("20190241390") or ("7913510") or ("3970182") or ("20180134367") or ("20080092574") or ("20150297216") or ("7326024") or ("5885049") or ("20180252359") or ("20130126531") or ("9220332") or ("20050132739") or ("4473201") or ("20090072500") or ("9668733") or ("8172346") or ("20190000699") or ("20100244502") or ("20190308565") or ("20160242975") or ("3579698") or ("3007101") or ("20150233159") or ("20190308717") or ("5160094") or ("9422769") or ("6481799") or ("7954686") or ("5692208") or ("10296044") or ("8230539") or ("20080271269") or ("20180094769") or ("3411664") or ("7849707") or ("20020133997") or ("20190233120") or ("8348129") or ("7526991") or ("6254441") or ("20150333441") or ("20170015565") or ("20160023575") or ("7429091") or ("20160084434") or ("20090077852") or ("6729893") or ("5944473") or ("6952936") or ("2033174") or ("7913341") or ("10414503") or ("9758075") or ("20020000709") or ("3934360") or ("20110088208") or ("4165810") or ("20140215868") or ("7007318") or ("6007036") or ("3028733") or ("20150075390") or ("20110084115") or ("10125921") or ("7644890") or ("7717024") or ("6263776") or ("7735159") or ("20100077914") or ("5445488") or ("5310028") or ("10125028") or ("20170016665")).PN. or (("20160147267") or ("20030184051") or ("20160237726") or ("9353558") or ("7905381") or ("9356390") or ("20070012830") or ("6637814") or ("20010015544") or ("20070039190") or				

		("8960783") or ("10054990") or ("2215642") or ("3745779") or ("20110088174") or ("8919766") or ("20100135756") or ("20100072256") or ("9878641") or ("4738361") or ("6401592") or ("4413983") or ("20130061480") or ("20150012026") or ("5341542") or ("5465660") or ("20170015543") or ("20160201299") or ("20110248467") or ("20050168017") or ("9504260") or ("20180080605") or ("20160107546") or ("20020008932") or ("20110204692") or ("10279748") or ("5265583") or ("20020017811") or ("5694822") or ("9567058") or ("5890832") or ("20100000417") or ("8342555") or ("20190204001") or ("20180050642") or ("8578615") or ("10065845") or ("20140077034") or ("20200018101") or ("20150337570") or ("8813373") or ("10035465") or ("20120180354") or ("5106036") or ("20060000056") or ("20190159778") or ("20150013082") or ("8827878") or ("20160357226") or ("20120223123") or ("20130048666") or ("20170320445") or ("2645092") or ("6561585") or ("7305768") or ("6698998") or ("9228786") or ("3375678") or ("20150150691") or ("9445761") or ("9752358") or ("9616779") or ("6931686") or ("20160143748") or ("20050257536") or ("4018031") or ("9322150") or ("20110186355") or ("6010096") or ("4437410") or ("20160174985") or ("20140025170") or ("9625954") or ("9125778") or ("5712668") or ("20130093157") or ("6599079") or ("20050096646") or ("20190183502") or ("20190125356") or ("4457047") or ("7922742") or ("20110075352") or ("5890730") or ("20040022613") or ("9707770") or ("9278630") or ("3248073") or ("10485393") or ("5176488") or ("9016642") or ("20180128024") or ("20180148908") or ("20170333206") or ("20160052287") or ("5971422") or ("20070278352") or ("20150224781") or ("4783027") or ("8807482") or ("20160075261") or ("9433331") or ("20180132685") or ("8986389") or ("8902167") or ("8511736") or ("7618301") or ("20050250985") or ("10182818") or ("20100206988") or ("8307473") or ("20040137970") or ("5605431") or ("8579981") or ("20100307530") or ("6301489") or ("20150085437") or ("8720927") or ("20040075031") or ("20120139842") or ("20060207282") or ("5996178") or ("10391262")).PN. or (("8845007") or ("20120217782") or ("20110139841") or ("20170066311") or ("4267009") or ("20060046792") or ("20130076063") or				

		("20050262749") or ("20110155787") or ("20100212203") or ("20040177456") or ("20160220764") or ("20100281735") or ("8118040") or ("20180346075") or ("20190183503") or ("20190144142") or ("9764628") or ("5232375") or ("7631842") or ("8006609") or ("9317070") or ("20100140270") or ("20050055161") or ("10130530") or ("9271846") or ("6866464") or ("7237393") or ("20070204431") or ("7171247") or ("20190261990") or ("20180363341") or ("20190183497") or ("5067278") or ("20180066465") or ("5520406") or ("8763836") or ("20160249927") or ("20160130842") or ("20140194930") or ("20170184358") or ("20130015678") or ("6325685") or ("6880780") or ("5938008") or ("7628674") or ("20050096671") or ("10226250") or ("9616780") or ("10024036") or ("10052102") or ("20190144143") or ("5380144") or ("20190001711") or ("2919560") or ("20110008140") or ("20150080929") or ("20030226941") or ("20030102185") or ("20120091693") or ("3040542") or ("9757164") or ("9798360") or ("20160038144") or ("20140312037") or ("4896513") or ("8122552") or ("5383545") or ("20030235459") or ("9750617") or ("8651578") or ("10251646") or ("5193878") or ("7703169") or ("7155777") or ("7422022") or ("20190136581") or ("7299129") or ("20190125339") or ("6369542") or ("20160166256") or ("6115245") or ("20190261991") or ("20040022612") or ("5269589") or ("20060286891") or ("20050096670") or ("9249693") or ("20080009224") or ("10506871") or ("20120104911") or ("6986633") or ("20190136575") or ("6086314") or ("20080172086") or ("20170052568") or ("7628030") or ("10317159") or ("2743109") or ("8931679") or ("10120417") or ("5846096") or ("6123310") or ("9724031") or ("9625231") or ("7827719") or ("20170361481") or ("20070059140") or ("6810994") or ("20130092719") or ("20090126155") or ("20160213408") or ("5775746") or ("20050096645") or ("20190256120") or ("8800817") or ("9326771") or ("20160367256") or ("20180081401") or ("20100213241") or ("20130104609") or ("20110155788") or ("20160236365") or ("8540133") or ("7207130") or ("9016558") or ("4800731") or ("5105569") or ("20110088179") or ("2899915") or ("5501457") or ("4372281") or ("20110084113")).PN. or				

		(("9352695") or ("20040103575") or ("10265191") or ("20140033542") or ("20090061794") or ("20110087276") or ("4468712") or ("20150008701") or ("20160208530") or ("9187114") or ("3012410") or ("9682734") or ("8733782") or ("5882053") or ("20130213177") or ("20190125360") or ("2537300") or ("20190033924") or ("20190183501") or ("20150090767") or ("20190125355") or ("20110121599") or ("5374104") or ("4865178") or ("8562264") or ("20040117926") or ("6406144") or ("10344510") or ("4727790") or ("9952632") or ("9237890") or ("8141762") or ("4319695") or ("20020111061") or ("9488200") or ("20030094472") or ("5379489") or ("20100170385")).PN.				
S454	23,551	g06f1/1632,1626,1637.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:13
S455	2,600	361/679.32,679.3,679.56.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:16
S456	992	206/701,775,776.CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:16
S457	2,675	H02G3/14.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:17
S458	8,335	F16M13/02.CPC.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:18
S459	21	((("CHEUNG") near3 ("Steven")) OR (("DEALBUQUERQUE") near3 ("Sergio"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/02/03 11:18
S460	1	"20160003270"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:20

S461	2	"20090009945"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:21
S462	0	"201380342087"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:21
S463	1	"20130342087"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:21
S464	4	S460 S461 S463	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:21
S465	816	(("20130256478") or ("20130105662") or ("9791097") or ("20160312950") or ("20190281976") or ("20130048802") or ("9317076") or ("20150227178") or ("9229494") or ("20120300378") or ("20140028243") or ("8995126") or ("9276626") or ("9383777") or ("20150171913") or ("20140233167") or ("20130334072") or ("8531834") or ("4913390") or ("20160099741") or ("9900041") or ("8915361") or ("20130027862") or ("9559741") or ("9615476") or ("20140217862") or ("20170085283") or ("20130294020") or ("9450634") or ("20160191101") or ("9660684") or ("9548785") or ("20120314354") or ("20130342087") or ("20160254837") or ("10396843") or ("10090877") or ("20180337704") or ("20170237460") or ("20130140837") or ("9427071") or ("20150201723") or ("20170035170") or ("20100090489") or ("20140049060") or ("9300344") or ("8136217") or ("20170068270") or ("5828547") or ("9894192") or ("7886903") or ("20140076748") or ("20160072933") or ("20190343274") or ("9580209") or ("6217351") or ("20050269225") or ("20130213825") or ("9980561") or ("6355885") or ("7009111") or ("6904001") or ("20190376668") or ("6608253") or ("9128284") or ("8616422") or ("20140202493") or ("20140077054") or ("20130334070") or ("8596599") or ("7273983") or ("20130032617") or ("5857568") or ("9551459") or ("9032576") or ("8003886") or ("9344539") or ("20160334084") or ("6028765") or ("20150245703") or ("20140139999") or ("20030038045") or ("20160230968") or ("20130021743") or ("10207651") or ("20160297375") or ("6749061") or	US-PGPUB; USPAT; USOCR	OR	OFF	2020/02/03 11:27

		("10429040") or ("20050050694") or ("20090101784") or ("6504710") or ("8456836") or ("7748667") or ("9069527") or ("9991640") or ("5416479") or ("20140029185") or ("20120260698") or ("9399432") or ("20100090488") or ("20110061885") or ("20130026897") or ("20180277995") or ("20130113346") or ("20140252818") or ("20150295362") or ("20120201000") or ("20020078291") or ("7686270") or ("9846452") or ("20140233108") or ("20140331417") or ("8453983") or ("9867439") or ("9562644") or ("20160010788") or ("20190376320") or ("20130014330") or ("9296340") or ("7914059") or ("10455955") or ("20130193174") or ("20190393689") or ("8797721") or ("20160062398") or ("9635907") or ("10368457") or ("8551283") or ("20170055661") or ("7874539") or ("9360892") or ("8727290")).PN. or (("9326623") or ("20120307448") or ("20070075206") or ("20140075743") or ("20170196112") or ("9606579") or ("20160033997") or ("20180092471") or ("20110186345") or ("20010002691") or ("20170172267") or ("8784939") or ("8711553") or ("9185816") or ("20140060878") or ("9274568") or ("20190297741") or ("6318687") or ("8724312") or ("20110188180") or ("8587939") or ("7878476") or ("20100090490") or ("20120194998") or ("5913466") or ("20110170252") or ("8223488") or ("5253142") or ("9372513") or ("20190350326") or ("20150043141") or ("20160192774") or ("9728947") or ("20190118778") or ("20120275100") or ("20110170257") or ("9278648") or ("10076050") or ("20130328462") or ("20120327579") or ("20020179781") or ("20140166706") or ("20130200119") or ("6101087") or ("20020011544") or ("20190216227") or ("9414686") or ("10474193") or ("6426872") or ("6863252") or ("8157310") or ("20190384143") or ("9496665") or ("9121546") or ("20160242564") or ("20160205800") or ("9232670") or ("20020017119") or ("9710017") or ("9527456") or ("20010013234") or ("RE44727") or ("20090249705") or ("20130017330") or ("20150140868") or ("20050150263") or ("9577694") or ("20180312118") or ("20170308123") or ("6749158") or ("20150329062") or ("9680317") or ("9924805") or ("20130193909") or ("20160276852") or ("20020076512") or ("10009449") or ("20180292666") or ("20150047493") or ("20110187245") or ("20180271301") or				