

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re *Inter Partes* Review of:)
U.S. Patent No. 7,969,307)
Issued: Jun. 28, 2011)
Application No.: 10/530,901)
Filing Date: Jan. 24, 2005)

For: **Diagnostic Radio Frequency Identification Sensors And Applications Thereof**

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,969,307

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Ex.	Description
1001	U.S. Patent No. 7,969,307 B2 (“’307 patent”)
1002	File History of U.S. Patent No. 7,969,307 B2 (“’307 FH”)
1003	Declaration of Majid Sarrafzadeh (“Sarrafzadeh Decl.”)
1004	<i>Curriculum Vitae</i> of Majid Sarrafzadeh
1005	U.S. Patent No. 7,148,803 B2 (“Bandy”)
1006	U.S. Utility Patent Application Transmittal for U.S. Patent No. 7,148,803 B2 (“As-Filed Bandy Application”)
1007	U.S. Patent Application Publication No. US 2002/0178126 A1 (“Beck”)
1008	RESERVED
1009	U.S. Patent No. 6,031,454 (“Lovejoy”)
1010	Assignment of U.S. Patent Application No. 10/761,362 from Peeters to Altivera L.L.C., executed Dec. 2, 2005
1011	Assignment of U.S. Patent Application No. 10/761,362 from Peeters to Altivera, LLC, executed Feb. 10, 2006
1012	Assignment of U.S. Patent Application No. 10/761,362 from Bandy to Symbol Technologies, Inc., executed Feb. 11, 2006
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1014	Gentag’s Response to Abbott’s Initial Invalidity Contentions: Response to Exhibit 1 Regarding Invalidity Based on U.S. Patent No. 7,148,803 “Radio frequency identification (RFID) based sensor networks” (“Bandy”), <i>Gentag, Inc. v. Abbott Laboratories</i> , No. 1:23-cv-00310 (N.D. Ill. Aug. 15, 2023) (“Gentag Invalidity Resp.”)
1015	U.S. Patent No. 6,987,965 B2 (“Ng”)

Ex.	Description
1016	World Intellectual Property Organization, International Publication No. WO 02/058537 A2 (“Heller”)
1017	Third Report & Order, <i>In re Revision of the Comm’n’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Sys.</i> , CC Docket No. 94-102, 14 FCC Rcd. 17388, 1999 WL 795989 (FCC adopted Sept. 15, 1999; released Oct. 6, 1999), http://standards.fcc.gov/gov_affairs/fcc_filings/documents/e911random.pdf (“FCC Report”)
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1019	U.S. Patent No. 7,797,367 B1 (“Gelvin”)
1020	U.S. Patent No. 6,416,471 B1 (“Kumar”)
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1022	U.S. Patent No. 6,720,887 B1 (“Zunti”)
1023	U.S. Patent Application Publication No. 2003/0229723 A1 (“Kangas”)
1024	U.S. Patent Application Publication No. 2002/0165443 A1 (“Mori”)
1025	RESERVED
1026	NEWTON’S TELECOM DICTIONARY (18th ed. 2002) (excerpted)
1027	U.S. Patent No. 7,446,646 B2 (“Huomo”)
1028	U.S. Patent No. 6,989,750 B2 (“Shanks”)

I. Introduction¹

Abbott Laboratories and Abbott Diabetes Care Inc. (collectively, “Petitioner”) request *inter partes* review of claims 1, 2, 3, 5, 9, and 10 of U.S. Patent No. 7,969,307 (“’307 patent”) (Ex. 1001). According to USPTO records, the ’307 patent is assigned to Altivera LLC. The challenged claims recite a remote server that authenticates a diagnostic sensor using a sensor ID and transmits sensor data and software related to the sensor ID to a wireless device (e.g., a cell phone) to interpret the sensor data. That is nothing more than the well-known concept of authenticating a sensor and sending tailored information and software to a wireless device to interpret sensor data. Unsurprisingly given this lack of innovation, the challenged claims are invalid as obvious on three separate grounds.

II. Identification of Challenges (37 C.F.R. § 42.104(b))

- Ground 1: Claims 1, 2, 5, 9, and 10 are obvious under 35 U.S.C. § 103 over Bandy (Ex. 1005);
- Ground 2: Claim 3 is obvious under 35 U.S.C. § 103 over Bandy in view of Heller (Ex. 1016); and
- Ground 3: Claims 1-3, 5, 9, and 10 are obvious under 35 U.S.C. § 103 over Beck (Ex. 1007) in view of Heller (Ex. 1016) and Lovejoy (Ex. 1009).

¹ All emphasis is added unless otherwise noted.

III. Background

A. The '307 Patent (Ex. 1001)

The '307 patent is directed to using a wireless device (e.g., a cell phone) as a “universal” reader to collect data from any type of sensor. '307 patent at Abstract, 2:28-31. The patent’s purported invention is for the wireless device to download (unspecified) “software” that enables the device to interpret the data from a given type of sensor. The specification broadly describes basic functional steps for achieving that goal: the wireless device (i) communicates wirelessly with the sensor unit (e.g., via an existing radio frequency identification—“RFID”—protocol), (ii) retrieves the sensor’s unique ID (which also denotes the sensor type) and data, and (iii) downloads from a remote server “the software and/or instructions” necessary to analyze the data from that type of sensor. *Id.* at 2:53-59, 12:42-49, 14:52-54, 16:54-56, 18:4-24, Fig. 22. This, the patentee argued, purportedly distinguishes the invention over prior art during prosecution. *See id.* at 1:50-2:8; *see also* discussion of prosecution history below.

Neither the claims nor the specification offer details on how to implement the “software and/or instructions” that allegedly enable the wireless device to interpret the sensor data. *Id.* at 18:22. The specification simply states that the device “can download the necessary software ... for any given type of RFID sensor.” *Id.* at 12:45-49.

The specification also admits that no improved sensor, computer, or communication technology is required. The purported invention can use “any type of sensor” made with “well known” techniques, any “common wireless devices such as cell phones,” and any generic remote database (e.g., a “computer” such as a server). *Id.* at 2:30-31, 4:58, 5:19, 7:60, 8:8-9, 16:46-63; *see, e.g., id.* at Figs. 20-21 (depicting generic sensor and computer components). Nor does the patent purport to improve the communication technology for retrieving the sensor’s data. Instead, the sensor is coupled with existing technology, such as an “RFID tag,” to transmit data to the wireless device. *See, e.g., id.* at 5:2-11, 6:46-7:13, 9:23-10:27, Figs. 1-4 (describing use of generic RFID components). The specification admits that any existing or “future” RFID standards can be used (*id.* at 5:33-43) and emphasizes that the “principles and operation of [an] RFID tag having a sensor input [are] described in detail in” one of the two primary references used in this Petition, *id.* at 9:28-34 (referencing application that issued as U.S. Patent No. 7,148,803, “Bandy”).

B. Prosecution History

In its as-filed application, Gentag presented broad claims directed to a system with an RFID sensor that wirelessly communicates with a RFID reader. ’307 FH at 474-82. The Examiner rejected the claims numerous times, forcing Gentag to narrow its claims. *See* ’307 FH at 334-43 (May 7, 2008 Amendment),

237-45 (January 9, 2009 Amendment), 216-24 (February 27, 2009 Amendment), 173-84 (July 22, 2009 Amendment), 124-40 (December 15, 2009 Amendment), 42-58 (January 25, 2011 Amendment).

In the office action directly preceding allowance, the Examiner rejected the then-pending claims as obvious over two prior art references, Evanyk and Jeutter. '307 FH at 84-85 (October 25, 2010 Non-Final Office Action). In response, the Applicant did not dispute that these references disclosed all but one of the claim limitations, including a sensor element, a unique identification ID number, a sensor interface having an analog to digital converter coupled to the at least one sensor, an antenna, an RF power and communication interface coupled to the at least one antenna and sensor interface, a memory, wireless communications means, geolocation means and a unique ID. *Id.* at 65-66 (January 25, 2011 Amendment and Response). But Gentag's issued claim 1 (original claim 65) was ultimately allowed with an Examiner's amendment to the final limitation of the claim, shown below.

wherein the remote server authenticates said unique sensor ID associated with said unique wireless device ID and communicates to said wireless device processed information relating to said sensor data ~~or to first download~~ and software related to the unique sensor ID, thereby allowing said wireless device to interpret said sensor anywhere worldwide.

'307 FH at 34-36 (Examiner's Amendment); *id.* at 51-52 (pending claim language before amendment). The Examiner acknowledged that the allowable limitation of now-issued claim 1 was the last limitation, as amended: "wherein the remote server authenticates said unique sensor ID associated with said unique wireless device ID and communicates to said wireless device processed information relating to said sensor data and software related to the unique sensor ID, thereby allowing said wireless device to interpret said sensor anywhere worldwide." '307 FH at 34-36.

C. Person of Ordinary Skill in the Art

A person of ordinary skill in the art ("POSITA") as of January 2004 claimed priority date would have had a bachelor's degree in computer science, electrical engineering, biomedical engineering (or a related or equivalent field), and two or more years of experience researching, developing, designing and/or evaluating systems of networked devices, such as, networked medical devices or networked embedded devices that communicate wirelessly through, for example, Radio Frequency Identification (RFID), Bluetooth, and/or cellular protocols. A person with less or different education but more relevant practical experience, or vice versa, may also meet this standard. A POSITA may be part of an interdisciplinary team with others having the relevant experience set forth above. The prior art also evidences the level of skill in the art. Sarrafzadeh Decl. ¶¶18-19.

D. Claim Construction

The prior art relied on in this Petition discloses the subject matter of the challenged claims under any reasonable construction, including their plain meaning.²

1. **“wherein the remote server authenticates said unique sensor ID associated with said unique wireless device ID and communicates to said wireless device processed information relating to said sensor data and software related to the unique sensor ID, thereby allowing said wireless device to interpret said sensor anywhere worldwide”**

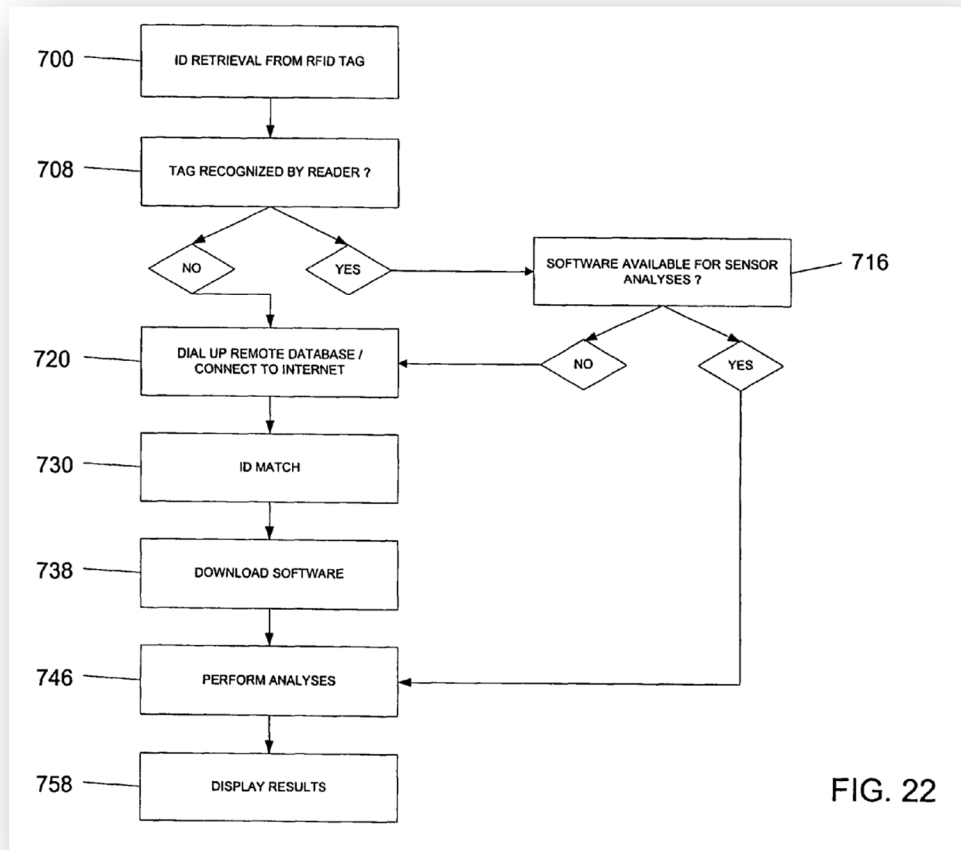
This limitation, which appears in claim 1 of the '307 patent, should be construed as “wherein the remote server authenticates a unique sensor ID associated with a unique wireless device ID and *in response to the authentication* communicates to the wireless device (1) processed information relating to the sensor data and (2) software related to the unique sensor ID necessary for the wireless device to interpret the sensor anywhere worldwide.” Sarrafzadeh Decl. ¶56.

The plain meaning of the claim limitation and intrinsic evidence support Petitioner’s construction. *First*, the plain claim language requires that the “remote

² Petitioner reserves the right to argue alternative constructions in other proceedings, and where such a defense is available, that the claims are indefinite.

server” “communicates to said wireless device processed information relating to said sensor data and software related to the unique sensor ID.” ’307 patent at claim 1. Thus, the remote server must first authenticate the unique sensor ID before it can “communicate[] to the wireless device processed information relating to said sensor data and software related to the unique sensor ID.” Sarrafzadeh Decl. ¶57 (noting that authentication is a condition precedent to communication of software). *Second*, the last clause of claim 1 reaffirms the cause and effect relationship of the authentication and communication of software; it states that the communication, “thereby allow[s] said wireless device to interpret said sensor anywhere worldwide.” ’307 patent at claim 1; Sarrafzadeh Decl. ¶57. Without such download of “processed information” and “software,” the wireless device cannot interpret said sensor. Sarrafzadeh Decl. ¶57. And the scope of the claim does not cover the situations where authentication of the sensor ID and communication of software relating thereto do not take place. Sarrafzadeh Decl. ¶57. Thus, the plain language requires that the interpretation of the sensor by the wireless device is a result of the authentication and communication of software. Sarrafzadeh Decl. ¶57.

The specification confirms this understanding. It describes, with reference to Figure 22, the process of receiving processed information and software from the remote server as taking place *in response to* authentication.



According to the specification, “the reader device ... retrieve[s] the ID number of the tag shown by function 700.” ’307 patent at 18:4-6. “If the ID of the sensor tag is recognized then the reader device may or may not have the necessary software and processing ability to analyze said sensor as shown in 716.” *Id.* at 18:10-13. The specification further states “[i]f the software is available then the analysis can be completed immediately as shown in 746.” *Id.* at 18:13-16. Notably, the specification states “if the software is not available then *the device must first obtain it* from a given remote database 400 via function 720.” *Id.* at

18:16-18. “***Subsequently***, the ID of the RFID sensor is matched to a given class of sensor (e.g. a glucose sensor) and the software and/or instructions for the analyses are downloaded into the reader 2 as shown in function 738.” *Id.* at 18:20-23.

Thus, to obtain the software from the database, the server must first receive and authenticate the ID of the sensor. Sarrafzadeh Decl. ¶¶58-59.

If authentication does not take place or authentication is attempted and fails, resulting in no communication of software related to said sensor ID to the wireless device, the wireless device cannot process the sensor data. Sarrafzadeh Decl. ¶60. The specification supports this interpretation because this claim requires authentication and download of software. The specification supports limiting the claim scope such that it does not cover the situations where authentication of the sensor ID and communication of software relating thereto do not take place. Sarrafzadeh Decl. ¶60.

Applicant’s statements during prosecution confirm Petitioner’s construction. In traversing a prior-art rejection of claim 65, which issued as claim 1, Applicant stated:

Most notably, the present invention in claim 65 actively recites limitation wherein ***the remote device communicates the unique sensor ID and unique wireless ID to a remote server which uses this information to send the wireless device the information or software necessary to communicate with the unique sensor ID.***

'307 FH at 65 (January 25, 2011 Amendment and Response). Importantly, Applicant stated that the remote server “uses” the received unique sensor/wireless ID to send the necessary software. Applicant went on to distinguish “the present invention” from prior art systems that merely “recite that software may be located on receiver and that they may be ‘upgraded or updated.’” *Id.*

The prosecution history also supports limiting the scope of the claim such that authentication of the sensor ID and communication of software relating thereto is required. The application was allowed after an Examiner’s amendment to this limitation, as shown below with underline and strikethrough identifying the amendment:

wherein the remote server authenticates said unique sensor ID associated with said unique wireless device ID and communicates to said wireless device processed information relating to said sensor data ~~or to first download~~ and software related to the unique sensor ID, thereby allowing said wireless device to interpret said sensor anywhere worldwide.

'307 FH at 34-36 (Examiner’s Amendment); *id.* at 51-52 (pending claim language before amendment). The Examiner’s Amendment, which the Applicant accepted to gain allowance, modified this limitation to change communication of software related to said unique sensor ID from being optional to being required (replacing “or to first download” with “and”). Sarrafzadeh Decl. ¶63.

Accordingly, the Board should adopt Petitioner’s proposed construction for this term, which requires a cause-and-effect relationship between the authentication of the unique sensor ID and the communication of software to the wireless device to enable the wireless device to interpret sensor data.

2. Means-Plus-Function Terms

Challenged claims 1, 9, and 10 recite four terms that invoke 35 U.S.C. § 112 ¶ 6. Construing a means-plus-function term requires first identifying the claimed function, then identifying the corresponding structures in the specification for performing those functions. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351-52 (Fed. Cir. 2015). The function of each term at issue here is underlined in the section headings below. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1366 (Fed. Cir. 2008) (“A claim element that contains the word ‘means’ and recites a function is presumed to be drafted in means-plus-function format under 35 U.S.C. § 112 ¶ 6.”). The corresponding structures are also identified below. Each term should be construed as limited to the corresponding structures and their equivalents. *Id.*

a. “multiple wireless communication means” (Claim 1)

The claimed function for this limitation is “wireless communication.” The corresponding structures for performing the claimed function of this term are: wireless devices (including cellular phones and PDAs) and devices that include

wireless communication protocols such as Bluetooth, Internet, cellular network, RFID reader communication standard, or other existing wireless network.

Sarrafzadeh Decl. ¶65.

In the '307 patent, wireless device 2 performs wireless communication. “Wireless device 2 can communicate to a proximal cellphone tower or receiver 380 via wireless link 510 or indirectly by other existing or emerging wireless communication means such as Bluetooth. Cell phone tower 380 is linked to the Internet 390 or the wireless networks via soft or hard links 520 and to at least one remote computer 400 via soft or hard link 540.” '307 patent at 17:24-30. The '307 patent also describes that its wireless device, a modified cell phone, can also incorporate “multi-protocol RFID reader and communication standards such as Gen-2.” *Id.* at 2:20-21. The '307 patent goes on to explain that “[t]he reader capabilities of a modified personal wireless device may also include other reader protocols such as Bluetooth, Zigbee or IEEE 1073 and read virtually any type of active or passive sensors.” *Id.* at 2:24-28; Sarrafzadeh Decl. ¶67.

b. “geolocation means” (Claim 1)

The claimed function for this limitation is “geolocation.” “Geolocation” should be given its plain and ordinary meaning, which a POSITA would understand is “determining the geographic position of an object.” Sarrafzadeh Decl. ¶70. This is consistent with the plain and ordinary meaning of “geolocation

technology” as “[a] technology used to determine the geographic coordinates of a radio-equipped mobile device, e.g., a cellular handset.” Ex. 1026 [Newton’s Telecom Dictionary]; *see also, id.* “Position Determination Technology.”

The corresponding structures for performing the claimed function of this term are: geolocating by GPS and geolocating without GPS and the structures identified in the ’307 patent for geolocating by GPS and geolocating without GPS described in Sections III.D.2.c and III.D.2.d, below. Sarrafzadeh Decl. ¶71. The ’307 patent explains that “the wireless devices or the sensors can also be geolocated anywhere by a global positioning system (GPS) and/or non-GPS triangulation means.” ’307 patent at 3:33-36. The ’307 patent also explains that “[t]he microprocessor and RFID reader within wireless device 2 enable processing functions 500, which include reading, analysis, and geolocation by a global positioning system (GPS) or a non-GPS means. The reading, analysis and geolocation by GPS or non-GPS means is described in U.S. Pat[ent] No. 6,031,454 [‘Lovejoy’] that is included herein by reference in its entirety.” ’307 patent at 17:18-24.

c. “GPS means for geolocating said system” (Claim 9)

The claimed function for this limitation is “geolocating said system by GPS”, i.e., determining the geographic position of an object by GPS. The corresponding structures for performing the claimed function of this term are:

wireless reader/device (such as a cell phone or PDA) and GPS methods or processing logic for determining a geographic position of an object. Sarrafzadeh Decl. ¶74.

The '307 patent discloses that “the wireless devices or the sensors can also be geolocated anywhere by a global positioning system (GPS).” '307 patent at 3:33-35. The '307 patent also explains that “[t]he microprocessor and RFID reader within wireless device 2 enable processing functions 500, which include reading, analysis, and geolocation by a global positioning system (GPS) The reading, analysis and geolocation by GPS or non-GPS means is described in U.S. Pat[ent] No. 6,031,454 that is included herein by reference in its entirety.” *Id.* at 17:18-24. The '454 patent further explains that the corresponding structure for geolocating by GPS is the GPS system, which makes use of GPS satellites for geolocating. Lovejoy at 9:4-6.

d. “non-GPS geolocation means for geolocating said system” (Claim 10)

The claimed function for this limitation is “geolocating said system without GPS”, i.e., determining the geographic position of an object without GPS. The corresponding structures for performing the claimed function of this term are: wireless reader/device (such as a cell phone or PDA) and non-GPS triangulation methods or processing logic for determining a geographic position of an object. Sarrafzadeh Decl. ¶78.

As discussed above, the '307 patent explains that “the wireless devices or the sensors can also be geolocated anywhere by a ... non-GPS triangulation means.” '307 patent at 3:33-36. The '307 patent also explains that “[t]he microprocessor and RFID reader within wireless device 2 enable processing functions 500, which include reading, analysis, and geolocation by a ... non-GPS means. The reading, analysis and geolocation by GPS or non-GPS means is described in U.S. Pat[ent] No. 6,031,454 that is included herein by reference in its entirety.” *Id.* at 17:18-24. The '454 patent further describes the corresponding structure for performing the recited function as: an interrogator system, e.g., VHF or UHF (Lovejoy at 9:19-20), one or more interrogator and receiver antennas, radar auxiliary receivers (Lovejoy at 9:57-65), and triangulation algorithm (Lovejoy at 10:10-11). As Dr. Sarrafzadeh explains, “[i]n the context of a cellular phone, the cell towers with which the cellular phone communicates act as interrogators.” Sarrafzadeh Decl. ¶81.

IV. Ground 1: Claims 1, 2, 5, 9, and 10 are unpatentable over Bandy.

Challenged claims 1, 2, 5, 9, and 10 are rendered obvious by Bandy for the reasons discussed below.

A. Overview of Bandy (Ex. 1005)

Bandy, which was filed on January 22, 2004, and issued on December 12, 2006, is prior art under 35 U.S.C. § 102(e). Bandy names two inventors, William

R. Bandy and John P. Peeters, the sole inventor of the '307 patent. Bandy is prior art under § 102(e) because (i) Bandy's inventive entity (Bandy and Peeters) is different from the inventive entity of the '307 patent (Peeters) and (ii) because there was no obligation to assign the two patents to the same entity, evidenced by the fact that Bandy and Peeters separately assigned their individual interest in Bandy to two different entities. Assignment of U.S. Patent Application No. 10/761,362 from Peeters to Altivera L.L.C., executed December 2, 2005 and acknowledging himself as a co-inventor (Ex. 1010); Assignment of U.S. Patent Application No. 10/761,362 from Peeters to Altivera, LLC, executed February 10, 2006 (Ex. 1011); Assignment of U.S. Patent Application No. 10/761,362 from Bandy to Symbol Technologies, Inc., executed February 11, 2006 (Ex. 1012). And because Bandy is not fully owned by Gentag or Altivera, it is available as prior art for § 103(c) purposes.

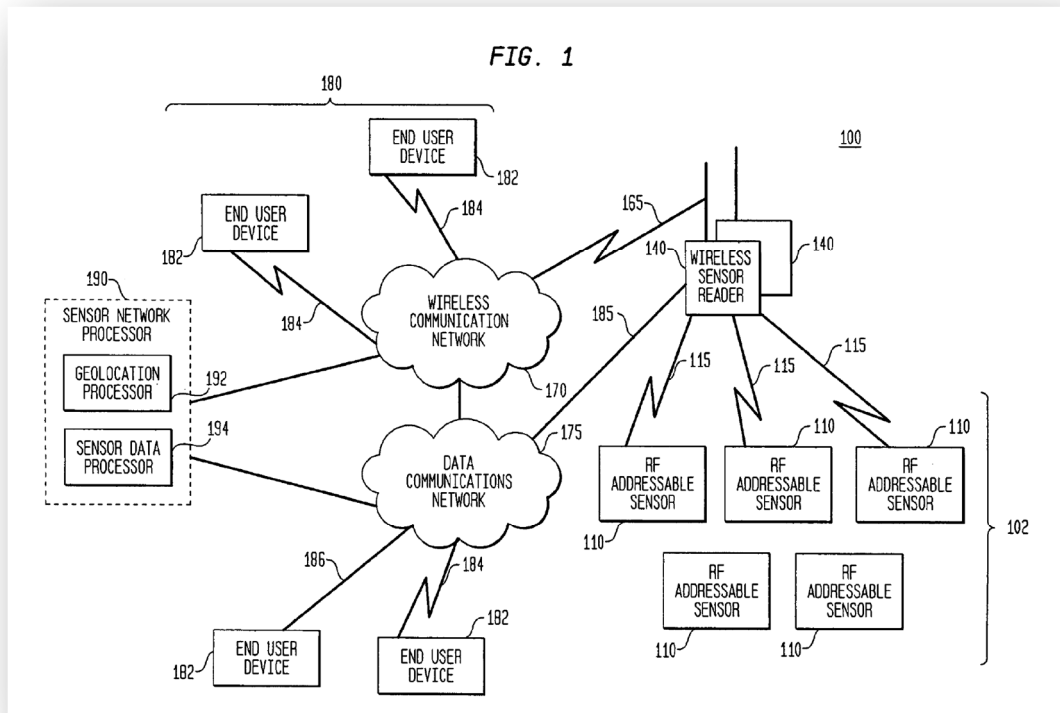
To the extent Gentag or Altivera submit evidence or argument that Peeters solely conceived of the disclosure relied upon in Bandy, Abbott reserves the right to seek a reply to rebut the same.

Bandy was cited on the face of the '307 patent but was not substantively examined during prosecution.

Bandy discloses a distributed sensor network that "includes one or more RF addressable sensors, one or more wireless sensor readers coupled to a

communications network, and one or more optional end user devices coupled to the communications network.” Bandy at 1:58-62. According to Bandy, such networks can provide “real time monitoring and detection of hazardous materials and/or conditions in a highly cost effective way.” *Id.* at 1:45-47. Bandy teaches that the RF addressable sensors include antennas “for communicating with the wireless sensor reader,” which can be “implemented in a wireless device such as a phone or PDA.” *Id.* at 2:9-10, 2:28-29.

For example, in wireless sensor network 100 shown in Figure 1, wireless sensor reader 140 “includes logic to interrogate the population of RF addressable sensors 102 and logic to read sensor data and RFID tag data transmitted by the RF addressable sensors 110. In an embodiment, wireless sensor reader 140 also includes logic to process the received sensor data.” *Id.* at 5:1-11.



Bandy discloses that “some or all of the necessary information to handle and analyze the sensor is retrieved from processor 190.” *Id.* at 10:30-32. And “[s]oftware may also be downloaded directly and transparently into the cell phone or reader 140 to ‘train’ the wireless device to recognize and analyze that given type of RFID-sensor.” *Id.* at 10:33-36. Bandy explained that “[w]hen the necessary processing and analysis information is downloaded from a remote location, only the ID of the RFID-sensor is necessary, providing a highly streamlined solution for universal sensor analyses for wireless devices such as cell phones.” *Id.* at 10:37-41. In other words, Bandy discloses a remote server that authenticates the sensor type by using the unique identifier for a sensor (an RFID) and transmits data

related to the sensor and software to interpret the data. Sarrafzadeh Decl. ¶¶104-105.

B. Claim 1

1. [1pre]: Preamble

Claim 1’s preamble recites: “A radio frequency (RF) addressable diagnostic sensor unit comprising.” To the extent that the preamble is limiting, Bandy discloses an RF addressable diagnostic sensor unit, including an “RF addressable sensor network 100 for monitoring, detecting, and geolocating RF addressable sensors.” Bandy at 4:33-39, Fig. 1; Sarrafzadeh Decl. ¶¶121-123.

Bandy further discloses that “[t]he present invention can also be used for remote diagnostics monitoring.” *Id.* at 19:56-57. Referring to Figure 11, Bandy discloses a “remote individual-specific monitoring network 1100,” that includes at least one addressable sensor with “sensor elements for monitoring temperature, chemical composition, biological composition, or a combination of the above for an individual.” *Id.* at 19:59-60, 19:64-67.

2. [1a]: Sensor Element

Limitation [1a] recites: “at least one sensor element.” Bandy discloses that RF addressable sensor 210 includes “a plurality of sensor elements 291a-291n, 292a-292n, and 294a-294n.” Bandy at 6:58-60, Fig. 2. Bandy discloses sensor elements at numerous other locations throughout the disclosure. *See id.* at 17:17-22, 18:25-34, 19:59-63, 20:50-59, 21:19-23, 21:33-40, 21:67-22:1, 22:53-58, 23:4-

7, 23:63-64, Figs. 8, 10-17. In the related district court case, Gentag admitted that Bandy disclosed this limitation. Gentag's Resp. to Abbott's Invalidity Contentions for Bandy (Ex. 1014, "Gentag Invalidity Resp.") at 2-11; Sarrafzadeh Decl. ¶¶127-133.

3. [1b]: Reference Sensor Element

Limitation [1b] recites: "at least one reference sensor element." Bandy discloses "a plurality of reference elements 295a-295n, 296a-296n, and 297a, 297n." Bandy at 8:59-9:7, Fig. 2. In the related district court case, Gentag admitted that Bandy disclosed this limitation. Gentag Invalidity Resp. at 12-13; Sarrafzadeh Decl. ¶¶134-138.

4. [1c]: Unique ID Number

Limitation [1c] recites: "a unique identification ID number." Bandy discloses that "memory 256 stores a sensor data table 258," which "may store a sensor element identification number" for "all or a subset of sensor elements." Bandy at 10:6-13; Sarrafzadeh Decl. ¶140 (noting that the "sensor element identification number" is also referred to as "the ID of the RFID-sensor" and is unique). Bandy also discloses that controller 242 includes memory 246 that "stores the tag identification number for the RF addressable sensor." Bandy at 11:19-29, Fig. 2. The memory 246 "may be separate or integrated with memory 256 of the sensor interface." *Id.* This tag identification number can be unique to

an individual sensor. *See id.*; Sarrafzadeh Decl. ¶¶144-146 (citing Ex. 1028 (U.S. Patent No. 6,989,750 patent), which is incorporated by reference into Bandy).

5. [1d]: Sensor Interface with an A/D Converter

Limitation [1d] recites: “a sensor interface having an analog to digital converter coupled to the at least one sensor and reference sensor element.” Bandy discloses that “[s]ensor interface 250 includes a digitizer or an analog to digital converter (ADC) 252” that “can be coupled directly to sensor elements implemented in integrated circuit 222 and is coupled to other sensor elements 292 and 294 via sensor pads 208.” Bandy at 9:26-32, Fig. 2; *see also id.* at 16:36-38, Fig. 7 (“[A]nalog sensor data is obtained by one or more sensor elements 291, 292 and/or 294 and communicated to ADC 252.”). In the related district court case, Gentag admitted that Bandy disclosed this limitation. Gentag Invalidity Resp. at 15-17; Sarrafzadeh Decl. ¶¶146-149.

6. [1e]: Antenna

Limitation [1e] recites: “at least one antenna.” Bandy discloses that “[r]adio frequency addressable sensor 210 includes ... a plurality of antennas 206a through 206n.” Bandy at 6:55-57, Fig. 2; *see also id.* at 10:57-61 (“RF addressable sensor 210 may have one or more antennas configured to communicate with a conventional RFID reader and one or more antennas configured to communicate with wireless sensor reader 140 [of Fig. 1].”). In the related district court case,

Gentag admitted that Bandy disclosed this limitation. Gentag Invalidity Resp. at 18-19; Sarrafzadeh Decl. ¶¶150-153.

7. [1f]: Substrate

Limitation [1f] recites: “a substrate.” Bandy discloses that “[s]ensor elements 292a-n are included on the substrate 202.” Bandy at 6:61-7:10, Fig. 2. In the related district court case, Gentag admitted that Bandy disclosed this limitation. Gentag Invalidity Resp. at 19-21; Sarrafzadeh Decl. ¶154-156.

8. [1g]: RF Power and Communication Interface

Limitation [1g] recites: “an RF power and communication interface coupled to the at least one antenna and sensor interface.” Bandy discloses an RF power and communication interface 230 “coupled to antennas 206.” Bandy at 11:30-34, Fig. 2. Additionally, Bandy discloses that the “RF pads 204 are coupled to both the RF power and communications interface [230] and the sensor interface 250.” *Id.* at 8:11-13. Gentag admitted that Bandy disclosed this limitation. Gentag Invalidity Resp. at 21-23; Sarrafzadeh Decl. ¶¶157-160.

9. [1h]: Controller

Limitation [1h] recites: “a controller coupled to the RF power and communications interface and the sensor interface.” Bandy discloses a RFID control module 240 with a controller 242 that is coupled to RF power and communications interface 230 and sensor interface 250. Bandy at 10:62-11:2, Fig.

2. In the related district court case, Gentag admitted that Bandy disclosed this limitation. Gentag Invalidity Resp. at 23-25; Sarrafzadeh Decl. ¶¶161-164.

10. [1i]: Memory

Limitation [1i] recites: “a memory coupled to the controller and the sensor interface.” Bandy discloses that memory 256 may be included as part of sensor interface 250 and also that memory 256 may be integrated with memory 246 of RFID control module 240. Bandy at 11:21-29, 9:63-66, Fig. 2. In the related district court case, Gentag admitted that Bandy disclosed this limitation. Gentag Invalidity Resp. at 25-27; Sarrafzadeh Decl. ¶¶165-167.

11. [1j]: RF Sensor Communicates with a Wireless Device, which Communicates with a Remote Server

Limitation [1j] recites: “wherein the RF addressable sensor communicates with a remote wireless device, said wireless device having multiple wireless communication means, geolocation means and a unique ID, whereby said wireless device is coupled to at least one communications network linked to [a]t least one remote server.”

Bandy discloses that RF addressable sensors 120 are capable of communicating with remote wireless sensor reader 140, which “can be any wireless device capable of communicating via air interface protocol with the population of RF addressable sensors 102” and “could be a wireless phone, a personal digital assistant (PDA), a computer having wireless communications

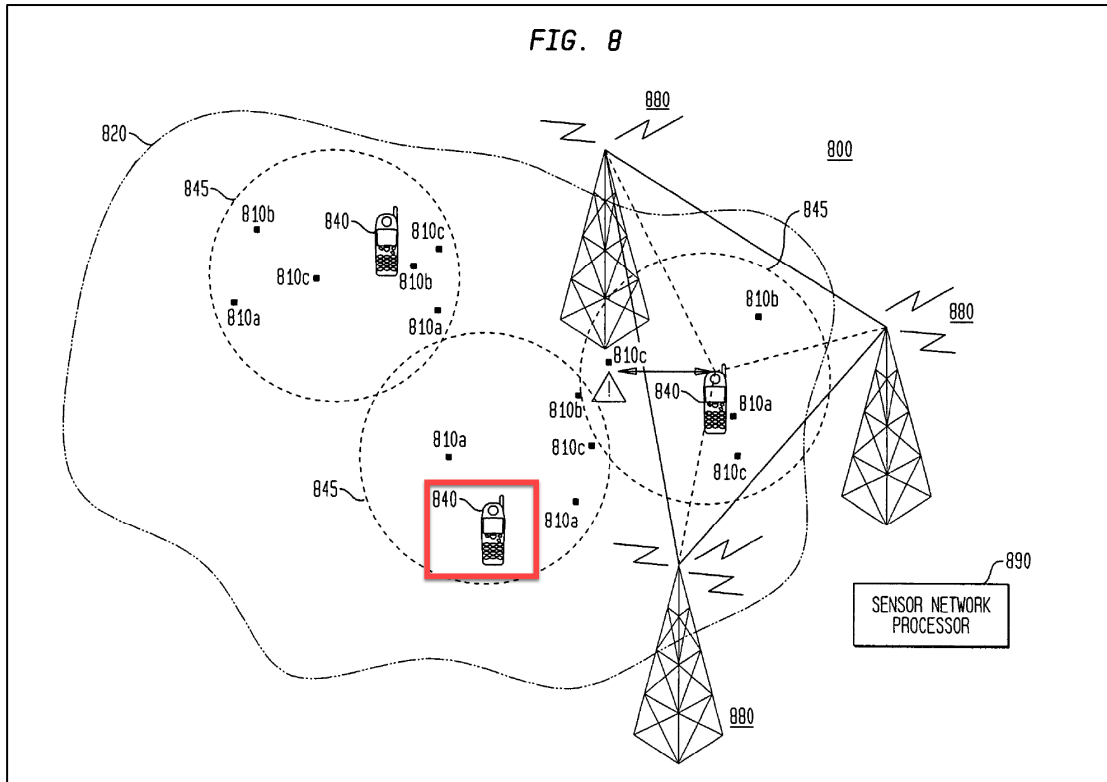
capabilities, or other type of mobile, handheld, and/or computing device.” Bandy at 5:6-18, Fig. 1; Sarrafzadeh Decl. ¶170. Further, Bandy discloses that “reader 140 and the population of sensors 102” can communicate via one or more protocols for RFID tag communications and sensor communications. Bandy at 5:24-30.

To the extent the Board construes the term “wireless communication means” under 35 U.S.C. § 112 ¶ 6, Bandy discloses this limitation. For example, the wireless sensor reader 140 is coupled to and wirelessly communicates with wireless communication network 170 “according to one or more protocols,” “such as used in IS-41 or GSM wireless communications networks.” *Id.* at 5:45-63, Fig. 1. Bandy also discloses that the wireless sensor reader 140 can communicate with RF addressable sensors “via an air interface protocol,” yet another wireless communication means. *Id.* at 5:11-13; Sarrafzadeh Decl. ¶173. Thus, Bandy discloses structure that is the same or equivalent to the corresponding structure disclosed in the ’307 patent for performing wireless communication, which includes a cell phone (*see* ’307 patent claim 2), which “can communicate to a proximal cellphone tower ... via wireless link 510 or indirectly by other existing or emerging wireless communication means such as Bluetooth.” ’307 patent at 17:24-27. A POSITA would have understood that GSM and IS-41 are common protocols used by cell phones to communicate with cellular phone towers and that

Bluetooth is an example of an air interface protocol that can be used to communicate with RF addressable sensors. Sarrafzadeh Decl. ¶178.

To the extent the Board construes the term “geolocation means” under 35 U.S.C. § 112 ¶ 6, Bandy discloses a geolocation means that has the same or equivalent structure and performs the claimed function. For example, Bandy discloses that the wireless sensor reader 840, depicted as a cell phone in Figure 8, “performs geolocation processing to determine the exact location of the RF addressable sensor,” and that such “geolocation processing could use GPS-based or non-GPS based techniques.” Bandy at 17:62-67, Fig. 8; Sarrafzadeh Decl. ¶181 (noting that GPS and non-GPS geolocation capability was required by the FCC at before the priority date of the ’307 patent (citing Ex. 1017)); *see also* Bandy at 8:41-45 (describing that “the wireless components and geolocation features are provided by the RFID tag and cell phone combination”). Thus, Bandy discloses structure that is the same or equivalent to the corresponding structure disclosed in the ’307 patent for performing geolocation, which includes wireless devices such as cell phones, which perform “geolocation by a global positioning system (GPS) or a non-GPS means.” ’307 patent at 17:18-21. Sarrafzadeh Decl. ¶183.³

³ In addition, both Bandy and the ’307 patent incorporate by reference U.S. Patent No. 6,031,454 (Ex. 1009) for disclosure relating to relating to geolocation by GPS



Bandy, Figure 8

Additionally, a POSITA would have understood that wireless sensor reader 140 and/or user device(s), such as “a wireless phone, a personal digital assistant (PDA), a computer having wireless communications capabilities, or other type of mobile, handheld, and/or computing device,” (Bandy at 5:11-18) would have a unique ID, such as an IP address, Media Access Control (MAC) address, and/or an

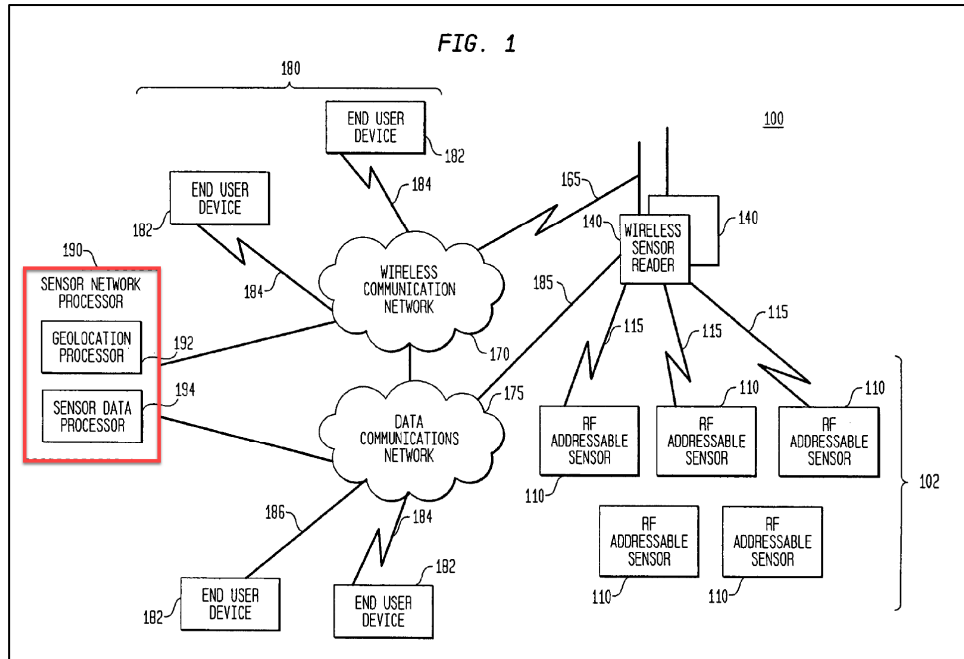
or non-GPS means. *See* Bandy at 6:37-41; '307 patent at 17:21-24. Thus, Bandy discloses structure that is identical to the corresponding structure in the '307 patent for performing geolocation, both by GPS and non-GPS-based means.

International Mobile Equipment Identity (IMEI) number, for uniquely identifying the respective device to the network 170, 180 and sensor network processor.

Sarrafzadeh Decl. ¶¶184-185.

Bandy also discloses that the “wireless device (wireless sensor reader) is coupled to at least one communications network linked to [a]t least one remote server (sensor data processor).” Sarrafzadeh Decl. ¶186. *First*, the wireless sensor reader can communicate over wireless communication network 170 (Bandy at 5:45-48), which in turn “may be coupled to a publicly accessible data communications network 175 ... such as the Internet.” Bandy at 5:67-6:5.

Second, Bandy discloses “[s]ensor data processor 194 includes logic to receive sensor data from one or more RF addressable sensors 110, perform processing on the received data, and communicate information based on the processing to wireless reader 140 or an end user device 182.” Bandy at 6:42-46. That “sensor data processor” is part of a “sensor network processor 190,” which is linked to the wireless communication network 170 and is a remote server. *Id.* at 6:46-49, Fig. 1 (annotated below); Sarrafzadeh Decl. ¶187.



Bandy also discloses that end user devices 182 can be coupled to communications network 180, which includes wireless communication network 170. Bandy at 4:50-65, Fig. 1. “[U]ser device 182 may both initiate a request for sensor data and receive and process the resulting sensor data.” Bandy at 4:60-61.

Bandy also discloses a wireless sensor reader 340⁴ that includes a network communications module 342 and one or more antennas “configured for communication with wireless network 170.” Bandy at 11:63-12:16, Fig. 3. The

⁴ The embodiments of wireless sensor reader 140 and wireless sensor reader 340 are interchangeable. *See id.* at 14:12-16:59 (repeatedly referring to “wireless sensor reader 140/340”).

wireless sensor reader 340 also includes geolocation processing logic. *Id.* at 13:6-8.

12. [1k]: Wireless Device Obtains ID and Sensor Data from Sensor Interface

Limitation [1k] recites: “wherein the wireless device communicates with the RF addressable sensor interface to obtain the ID and sensor data.” Bandy discloses that “RF addressable sensor 110 communicates the digital sensor data to wireless sensor reader 140/340,” which can “include both the *tag identification number stored in memory 246 and the sensor data obtained by the sensor elements.*”

Bandy at 16:41-51, Figs. 7A-7B. Bandy also discloses that “wireless sensor reader 140/340 receives the sensor data from the RF addressable sensor 110. Sensor data can include sensor element output data, sensor table data, reference data, and/or other data.” Bandy at 15:23-26, Fig. 5. Further, “*the sensor 110 identifies itself (e.g., by providing its identification number)* and provides the cell phone reader with the necessary information for analyzing the sensor output.” *Id.* at 10:14-32; *see also id.* at 13:1-13 (“RFID tag processor 356 includes logic to interrogate and read RFID tag information from RF addressable sensors.”); Sarrafzadeh Decl.

¶191; *see also* Bandy at 4:56-65, 17:54-56, Figs. 8-16.

13. [11]: Remote Server Authenticates Sensor ID and Communicates Information and Software for the Sensor to the Wireless Device

Limitation [11] recites: “wherein the remote server authenticates said unique sensor ID associated with said unique wireless device ID and communicates to said wireless device processed information relating to said sensor data and software related to the unique sensor ID, thereby allowing said wireless device to interpret said sensor anywhere worldwide.”

Bandy teaches that “some or all of the necessary information to handle and analyze the sensor is retrieved from processor 190.” Bandy at 10:29-32. “[W]hen a sensor 110 having data table 258 is activated by wireless sensor reader 140, the sensor 110 identifies itself (e.g., by providing its identification number) and provides the cell phone reader with the necessary information for analyzing the sensor output.” *Id.* at 10:19-24. “Software may also be downloaded directly and transparently into the cell phone or reader 140 to ‘train’ the wireless device to recognize and analyze that given type of RFID sensor.” *Id.* at 10:14-51.

“When the necessary processing and analysis information is downloaded from a remote location, ***only the ID of the RFID-sensor*** is necessary, providing a highly streamlined solution for universal sensor analyses for wireless devices such as cell phones.” *Id.* at 10:37-41. Bandy also discloses that the wireless communication device includes “means for receiving sensor processing

information” and that “the sensor processing information includes software for analyzing sensor data.” Bandy at claims 29, 39, 40; As-Filed Bandy Application (Ex. 1006) at claims 30, 40, 41. Bandy concludes that “[u]sing this approach [of the disclosed system] **a universal sensor platform** is created based on RFID technology by allowing wireless devices such as phones to become ‘smart’ sensor reader devices.” Bandy at 10:14-16.

A POSITA would have thus understood that Bandy disclosed and rendered obvious a remote server (e.g. sensor data processor 194) that authenticates the ID of the RFID-sensor (unique sensor ID) and in response to the authentication communicates to the wireless device (1) processed information relating to the sensor data and (2) software related to the unique sensor ID necessary for the wireless device to interpret the sensor anywhere worldwide as required by Petitioner’s construction and the plain language of claim 1. Bandy at 10:6-13; Sarrafzadeh Decl. ¶200.

C. Dependent Claims 2, 5, 9, and 10

Dependent claims 2, 3, 5, 9, and 10 are rendered obvious by Bandy for the same reasons as claim 1 and as further explained below. Sarrafzadeh Decl. ¶¶202-218.

1. Claim 2: Wireless Device is a Cell Phone

Claim 2 recites: “The system according to claim 1 wherein said wireless device is a cell phone.” Bandy explains that “wireless sensor reader 140 could be a wireless phone, a personal digital assistant (PDA), a computer having wireless communications capabilities, or other type of mobile, handheld, and/or computing device.” Bandy at 5:6-18; Sarrafzadeh Decl. ¶203. Moreover, Bandy also discloses that providing the ability to download processing and analysis information from a remote location “provid[es] a highly streamlined solution for universal sensor analyses for wireless devices such as cell phones.” Bandy at 10:14-51; Sarrafzadeh Decl. ¶203.

2. Claim 5: Chemical Sensor

Claim 5 recites: “The system according to claim 1 wherein said sensor is a chemical sensor.” Bandy discloses that RF addressable sensor elements such as sensor elements 292a-292n may be “chemical sensors.” Bandy at 7:57-66. Bandy goes on to explain that “in chemical sensor elements, chemicals present in the air are absorbed differently by each of the thin film elements, changing the resistance of each and creating a characteristic electronic signature.” *Id.*; Sarrafzadeh Decl. ¶205.

3. Claim 9: GPS Geolocation Means

Claim 9 recites: “The system according to claim 1 wherein the system further includes a GPS means for geolocating said system.” To the extent the

Board construes the term “GPS means for geolocating said system” under 35 U.S.C. § 112 ¶ 6, Bandy discloses geolocation by GPS using structure that is the same or equivalent to the corresponding structure in the ’307 patent and that performs the claimed function—a wireless sensor reader that is a cell phone, that executes GPS processing logic. As an initial matter, Bandy discloses this limitation because like the ’307 patent, it incorporates by reference Lovejoy for disclosure relating to geolocation. *See* Bandy at 6:37-41; ’307 patent at 17:21-24.

Further, Bandy discloses that the wireless sensor reader 840, depicted as a cell phone in Figure 8, “performs geolocation processing to determine the exact location of the RF addressable sensor.” Bandy at 17:62-67, Fig. 8; Sarrafzadeh Decl. ¶210; *see also* Bandy at 8:41-45 (describing that “the wireless components and geolocation features are provided by the RFID tag and cell phone combination”). Bandy also discloses a geolocation processor 192 that “includes logic to receive data from one or more RF addressable sensors 110 and to perform GPS and/or non-GPS geolocation of the RF addressable sensors 110 based on the received data and/or signals.” Bandy at 6:16-36, Fig. 1; Sarrafzadeh Decl. ¶211. Bandy explains that “[i]n GPS based geolocation, location is determined using signals provided to wireless sensor readers 140 via geo-stationary satellites.” Bandy at 6:16-36, Fig. 1. Bandy also discloses GPS-based geolocation is performed by geolocation processor 353 of wireless sensor reader 340. *Id.* at 13:6-

20, Fig. 3; Sarrafzadeh Decl. ¶211; *see also* at Bandy claims 63 and 64 (claiming that “geolocation processor includes logic to perform GPS based geolocation”).⁵

4. Claim 10: Non-GPS Geolocation Means

Claim 10 recites: “The system according to claim 1 further including a non-GPS geolocation means for geolocating said system.” To the extent the Board construes the term “GPS means for geolocating said system” under 35 U.S.C. § 112 ¶ 6, Bandy discloses a geolocation means that has the same or equivalent structure and performs the claimed function—a wireless sensor reader that is a cell phone, that executes non-GPS processing logic. As an initial matter, Bandy discloses this limitation because it incorporates by reference Lovejoy for disclosure relating to geolocation (Bandy at 6:37-41)—the ’307 patent also incorporates by reference Lovejoy for disclosure relating to geolocation (’307 patent at 17:21-24).

Further, as discussed above for claim 9, Bandy discloses that the geolocation processor performs non-GPS geolocation in addition to GPS geolocation. Bandy at 6:16-36, 8:41-45, 13:6-20, 17:62-67, Figs. 1, 3, and 8; Sarrafzadeh Decl. ¶¶214-218.

⁵ In addition, cellular phones before the priority date of the ’307 patent were required to include GPS and non-GPS (network based) geolocation capability. *See* Ex. 1017 at 2, 5-7, 13-15, 21, 48-50.

V. Ground 2: Claim 3 is unpatentable over Bandy in view of Heller

A. Overview of Heller (Ex. 1016)

International Publication No. WO 02/058537 to Heller (Ex. 1016) (“Heller”) titled “Analyte monitoring device and methods of use.” Heller is prior art under 35 U.S.C. § 102(b) because it was filed on December 28, 2001, and published on August 1, 2002, more than one year before the priority date of the ’307 patent. Heller was not cited or considered during prosecution of the ’307 patent.

Heller discloses a sensor for “continuous and/or automatic *in vivo* monitoring of the level of an analyte,” such as glucose. Heller at 2:9-10, 3:27-31. Heller teaches that the sensor control unit for the analyte monitoring device can include “adhesive for adhering to the skin,” and can be disposable. Heller at 4:3-9, 50:18-19. And the sensor control unit can be placed on an adhesive patch to affix to a person’s skin. Heller at 54:29-32.

Further, Heller discloses reference sensors used adjust sensor measurements that depend on a reference value. Sarrafzadeh Decl. ¶115. According to Heller, “sensor current (or any other sensor characteristic, for that matter) varies directly with analyte level” and “at a given temperature, a particular sensor current-analyte level profile portrays the relationship between sensor current and analyte level.” Heller at 67:20-23. But such profiles are known to vary with temperature. Heller at 67:25-26. Heller discloses the use of “temperature probe 66[, which] can be

configured to reside at the surface of the skin.” Heller at 66:20-21. A processing circuit “modif[ies] the signals from the sensor circuit 97 using calibration data and/or output from the temperature probe circuit 99.” Heller at 67:3-11. For example, the processing circuit can be designed to account for the temperature dependency of the sensor current-analyte level profile by using temperature readings to adjust a known profile for a given temperature in a known manner. Heller at 67:32-68:3.

In addition, Heller discloses converting analog data from various sensors to digital format. *See* Heller at 66:30-67:1; *see also* Heller at 104-105 (claim 39). Such conversion is necessary because “the sensor control unit 44 often includes digital and/or analog components.” Heller at 62:3-4.

B. Claim 3: Sensor Integrated into Wireless Skin Patch

Claim 3 recites: “The system according to claim 1 wherein said sensor unit is integrated into a disposable wireless skin patch for diagnostic applications.” Bandy in view of Heller, renders this limitation obvious.

Bandy discloses that when used for “remote diagnostics monitoring,” a sensor unit including RF addressable sensor is “affixed to a person (or animal) such that the sensor elements of the RF addressable sensor are proximate to the surface of the skin. RF addressable sensor 1110 may include low power sensors to monitor certain conditions or characteristics such as the individual’s vital

functions.” Bandy at 19:56-20:10, Fig. 11. A POSITA would have understood that affixing an RF sensor unit to a person’s skin could be accomplished through the use of conventional techniques, such as by placing the sensor on a disposable skin patch.

Indeed, it was well known to integrate a sensor unit into a disposable wireless skin patch before the priority date of the ’307 patent. *See* Heller at 54:29-32. Sarrafzadeh Decl. ¶¶221-223. For example, in the context of a continuous monitoring glucose sensor, Heller discloses that “an on-skin sensor control unit 44 is provided on an adhesive patch 204.” Heller at 54:29-32. Heller further discloses that “the on-skin sensor control unit 44 is a disposable unit complete with a battery for operating the unit.” Heller at 50:18-19.

A POSITA would have been motivated to use the same or similar technique (use of an adhesive skin patch) to affix Bandy’s RF addressable sensor proximate to the surface of the skin of an individual. Sarrafzadeh Decl. ¶¶221-223. A POSITA would have had a reasonable expectation of success in using an adhesive skin patch with Bandy’s RF addressable sensor because “doing so would have been nothing more than applying a known technique to a known device ready for improvement to yield predictable results.” Sarrafzadeh Decl. ¶223.

VI. Ground 3: Claims 1-3, 5, 9, and 10 are unpatentable over Beck in view of Heller and Lovejoy

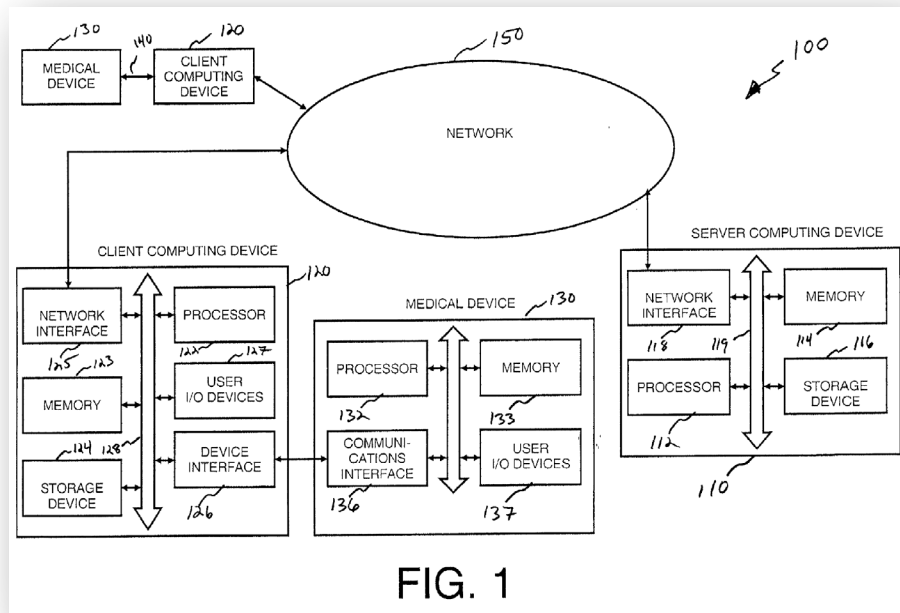
The challenged claims are unpatentable as obvious under 35 U.S.C. § 103 over U.S. Patent Application Publication No. 2002/0178126 to Beck et al. (“Beck”) in view of Heller and U.S. Patent No. 6,031,454 to Lovejoy et al. (“Lovejoy”). Beck and Lovejoy are directed to remote or mobile sensor monitoring systems and are thus within the same field of endeavor as the ’307 patent.

A. Overview of Beck and Lovejoy

1. Beck (Ex. 1007)

Beck is prior art to the ’307 patent under 35 U.S.C. § 102(a) and (b) because it was published on November 28, 2002. Beck was not cited or considered during prosecution of the ’307 patent.

Beck discloses systems, devices and methods “for accessing medical devices, providing remote access to medical devices and/or remotely accessing medical devices.” Beck at Abstract. As shown in Figure 1, reproduced below, Beck’s system 100 “includes a server computing device 110, a client computing device 120, a medical device 130 operable couple to the client computing device 120 via a communications link 140, and a network 150 which operably couples the client computing device to the server computing device.” Beck [0014].



Beck discloses that “[i]n an exemplary embodiment, the medical device 130 includes a glucose meter” and in other embodiments “could be implemented to monitor and/or analyze other biological/physiological parameters or conditions such as body fluids or bodily functions (e.g. blood, urine, saliva), bodily signals (e.g. electrocardio-signals, brain waves, blood pressure waves), and/or other bodily stimuli (e.g. respiration) to obtain measurements of blood pressure, blood gases, blood coagulation, electrolytes, cardiovascular activity, drug levels, respiration rate, stress, etc.” Beck [0034]. Beck also discloses that its client computing device 120 can be implemented in “handheld computing devices (e.g. PalmPilots) and Internet enabled cellular phones.” Beck [0027].

In addition, Beck discloses that medical device as a wireless device that can communicate with client computing device 120 via “RF and/or IR transmitter/receivers.” Beck [0030]. Beck further discloses that client computing device 120 “performs various operations in regard to communicating with the medical device 130 on the behalf of the client computing device 120 and/or the server computing device 110,” which can include “clear[ing] stored measurement data, retriev[ing] stored measurement data, updat[ing] calibration or other parameters used to obtain measurement data, [and] perform[ing] a test to obtain measurement data, or other tasks.” Beck [0074]. Beck also discloses that server computing device 110 provides client computing device 120 with software protocol component updates that correspond to the medical device 130 in communication with the client computing device 120. Beck [0069]; Sarrafzadeh Decl. ¶112.

2. Lovejoy (Ex. 1009)

Lovejoy is prior art to the '307 patent under 35 U.S.C. § 102(b) prior art because it issued on February 29, 2000, more than one year before the priority date of the '307 patent.

Lovejoy is directed to “[a] person-specific monitor that provides sensor information regarding hazards to which the person is exposed and means to geolocate the person at the time of the exposure.” Lovejoy at Abstract. The '307

patent admits that Lovejoy is prior art and that it discloses “reading, analysis and geolocation by a GPS or non-GPS means.” ’307 patent at 17:18-24. The “personal monitor itself has several subsystems, including the monitor housing with its various controls and input/output links, the individualized sensors that plug into the monitor housing, geolocating capabilities (GPS or the radar-responsive tags), and the on-board computing capabilities of the monitor.” Lovejoy at 4:32-37.

B. Motivation to Combine

1. Motivation to Combine Beck and Heller

A POSITA would have been motivated to combine the teachings of Beck with the teachings of Heller for several reasons. *First*, Beck and Heller are both directed to medical/diagnostic sensing systems, including systems with chemical sensors for measuring glucose. Sarrafzadeh Decl. ¶225. Heller provides use of known techniques that can be used implement and improve Beck’s medical devices. Sarrafzadeh Decl. ¶225.

Beck is directed to “remote medical device access.” Beck [0001]. Beck discloses that its medical device 130 “is generally operable to monitor one or more biological/physiological conditions.” Beck [0034]. Beck’s system “could be implemented to monitor and/or analyze other biological/physiological parameters or conditions such as body fluids or bodily functions (e.g. blood, urine, saliva),

bodily signals (e.g. electrocardio-signals, brain waves, blood pressure waves), and/or other bodily stimuli (e.g. respiration) to obtain measurements of blood pressure, blood gases, blood coagulation, electrolytes, cardiovascular activity, drug levels, respiration rate, stress, etc.” Beck [0034]. Beck also states that “[i]n an exemplary embodiment, the medical device 130 includes a glucose meter such as the glucose meters manufactured by Roche Diagnostics Corporation which are generally operable to measure blood glucose levels of blood applied to test strips.” Beck [0034].

Second, Heller discloses implementation details applicable to Beck’s system. Sarrafzadeh Decl. ¶228. Heller discloses an analyte monitor that “includes a sensor, a sensor control unit, and a substrate.” Heller at Abstract. The analyte monitoring system uses “an implantable sensor for the *in vivo* determination of a concentration of an analyte such as glucose or lactate, in a fluid.” Heller at 9:12-16; Sarrafzadeh Decl. ¶228. Additionally, Heller provides details relating to sensor structure, such as that sensor 42 includes working electrodes 58 where “[a] sensing layer (see Figures 3A and 3B) is often formed proximate to or on at least one of the working electrodes 58 to facilitate the electrochemical detection of the analyte and the determination of its level in the sample fluid.” Heller at 12:31-13:2; Sarrafzadeh Decl. ¶228. Heller recognizes a temperature-dependent relationship between sensor current and analyte level. *See* Heller at 67:20-68:4. To address

that dependency, Heller's sensor control unit includes a "measurement circuit 96 that obtains signals from the sensor circuit 97 and optional temperature probe circuit 99." Heller at 66:30-32. The processor of the sensor control unit can "modify the signals from the sensor circuit 97 using [] output from the temperature control circuit." Heller at 67:10-11. For example, the processing circuit can "us[e] the temperature information from measurement circuit 96 to adjust a known profile for a given temperature in a known manner when the sensed temperature varies from the aforementioned given temperature." Heller at 67:32-68:4; *see also* Heller at 66:30-68:20; Sarrafzadeh Decl ¶228.

In addition, Heller discloses exemplary analyte sensors each having one or more electrodes formed on a substrate in various configurations. *See, e.g.*, Heller at 24:28-25:19, Figures 2-11; Sarrafzadeh Decl. ¶229. For example, Heller discloses a configuration in which the analyte monitor has a sensor that includes "a substrate, a recessed channel formed in the substrate, and conductive material disposed in the recessed channel to form a working electrode." Heller at Abstract; *see also*, Heller at 13:18-16:15. And Heller discloses that its "analyte monitoring system 40 includes, at minimum, a sensor [that] is coupled to the sensor control unit 44 which is typically attached to the skin of the patient," and which can be disposable. Heller at 11:24-28; *see also* Heller at 50:18-19.

Further, Heller discloses several methods of attaching its sensor control unit to a person's skin, including a mounting unit that "typically includes an adhesive on a bottom surface," and alternatively by providing "a coupled mounting unit 77 and housing 45 of an on-skin sensor control unit 44 [] on an adhesive patch." Heller at 54:18-19, 54:29-30.

Because Beck and Heller disclose systems in the same field of invention, a POSITA would have been motivated to use the techniques disclosed in Heller to improve Beck's medical device. Sarrafzadeh Decl. ¶233. For example, a POSITA would have viewed Heller's disclosure of a reference temperature sensor to account for the relationship between temperature and sensor current-analyte level (Heller at 66:30-68:20) as a way to improve Beck's medical device 130 that measures glucose and other biological or physiological conditions. Beck [0034]; Sarrafzadeh Decl. ¶233. A POSITA would have been motivated to modify Beck to add a temperature sensor as disclosed in Heller to improve the accuracy of sensor readings as temperatures changed. Sarrafzadeh Decl. ¶233.

In addition, a POSITA would have been motivated to implement sensors for use in Beck's medical devices according to Heller's implementation methods. Sarrafzadeh Decl. ¶234. A POSITA would have recognized that Heller's disclosure of implementing test device electrodes on a substrate was a known way to implement and/or improve sensors in Beck's medical device that measures

blood glucose and other biological and/or physiological conditions. Heller at Abstract, 24:28-25:19; *see also* Heller at 13:18-16:15.; Beck at [0034]; Sarrafzadeh Decl. ¶234. Further, arranging sensor elements on substrates provides structure to facilitate affixing the sensor to a person and connecting the sensor to other system components such as an analyte monitor. *See* Heller at 13:18-16:15. Sarrafzadeh Decl. ¶¶230, 235.

Indeed, a POSITA would also have understood that monitoring certain biological and physiological conditions described by Beck would require affixing Beck's medical device to the person. Sarrafzadeh Decl. ¶235 (citing Beck [0002] (describing monitored parameters)). Thus, a POSITA would have been motivated to modify Beck's medical device to use an adhesive patch as disclosed by Heller to facilitate affixing the medical device to a person's skin. Sarrafzadeh Decl. ¶235.

2. Motivation to Combine Beck and Lovejoy

A POSITA would have been motivated to combine the teachings of Beck with the teachings of Lovejoy. *First*, both disclosures are directed to mobile sensing systems.

Second, Beck discloses that its wireless device (client computing device) can be implemented as a cellular phone, which would prompt a POSITA to implement such a cell phone with features normally found on cell phones, including geolocation features. Sarrafzadeh Decl. ¶¶240, 246. Before the priority date of the

'307 patent, government regulatory bodies such as the Federal Communications Commission required cell phone carriers to outfit cell phones with automated location identification (ALI) through GPS or non-GPS geolocation features. Sarrafzadeh Decl. ¶246; FCC Report (Ex. 1017) at 2, 5-7, 13-15, 21, 48-50 (requiring carriers to begin selling location-capable handsets no later than March 1, 2001, and provide network-based location (triangulation) coverage by October 1, 2001).

Third, as the '307 patent admits, Lovejoy discloses known implementation techniques for implementing GPS and non-GPS geolocation features in mobile devices such as Beck's client computing device. Sarrafzadeh Decl. ¶245. For example, Lovejoy discloses a personal monitor with "geolocating capabilities" including GPS or radar-responsive tags that provide for non-GPS location triangulation. Sarrafzadeh Decl. ¶245; Lovejoy at 4:32-37, 8:59-9:33. And, Lovejoy discloses that geolocation in its system enables, for example, determination of location of exposure to toxic elements in the environment. Lovejoy at 3:39-47.

Fourth, a POSITA would have been motivated to improve Beck's client computing device to provide additional information to the remote server to obtain protocol components customized to the location of Beck's medical device 130 and client computing device 120. Sarrafzadeh Decl. ¶247. For example, Beck

discloses that “the server computing device 110 comprises several protocol components 204 that when transferred to a client computing device configure the client computing device 120 to use a particular communications protocol when communicating with an identified medical device.” Beck at [0047]; *see also* Beck at [0062]. A POSITA would have been motivated to include geolocation capabilities in the client computing device 120 to provide the server computing device 110 additional geographic context for which protocol component would allow the client computing device 120 to communicate with the medical device 130. Sarrafzadeh Decl. ¶247. In addition, geolocation capabilities would enable the provision of emergency response to users of Beck’s system in the event that the medical device detects a dangerous condition. Sarrafzadeh Decl. ¶¶241-244. Location information is vital to a prompt response. *Id.*

C. Claim 1

1. [1pre]: Preamble⁶

To the extent that the preamble is limiting, Beck discloses this limitation. Sarrafzadeh Decl. ¶248. Beck discloses “[s]ystems, client computing devices, server computing devices and methods” for “providing remote access to medical devices and/or remotely accessing medical devices.” Beck at Abstract. The medical devices disclosed by Beck include medical diagnostic sensors that

⁶ See Ground 1 for claim language relating to all claims in this Ground.

“monitor and/or analyze ... biological/physiological parameters or conditions ... to obtain measurements of blood pressure, blood gases, blood coagulation, electrolytes, cardiovascular activity, drug levels, respiration rate, stress, etc.” Beck [0034]; Sarrafzadeh Decl. ¶251. Beck also discloses that medical devices 130 can communicate with client communication devices via RF transmitters/receivers. Beck [0030], [0039], [0063]; Sarrafzadeh Decl. ¶¶252-253.

2. [1a]: Sensor Element

Beck discloses or Beck in combination with Heller renders obvious this limitation. Sarrafzadeh Decl. ¶255. As discussed above, Beck discloses medical devices that “monitor and/or analyze ... biological/physiological parameters or conditions” such as a glucose levels. Beck [0034]-[0036]; Sarrafzadeh Decl. ¶256. A POSITA would have understood that to monitor or analyze biological/physiological parameters disclosed by Beck including body fluids, , bodily signals, and/or other bodily stimuli the medical device would include a sensor element to detect the respective biological signal. Sarrafzadeh Decl. ¶257.

A POSITA would have understood that the biological/physiological sensors disclosed by Beck would include at least one sensor element, such as electrochemical electrodes in the case of a glucose meter. Sarrafzadeh Decl. ¶¶257-258.

To the extent Beck alone does not disclose this limitation, Beck in view of Heller renders it obvious. Heller discloses an analyte monitor that “includes a sensor, a sensor control unit, and a substrate” for measuring an analyte such as blood glucose. Heller at Abstract, 9:12-16. Heller provides technical details concerning its sensor components of its analyte monitor. For example, Heller discloses that sensor 42 includes working electrodes 58 where “[a] sensing layer (see Figures 3A and 3B) is often formed proximate to or on at least one of the working electrodes 58 to facilitate the electrochemical detection of the analyte and the determination of its level in the sample fluid.” Heller at 12:31-13:2.

Accordingly, to use Beck’s medical device to measure glucose, “a POSITA would have been motivated to incorporate Heller’s sensors—such as Heller’s glucose sensor—into the medical devices disclosed by Beck as it would amount to combining prior art elements according to known methods to yield predictable results.” Sarrafzadeh Decl. ¶259.

3. [1b]: Reference Sensor Element

Beck in view of Heller renders obvious this combination. Sarrafzadeh Decl. ¶261. As discussed above, to “monitor and/or analyze ... biological/physiological parameters or conditions such as body fluids or bodily functions,” including glucose levels, Beck’s medical device would necessarily include (or it would have

been obvious to include) at least one sensor element. Beck [0034]; Sarrafzadeh Decl. ¶¶262-263; *see also* Section VI.C.2.

In addition to describing sensor component details, Heller explains that the relationship between sensor current and analyte level is dependent on temperature. *See* Heller at 67:20-68:5. To account for the effects of temperature on sensor current-analyte level readings, Heller discloses that sensor 42 may also include a temperature probe 66 and a the sensor control unit includes a “measurement circuit 96 that obtains signals from the sensor circuit 97 and optional temperature probe circuit 99.” *See* Heller at 13:12-13, 66:30-68:20. The sensor control unit processor “us[es] the temperature information from measurement circuit 96 to adjust a known profile for a given temperature in a known manner when the sensed temperature varies from the aforementioned temperature.” Heller at 67:32-68:4. “Thus, Heller’s temperature probe/sensor is a reference sensor because the data it generates is used to adjust data generated by Heller’s glucose sensor.” Sarrafzadeh Decl. ¶266.

A POSITA would have been motivated to modify Beck’s medical devices, for example, to incorporate Heller’s temperature (reference) sensor to account for the effect of varying temperature on glucose sensor measurements and improve the accuracy of the glucose sensor. Sarrafzadeh Decl. ¶267. “Such a combination represents use of a known technique (incorporation of a temperature sensor and

implementation of temperature-based adjustments) to improve similar devices (Beck's medical device) in the same way." Sarrafzadeh Decl. ¶267. Accordingly, Beck in view of Heller render this limitation obvious.

4. [1c]: Unique ID Number

Beck discloses this limitation. Sarrafzadeh Decl. ¶269. For example, Beck discloses a client computing device 120 with a device identification component 214 "to identify the medical device 130 without the need for the user to enter identifying information for the medical device." Beck [0055], Fig. 2. The device identification component identifies the medical device 130 based on information including "identification codes retrieved from the medical device 130" and "serial numbers retrieved from the medical device 130." Beck [0055]. A "serial number" or "identification code" for the medical device is a unique ID number that would uniquely identify the medical device. Sarrafzadeh Decl. ¶270.

5. [1d]: Sensor Interface with an A/D Converter

Beck alone or in view of Heller renders this limitation obvious. Sarrafzadeh Decl. ¶272. Beck's medical device "obtain[s] measurement data indicative of a biological/physiological condition." Beck at [0035]. "[T]o obtain such measurement data medical device 130 would necessarily include at least one sensor element and reference sensor element." *See* Sections VI.C.2, VI.C.3; Sarrafzadeh Decl. ¶273. A POSITA would have understood that "measurement

data” collected by such sensors is analog. Beck at [0044] (stating that Beck’s system can be implemented “with integrated analog/digital hybrid circuits”); Sarrafzadeh Decl. ¶275 (“[G]lucose sensors and temperature sensors[] generate an analog signal that represents a continuous range of values corresponding to the in-sample glucose concentration and temperature.”).

The analog data must be converted into a digital signal for processing by processor 132 of the medical device 130. Sarrafzadeh Decl. ¶275. A POSITA would have understood that converting an analog signal to a digital signal would require an interface that includes an analog to digital converter coupled to the respective glucose sensor and temperature (reference) sensor. Sarrafzadeh Decl. ¶275.

Analog to digital converters “were conventional and in widespread use well-before the priority date of the ’307 patent.” Sarrafzadeh Decl. ¶276. For example, Heller discloses that the sensor and temperature probe circuits of its on-skin sensor control unit “provide raw signals from the sensor to the measurement circuit 96.” Heller at 62:10-12. The measurement circuit can convert “the raw signal to a format that can be used by digital logic circuits,” i.e., digital format. Heller at 62:12-16. Heller further describes methods for “collecting an analog signal representing a level of an analyte in a bodily fluid” and “converting the analog signal into a digital signal representing a level of an analyte in a bodily fluid.”

Heller at 104-105 (claim 39). A POSITA would have understood that Heller's sensor circuit is a sensor interface and that the measurement circuit, which converts an analog signal to a digital signal, incorporates an analog to digital converter coupled to the glucose sensor (sensor element) and the temperature sensor (reference sensor element). Sarrafzadeh Decl. ¶277.

To the extent inherently disclosed by Beck, a POSITA would have been motivated to further modify Beck in view of Heller to incorporate a sensor interface having an analog to digital converter coupled to the at least the glucose sensor and the temperature sensor to enable processing of their output. Sarrafzadeh Decl. ¶278. That modification represents use of known technique (an analog to digital converter) to improve similar devices in the same way and would have also been obvious to try. Sarrafzadeh Decl. ¶278.

6. [1e]: Antenna

Beck discloses this limitation. Sarrafzadeh Decl. ¶280. Beck discloses that communications interface 136 of medical device 130 includes “wireless technologies such as RF and/or IR transmitter/receivers to establish the physical communications link 140 between the client computing device 120 and the medical device 130.” Beck [0039]. A POSITA would have understood that the RF transmitter/receivers include at least one antenna to transmit/receive RF communication signals. Sarrafzadeh Decl. ¶281.

7. [1f]: Substrate

Beck in view of Heller renders obvious this limitation. As discussed with respect to elements 1a and 1b above, in order for Beck's medical device to measure biological or physiological parameters—such as glucose, cardiovascular activity, or electrolytes—the medical device would have had to include at least one sensor element. *See* Sections VI.C.2, VI.C.3.

Heller discloses an analyte monitor that “includes a sensor, a sensor control unit, and a substrate” for monitoring an analyte such as blood glucose. Heller at Abstract, 9:12-16. Heller also discloses several exemplary analyte sensors, each including one or more electrodes formed on a substrate in various configurations. *See, e.g.*, Heller at 24:28-25:19, Figures 2-11. According to Heller, the substrate can be formed of a variety of non-conducting materials, including flexible or rigid materials, and is typically determined based on the intended use of the sensor. Heller at 13:19-22. For example, flexible substrates may be used for implantable sensors to reduce pain to the patient. *See* Heller at 13:23-27.

As shown by Heller, positioning sensor circuitry, including electrodes and temperature probes, on a substrate was a conventional, well-known method of fabricating diagnostic sensors like those that would be found Beck's medical devices. *See* Heller at 13:18-16:15; Sarrafzadeh Decl. ¶288. Substrates also

provide structure, for example, for affixing the sensor to a person and connecting to an analyte monitor. *See* Heller at 13:18-16:15.

Thus, a POSITA would have been motivated to incorporate sensors formed on a substrate, as disclosed by Heller, into Beck's medical devices to facilitate affixing the sensor to a person and maintaining the physical integrity of the sensor elements (e.g., avoiding damage during use). Sarrafzadeh Decl. ¶289. Modifying Beck to incorporate Heller's sensors formed on a substrate merely amounts to combining prior art elements according to known methods to yield predictable results. Sarrafzadeh Decl. ¶289.

8. [1g]: RF Power and Communication Interface

Beck in view of Heller renders obvious this limitation. Sarrafzadeh Decl. ¶292. Beck discloses that its medical device 130 includes communications interface 136 coupled to user I/O devices 137 via system bus 138. Beck [0035], [0039], [0063], Fig. 1. As discussed above, user I/O devices 137 include the sensor interface that measures physiological parameters disclosed by Beck. Sarrafzadeh Decl. ¶293. Beck also discloses that the medical device 130 can include an I/O device such as an LED "that provides visual feedback that the medical device 130 is powered" and "a button or switch to power the medical device 130 on or off." Beck [0041]. A POSITA would have recognized that such features, and the operation of the device itself (including wireless transmission),

would require a power interface as part of the medical device. Beck [0041]; Sarrafzadeh Decl. ¶¶293-294. Moreover, a POSITA would have understood that the “RF and/or IR transmitters and receivers” used by medical device to communicate with client computing device 120 would include an RF power and communication interface. Beck [0030], [0039]; Sarrafzadeh Decl. ¶295.

In addition, Heller discloses the use of inductive coupling to eliminate electrical contacts between the on-skin sensor control unit and the sensor, which reduces noise and failure commonly caused by such contacts and allows the sensor control unit to be entirely sealed, making it more water-resistant. Heller at 59:23-27; Sarrafzadeh Decl. ¶296. Inductive coupling transmits power to the sensor “using, for example, closely space[d] antennas (e.g., facing coils) (not shown) on the sensor and the on-skin sensor control unit. Changes in the electrical characteristics of the sensor control unit 44 (e.g., current) induce a changing magnetic field in the proximity of the antenna,” which powers the sensor. *See* Heller at 59:11-19. Heller notes that inductive coupling can also be used to transfer data. *See* Heller at 59:19-23. A POSITA would have understood that to transmit power and data through inductive coupling, Heller includes (and discloses) an RF power and communication interface coupled to the at least one antenna and sensor interface. Heller at 59:12-14, 59:21-23. Sarrafzadeh Decl. ¶296.

Accordingly, a POSITA would have been motivated to modify Beck's medical device to transmit power and data between one or more components according to Heller to eliminate the need for electrical contacts between such components, reducing noise and failure and allowing for a more water-resistant device. Sarrafzadeh Decl. ¶297. A POSITA would have had a reasonable expectation of success in making such a modification as it represents use of a known technique (inductive coupling) to improve similar devices (Beck's medical device) in the same way. Sarrafzadeh Decl. ¶297. Indeed, the use of inductive coupling to power and communicate with sensors was well-known before the priority date of the '307 patent. Sarrafzadeh Decl. ¶298 (citing U.S. Patent No. 6,002,344 to Bandy et al. (Ex. 1018, "Bandy-344") at 5:44-53).

9. [1h]: Controller

Beck in view of Heller discloses this limitation. Sarrafzadeh Decl. ¶300. Beck discloses that the medical device 130 includes a processor 132 connected to communications interface 136, user I/O devices 137, and memory 133 via system bus 138. Beck [0035]. Beck discloses that the "processor 132 controls the general operation of the medical device 130," which includes "configur[ing] the medical device 130 to obtain measurement data indicative of a biological/physiological condition." Beck [0035]; Sarrafzadeh Decl. ¶301.

Further, Beck in view of Heller (incorporate Heller's inductive coupling approach to transfer power and data) as described in the preceding element renders this limitation obvious. As Dr. Sarrafzadeh explains, "in that combination, inductive coupling [] is used to transfer data from the sensor to the medical device for processing. Accordingly, the combination results in processor 132 of Beck (a controller) coupled to the RF power and communication interface and the sensor interface." Sarrafzadeh Decl. ¶302.

10. [1i]: Memory

Beck discloses that the medical device 130 includes memory 133 connected to processor 132, communications interface 136, and user I/O devices 137 via system bus 138. Beck [0035]. Therefore, Beck discloses this limitation. Sarrafzadeh Decl. ¶¶303-304.

11. [1j]: RF Sensor Communicates with a Wireless Device, which Communicates with a Remote Server

Beck in combination with Lovejoy renders obvious this limitation. Sarrafzadeh Decl. ¶306. As discussed above, medical device 130 includes a sensor element that communicates with client computing device 120 via communication link 140 using RF/IR communications. Beck [0014], [0030]; Sarrafzadeh Decl. ¶307.

Beck also discloses a remote server. For example, Beck discloses that its "medical device 130 [is] operabl[y] coupled to the client computing device 120 via

a communications link 140, and a network 150 which operably couples the client computing device to the *server computing device*.” Beck [0014]; Sarrafzadeh Decl. ¶¶320-321.

To the extent the Board construes the term “wireless communications means” under 35 U.S.C. § 112 ¶ 6, Beck discloses a wireless communication means that has the same or equivalent structure and performs the claimed function. The client computing device 120 comprises multiple wireless communication means. Sarrafzadeh Decl. ¶¶308-310. For example, client computing device 120 can wirelessly communicate with medical device 130 using radio frequency and/or infrared transmitters and receivers. Beck [0030]. Beck also discloses that client computing devices 120 can be implemented as “handheld computing devices (e.g. Palm Pilots) and Internet enabled cellular phones.” Beck [0027]. A POSITA would understand that Internet enabled cellular phones as of the priority date of the ’307 patent could communicate over a cellular network and included other wireless communication capabilities, such as Bluetooth. Sarrafzadeh Decl. ¶309.

Thus, Beck discloses structure that is the same or equivalent to the corresponding structure disclosed in the ’307 patent for performing wireless communication, which includes a cell phone (*see* ’307 patent claim 2), which can communicate with a cellphone tower and by other wireless communication means such as Bluetooth.” ’307 patent at 17:24-27. “A POSITA would have understood

that Beck’s internet enabled cell phone would provide similar structure and wireless communication capabilities as those which the ’307 patent describes are possessed by its remote wireless device at least as implemented as a cell phone.” Sarrafzadeh Decl. ¶310.

Beck further discloses that the client computing device has a network address, which can be used for authentication—i.e., a unique ID. Beck [0065]; Sarrafzadeh Decl. ¶¶317-318. And given that Beck discloses that its client computing device can be implemented as an Internet enabled cellular phone, a POSITA would have understood that client computing device 120 would have an IP address, Media Access Control (MAC) address, and/or an International Mobile Equipment Identity (IMEI) number—unique IDs for identifying the respective device. Sarrafzadeh Decl. ¶319.

To the extent the Board construes the term “geolocation means” under 35 U.S.C. § 112 ¶ 6. Beck in view of Lovejoy discloses a geolocation means that has the same or equivalent structure and performs the claimed function. First, Beck discloses that its client computing device can be an internet enabled cellular phone, which were required to have GPS and non-GPS geolocation capability before the priority date of the ’307 patent. *See* Ex. 1017 at 48-50.

Second, a POSITA would have been motivated to modify Beck’s client computing device to add geolocation capability disclosed by Lovejoy, such as

“GPS or the radar-responsive tags,” (Lovejoy at 4:32-37) for the reasons set forth in section VI.B.2. *See* Sarrafzadeh Decl. ¶¶246-247, 315-316. Beck in view of Lovejoy disclose structure that is the same or equivalent to the corresponding structure disclosed in the ’307 patent for performing geolocation, both by GPS and non-GPS-based means. *See* ’307 patent at 17:21-24 (relying on Lovejoy for disclosure relating to GPS and non-GPS geolocation).

12. [1k]: Wireless Device Obtains ID and Sensor Data from Sensor Interface

Beck discloses this limitation. Sarrafzadeh Decl. ¶322. Beck discloses that the wireless device obtains sensor ID information. Sarrafzadeh Decl. ¶323. As discussed above, the device identification component of client computing device 120 (e.g., a wireless phone) identifies the medical device 130 based on information including “identification codes retrieved from the medical device 130” or “serial numbers retrieved from the medical device 130.” Beck [0055]. These identification codes or serial numbers are unique sensor IDs. Sarrafzadeh Decl. ¶323.

Beck also discloses that the wireless device obtains sensor data. The client computing device 120 “issue[s] commands to the medical device 130 via the protocol component 204 which cause[s] the medical device 130 to ... retrieve stored measurement data [and to] perform a test to obtain measurement data.” Beck [0074]-[0075]. Sarrafzadeh Decl. ¶324.

13. [11]: Remote Server Authenticates Sensor ID and Communications Information and Software for the Sensor to the Wireless Device

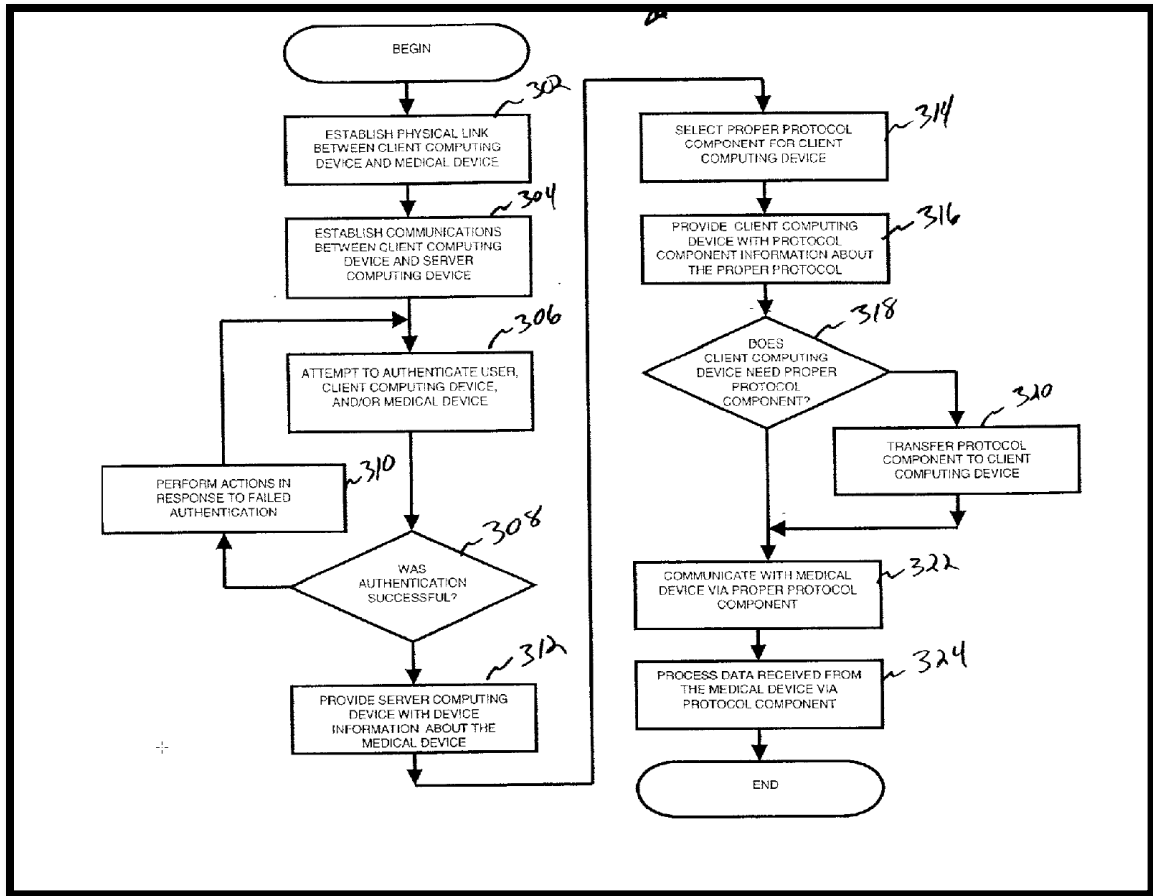
Beck discloses this limitation. Sarrafzadeh Decl. ¶325. For example, Beck discloses that “server computing device 110 attempts to authenticate the user, the client computing device 120, and/or the medical device 130 via various authentication schemes.” Beck [0065]. Beck explains that the server computing device communicates software related to the unique sensor ID to the client computing device in response to authentication of the unique sensor ID.

Sarrafzadeh Decl. ¶328. First, “[t]he server computing device 110 in step 306 attempts to authenticate the user, the client computing device 120, and/or the medical device 130,” using, for example, “the serial number of the medical device,” a unique ID. Beck [0065]; Sarrafzadeh Decl. ¶326.

If authentication is successful, the server computing device communicates software to the wireless device to process data from the sensor. Figure 3; Sarrafzadeh Decl. ¶328. The server computing device 110 “provides the update component 216 of the client computing device 120 with protocol component information that identifies the proper protocol component 204 to be used with the

identified medical device 130.” Beck [0069]; *see also id.* at [0071].⁷ Specifically, the client computing device “provides the server computing device 110 with device information from which the server computing device 110 determines the *proper protocol component 204* to be used with the medical device 130.” Beck [0067], Fig. 3. Such information includes the “serial number, model number, device type, version number, etc.” of the medical device. Beck [0067]; Sarrafzadeh Decl. ¶328. Figure 3 is a flow chart that explains the process:

⁷ Beck teaches that “protocol components are illustratively software components ... that govern how the client computing device 120 communicates with a medical device.” Beck [0015]; Sarrafzadeh Decl. ¶327.



See Beck Fig. 3; see also *id.* Fig. 4, [0078]-[0087].

The server computing device 110 also communicates processed information relating to the **sensor data** to the client computing device 120 in response to the authentication. Sarrafzadeh Decl. ¶329. For example, the server computing device 110 “processes data received from the measurement device 130 via the client computing device 120.” Beck [0076]. “In response to a request received from the client computing device 120, the server computing device 110 at later date retrieves and/or analyzes the historic data for the authenticated user, the client computing device 120, and/or the medical device 130. Further, the server

computing device 110 provides the client computing device 120 with results data in the form of a HTML document that includes tables, charts, graphs, explanations, etc. to aid in assessing the meaning of the current measurement data and/or the historic measurement data.” Beck [0076]. Accordingly, a POSITA would have understood that Beck discloses that only in response to authenticating the unique sensor ID associated with the unique wireless device ID will the remote server (Beck’s server computing device) communicate to the wireless device (e.g., Beck’s client computing device) (1) processed information relating to the sensor data and (2) software related to the unique sensor ID necessary for the wireless device to interpret the sensor anywhere worldwide. Sarrafzadeh Decl. ¶¶331-332. Thus, Beck discloses a system that meets Petitioner’s construction for this limitation.

D. Dependent Claims 2, 3, 5, 9, and 10

Dependent claims 2, 3, 5, 9, and 10 are rendered obvious by Beck in view of Heller and Lovejoy for the same reasons as claim 1 and as further explained below. Sarrafzadeh Decl. ¶¶333-357.

1. Claim 2: Wireless Device is a Cell Phone

Beck discloses this limitation. Sarrafzadeh Decl. ¶¶333-334. Beck discloses that client computing devices 120 can be implemented as “special purpose computing devices such as handheld computing devices (e.g., Palm Pilots) and Internet enabled cellular phones.” Beck [0027].

2. Claim 3: Wireless Skin Patch

Beck in view of Heller, renders this limitation obvious. Beck discloses a medical device 130 configured to measure “bodily signals” such as “electrocardio-signals, brain waves, [and] blood pressure waves” and a glucose meter configured to measure blood glucose levels. Beck [0034]. Beck also discloses that medical device 130 includes “wireless technologies such as RF and/or IR transmitter/receivers to establish the physical communications link 140 between the client computing device 120 and the medical device 130.” Beck [0039].

Heller discloses several methods for attaching its on-skin sensor control unit to the a person’s skin, including by providing “an on-skin sensor control unit [] on an adhesive patch 204.” Heller at 53:29-32. Heller further discloses that “the on-skin sensor control unit 44 is a disposable unit complete with a battery for operating the unit.” Heller at 49:18-19.

For the reasons set forth in section VI.B.1, a POSITA would have been motivated use an adhesive skin patch as disclosed in Heller to affix Beck’s medical device (such as a glucose sensor or electrocardio-signal sensor) to a person’s skin. *See, e.g.* Heller at 54:29-30; Sarrafzadeh Decl. ¶¶339-341. A POSITA would have had a reasonable expectation of success in using Heller’s adhesive skin patch with Beck’s medical device because the combination represents applying a known

technique to a known device ready for improvement to yield predictable results.

Sarrafzadeh Decl. ¶341.

3. Claim 5: Chemical Sensor

Beck alone or in view of Heller renders obvious this limitation. Sarrafzadeh Decl. ¶342. For example, Beck discloses that the medical device 130 could monitor and/or analyze various “biological/physiological parameters or conditions,” including, for example, blood glucose levels using a glucose meter. Beck [0034]. To make such measurements, Beck’s medical device would necessarily include at least one sensor element. *See* Sections VI.C.2, VI.C.3; Sarrafzadeh Decl. ¶¶343-344. A POSITA would have understood that blood glucose measurements are made with chemical sensors for measuring glucose. Sarrafzadeh Decl. ¶343. Accordingly, that Beck’s system includes a glucose meter discloses or renders obvious this limitation.

In addition, Beck in view of Heller render this claim obvious. Thus, a POSITA would have looked to Heller for to implement glucose sensors for use with Beck’s system. Sarrafzadeh Decl. ¶¶345-346. In one example, Heller discloses an electrochemical sensor that measures glucose “based on the reaction of a of glucose molecule with two non-leachable ferricyanide anions in the presence of glucose oxidase.” Heller 35:24-26. A POSITA would have been

motivated to use Heller's electrochemical glucose sensor with Beck's medical device to facilitate measurement of blood glucose.

4. Claim 9: GPS Means for Geolocating Said System

Beck in view of Lovejoy discloses this limitation. Sarrafzadeh Decl. ¶349.

To the extent the Board construes this term under 35 U.S.C. § 112 ¶ 6, Beck in view of Lovejoy render obvious this limitation.

A POSITA would have been motivated to modify Beck's client computing device to add Lovejoy's geolocation functionality, including geolocation by GPS, for the reasons set forth in section VI.B.2, above. Sarrafzadeh Decl. ¶351.

Lovejoy teaches that its disclosed personal monitor includes "geolocating capabilities (GPS or the radar-responsive tags)." Lovejoy at 4:32-37. Thus, Beck in view of Lovejoy render obvious a device that performs the claimed function.

Beck in view of Lovejoy disclose structure that is the same or equivalent to the corresponding structure disclosed in the '307 patent for performing GPS geolocation. Sarrafzadeh Decl. ¶352. Beck discloses that its client computing device can be an Internet enabled cellphone. Lovejoy discloses GPS and non-GPS processing and methods for geolocation. And because the '307 patent incorporates by reference Lovejoy for disclosure relating to such geolocation, the combination of Beck and Lovejoy can only disclose structure that is identical to corresponding structure in the '307 patent. *See* '307 patent at 17:21-24; Sarrafzadeh Decl. ¶352.

5. Claim 10: Non-GPS Geolocation Means

Beck in view of Lovejoy discloses this limitation. Sarrafzadeh Decl. ¶354.

To the extent the Board construes this term under 35 U.S.C. § 112 ¶ 6, Beck in view of Lovejoy render obvious this limitation.

A POSITA would have been motivated to modify Beck's client computing device to add Lovejoy's geolocation functionality, including geolocation without GPS, for the reasons set forth in section VI.B.2, above. Sarrafzadeh Decl. ¶356.

Further, for the reasons set forth in the preceding section, VI.D.4, Beck in view of Lovejoy disclose structure that is the same or equivalent to the corresponding structure disclosed in the '307 patent for performing geolocation without GPS and render obvious a device that performs the claimed function. Sarrafzadeh Decl. ¶357.

VII. The Board Should Reach the Merits of This Petition

Petitioner is not aware of any basis for discretionary denial under 35 U.S.C. § 314(d), in particular because there is no trial date set in the parallel district court case. To the extent Patent Owner argues otherwise, Petitioner reserves the right to seek a reply.

In addition, discretionary denial under 35 U.S.C. § 325(d) is not warranted because this Petition presents arguments and evidence not considered during prosecution. Beck, the primary reference in Ground 2, was not cited or considered

during prosecution. And, while Bandy, the primary reference in in Ground 1, was cited, it was not applied or discussed by the Examiner during prosecution. *See, generally, '307 FH.*

VIII. Mandatory Notices under 37 C.F.R. § 42.8

A. Real Parties-in-Interest

The real parties-in-interest are Petitioner Abbott Laboratories and Abbott Diabetes Care Inc. No other party had access to, control over, or contributed to funding of the preparation or filing of this Petition.

B. Related Matters

Gentag, Inc. and Altivera, LLC asserted the '307 patent in the following district court case pending in the Northern District of Illinois: *Gentag, Inc. and Altivera, LLC v. Abbott Laboratories and Abbott Diabetes Care Inc.*, No. 1:23-cv-00310.

C. Grounds for Standing

Petitioner certifies that the '307 patent is available for *inter partes* review and that Petitioner is not barred from requesting this proceeding.

D. Lead and Backup Counsel and Service Information

Pursuant to 37 C.F.R. §§ 42.8(b)(3), 42.8(b)(4), and 42.10(a), Petitioner designates the following lead counsel:

- S. Giri Pathmanaban (Reg. No. 75,986), giri.pathmanaban@lw.com, Latham & Watkins LLP; 300 Colorado St., Suite 2400; Austin, TX

78701; 737.910.7345 (Tel.); 737.910.7301 (Fax).

Petitioner also designates the following backup counsel:

- Michael A. Morin (Reg. No. 40,734), michael.morin@lw.com, Latham & Watkins LLP; 555 Eleventh Street, NW, Suite 1000; Washington, D.C. 20004-1304; 202.637.2298 (Tel.); 202.637.2201 (Fax).
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Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney from Petitioner is attached.

Petitioner consents to electronic service.

E. Fee for *Inter Partes* Review

The Director is authorized to charge the fee specified by 37 C.F.R.

§ 42.15(a) to Deposit Account No. 506269.

IX. Conclusion

For the reasons set forth above, Petitioner respectfully requests *inter partes* review of the challenged claims of the '307 patent.

Respectfully submitted,

Dated: January 16, 2024

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CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

I hereby certify that this Petition complies with the word count limitation of 37 C.F.R. § 42.24(a)(1)(i) because the Petition contains a total of 13,959 words calculated by Microsoft Word's counting feature. This total excludes the cover page, signature block, and the parts of the Petition exempted by 37 C.F.R. § 42.24(a)(1).

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CERTIFICATE OF SERVICE

The undersigned certifies that a complete copy of this Petition for *Inter Partes* Review of U.S. Patent No. 7,969,307 and all Exhibits and other documents filed together with this Petition were served on the official correspondence address for the patent shown in Patent Center:

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