

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZEBRA TECHNOLOGIES CORPORATION,
Petitioner

v.

LONE STAR SCM SYSTEMS, LTD.,
Patent Owner.

IPR2022-01374
Patent 7,557,711 B2

Before KEN B. BARRETT, AARON W. MOORE, and
RUSSELL E. CASS, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Zebra Technologies Corporation (“Petitioner”) filed a Corrected Petition requesting *inter partes* review of U.S. Patent No. 7,557,711 B2 (“the ’711 patent,” Ex. 1001). Paper 3 (“Pet.”). The Petition challenges the patentability of claims 1, 3–10, 15, 16, and 18 of the ’711 patent. Lone Star SCM Systems, Ltd. (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 10 (“Prelim. Resp.”).

An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018).

Having considered the arguments and evidence presented by Petitioner and Patent Owner, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on at least one of the challenged claims of the ’711 patent. Accordingly, we institute an *inter partes* review as to all the challenged claims of the ’711 patent on all the grounds of unpatentability set forth in the Petition.

II. BACKGROUND

A. *Related Proceedings*

Both parties identify, as matters involving or related to the ’711 patent, *Lone Star SCM Systems, Ltd. v. Zebra Technologies Corporation*, No. 6:21-cv-00842 (W.D. Tex.); *Lone Star SCM Systems, Ltd. v. Honeywell International Inc.*, No. 6:21-cv-00843 (W.D. Tex.); and *Lone Star SCM Systems, Ltd. v. Bluebird Inc.*, No. 6:21-cv-00844 (W.D. Tex.). Pet. 1; Paper 6, 1.

Additionally, the parties identify the following Patent Trial and Appeal Board cases as involving patents related to the '711 patent: IPR2022-01375 (U.S. Patent No. 9,646,182); IPR2022-01376 (U.S. Patent No. 9,996,717); and IPR2022-01377 (U.S. Patent No. 10,482,293). Pet. 1–2; Paper 6, 1–2.

B. The '711 Patent

The '711 patent “is directed, in general, to communication systems and, more specifically, to an interrogator, [a] method of discerning metal and radio frequency identification (RFID) objects, and an interrogation system employing the same.” Ex. 1001, 1:14–18. Although the Specification primarily focuses on the interrogation system’s use in a medical environment, the Specification indicates that the system is not limited to use in that environment. *See id.* at 1:33 (“Of particular note is a surgical environment . . .”), 13:3–6 (“[S]uch an interrogation system may be applied to a wide range of applications and environments such as supply chain management systems in retail facilities or security systems in airports, to name a few.”).

According to the Specification, “surgical items must be counted and accounted for before, during and following the conclusion of a surgical procedure,” “[t]he presently available systems to track the surgical items are laboriously time consuming, costly and in many cases antiquated,” and that, “[t]hus, a medical facility can benefit from systems that more efficiently track surgical items. *Id.* at 14:8–14. The patent explains that “the problem associated with the loss of surgical items, especially surgical items retained within patients, is a serious one.” *Id.* at 2:26–28.

Figure 4 of the '711 patent is reproduced below.

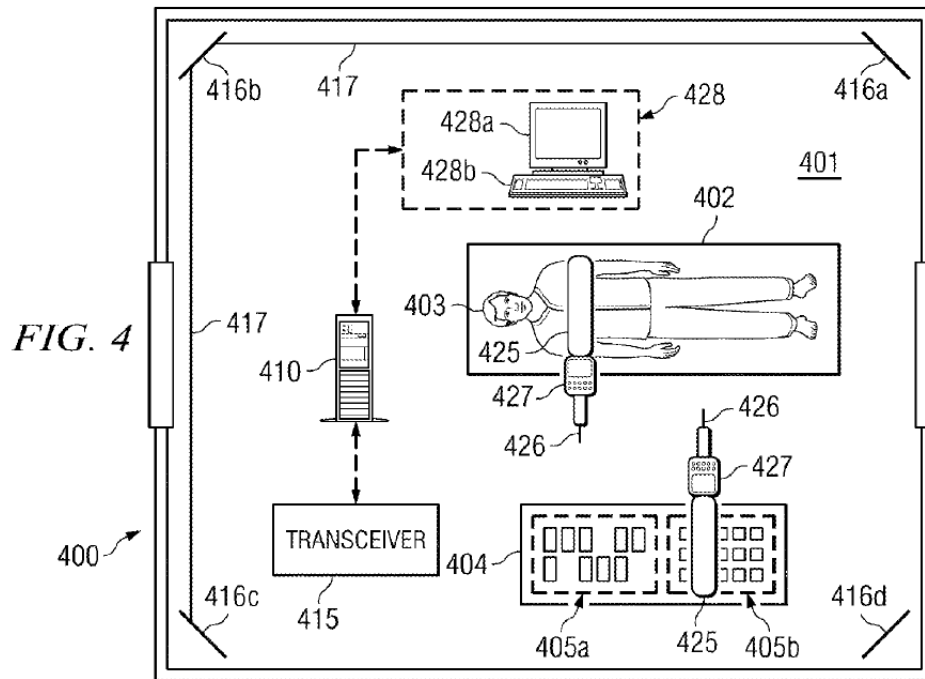


Figure 4 is a “diagram of an embodiment of an interrogation system . . . employable within an operating room of a medical facility.” Ex. 1001, 7:64–67.

The Figure shows “an operating table 402 with a patient 403 thereon and a back table 404 that accommodates a plurality of surgical instruments 405a and disposable items 405b (such as sponges).” *Id.* at 14:30–33. Metal objects in an operating room include surgical instruments, surgically implanted metal structures, and disposable sponges having a metal wire that allows for detection by a metal sensing subsystem. *Id.* at 16:24–30. RFID tags may be applied to surgical instruments and disposable items, such as sponges. *Id.* at 16:39–56.

Also depicted is portable interrogator 425 having internal user interface 427. *Id.* at 14:40 (“an interrogator (e.g., a portable interrogator) 425”); *id.* at 15:19 (“the portable interrogator 425”); Fig. 4. The patent

explains that “the interrogator may be affixed to a table (e.g., the back table 404), stand, wall or ceiling within a facility.” *Id.* at 14:41–42.

The portable interrogator 425 includes “a metal sensing subsystem that provides a first signal having a metal signature representing a presence of a metal object” and “a radio frequency identification (RFID) sensing subsystem that provides a second signal having a RFID signature representing a presence of a RFID object.” *Id.* at 15:1–6. Portable interrogator 425 also includes a control and processing subsystem that discerns a presence of objects from signals. *Id.* at 15:19–22. “The portable interrogator 425 still further includes a position sensor that allows a position of the portable interrogator 425 to be determined.” *Id.* at 15:35–37.

The ’711 patent describes an integrated mode of operation that employs a plurality of inputs, including “metal sensing 552, RFID sensing 554, interrogator location observables 556, RFID position markers 558, RFID/metal calibration markers 560, a patient demographics/history database 562, anatomical databases 564, evidence-based medicine databases 566 and RFID and metal object signature databases 568.” *Id.* at 17:65–18:3 (referring to Figures 5A and 5B). “An adaptive integrating filter 570 processes these inputs to provide a resulting interrogator detected object and location 575.” *Id.* at 18:4–6.

The “integrated mode of operation may employ multiscan, coherent signal processing of diverse multiple inputs to achieve significantly higher detection sensitivities thereby allowing more precise object location and identification” and “[t]he adaptive integrating filter 570 may be a single adaptive filter, such as a Kalman filter, or it may be more complex to meet a specific patient situation.” *Id.* at 18:18–24. “A more precise location of the

interrogator may be afforded by integrating an instantaneous output of an internal inertial position sensor with RFID position markers 558 placed at predetermined anatomical locations on the patient.” *Id.* at 18:25–28.

C. Illustrative Claim

Of the challenged claims, claims 1 and 16 are independent. Claim 1, reproduced below, is illustrative.

1. An interrogation system, comprising:
 - a sensing subsystem configured to provide a signal having a signature representing a presence of a radio frequency identification (RFID) object;
 - a control and processing subsystem configured to discern a presence of said RFID object from said signal; and
 - a single position sensor configured to provide a location of said RFID object in accordance with a movement of said position sensor with respect to said RFID object.

Ex. 1001, 28:64–29:5. Claim 16 is directed to a method corresponding to the system of claim 1.

D. Asserted Grounds of Unpatentability

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 3–5, 8–10, 15, 16	103(a)	Garber, ¹ Werb ²
6, 7, 18	103(a)	Garber, Werb, Anderson ³

¹ US 6,232,870 B1, issued May 15, 2001 (Ex. 1005).

² WO 01/06401 A1, published Jan. 25, 2001 (Ex. 1006).

³ US 7,151,979 B2, issued Dec. 19, 2006 (Ex. 1007).

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 3–5, 8–10, 15, 16	103(a)	Garber, Andersen, Martinez, ⁴ Arndt ⁵
6, 7, 18	103(a)	Garber, Werb, Anderson, Martinez, Arndt
1, 3–5, 8–10, 15, 16	103(a)	Garber, Werb, Martinez
6, 7, 18	103(a)	Garber, Werb, Andersen, Martinez

Petitioner relies on the declaration of Dr. Jacob Sharony (Ex. 1002) in support of its arguments, and Patent Owner relies on the declarations of Patrick Kinney (Ex. 2011), Dr. Omid Kia (Ex. 2013), and Joseph C. McAlexander III (Ex. 2014) in support of its arguments. The parties also rely on other exhibits, as discussed below.

III. ANALYSIS

We discuss the appropriate level of skill in the art to apply, claim construction, and then Petitioner’s obviousness allegations.

A. The Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (internal quotation marks and citation omitted).

Petitioner, relying on the testimony of Dr. Sharony, contends that a person having ordinary skill in the art at the time of the alleged invention

⁴ US 7,039,359 B2, issued May 2, 2006 (Ex. 1008).

⁵ US 6,559,645 B2, issued May 6, 2003 (Ex. 1009).

“would have had at least a bachelor’s degree in electrical engineering, computer science, or a related field” and “significant experience with detection devices, like RFID and metal detectors.” Pet. 5 (citing Ex. 1002 ¶ 22). Patent Owner, at this stage, does not explicitly address Petitioner’s proposal or propose a different definition.

We determine that the definition offered by Petitioner comports with the qualifications a person would have needed to understand and implement the teachings of the ’711 patent and the prior art of record. *Cf. Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself may reflect an appropriate level of skill in the art). Thus, for purposes of this decision, we apply Petitioner’s description of the person of ordinary skill in the art.

B. Claim Construction

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2021). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13.

Petitioner proposes constructions for several claim terms. *See* Pet. 5–12, 61–62, 71–72. Patent Owner proposes different constructions for some of those terms. *See* Prelim. Resp. 34–50. Patent Owner also states agreement with Petitioner’s proposed constructions of “a control and processing subsystem configured to” *Id.* at 48.

We address here some of the parties’ proposed claim constructions, and we discuss below, in analyzing the application of the prior art references’ teachings to the claims, the construction of other terms. On this record, and for purposes of this decision, we determine that no other claim terms require express construction to resolve the parties’ disputes. At this stage of the proceeding, the Board has not made a final determination as to the construction of any claim term, and the parties may further develop the issues during the trial.

1. “sensing subsystem configured to . . .”

Claim 1 recites an “interrogation system” including “a sensing subsystem configured to provide a signal having a signature representing a presence of a radio frequency identification (RFID) object.”

Petitioner contends that “sensing subsystem” is a means-plus-function limitation governed by 35 U.S.C. § 112 ¶ 6 and, accordingly, is limited to corresponding structure (and equivalents) disclosed in the Specification for performing the recited function. *See* Pet. 6–11. Patent Owner argues that “[t]he claims in which ‘sensing subsystem’ appear disclose a sufficiently definite structure that would be understood by [one of ordinary skill in the art] to have sufficiently definite meaning as the name for structure, making § 112 ¶ 6 inapplicable.” Prelim. Resp. 35.

The lack of the word “means” in a claim element creates a rebuttable presumption that § 112 ¶ 6 does not apply. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). “When a claim term lacks the word ‘means,’ the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *Id.* at 1349 (citation

omitted). “Generic terms such as ‘mechanism,’ ‘element,’ ‘device,’ and other nonce words that reflect nothing more than verbal constructs may be used in a claim in a manner that is tantamount to using the word ‘means’ because they ‘typically do not connote sufficiently definite structure’ and therefore may invoke § 112, para. 6.” *Id.* at 1350 (citation omitted).

Petitioner asserts that “system” is a recognized nonce word, and argues that “the purely functional prefix ‘sensing’ does nothing to impart structure to the term ‘subsystem.’” Pet. 6. From this, Petitioner concludes that “sensing subsystem” is governed by § 112 ¶ 6. *Id.* Patent Owner argues that Petitioner has failed to rebut the presumption and that a person of ordinary skill in the art would recognize “sensing subsystem” as the name of sufficiently definite structure. Prelim. Resp. 38. We agree that Petitioner has not overcome the presumption that § 112 ¶ 6 does not apply.

Petitioner’s critical propositions—that “the ‘sensing subsystem’ term is a nonce word” and that “the purely functional prefix ‘sensing’ does nothing to impart structure to the term ‘subsystem’”—are conclusory attorney-argument for which Petitioner points to no adequate evidentiary support. Pet. 6; *cf. Williamson*, 792 F.3d at 1349 (“The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.”); *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996) (“What is important is not simply that a ‘detent’ or ‘detent mechanism’ is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art.”).

We thus preliminarily determine that § 112 ¶ 6 does not apply to “a sensing subsystem configured to provide a signal having a signature

representing a presence of a radio frequency identification (RFID) object,” and that the phrase is not a means-plus-function limitation.

Both parties offer proposed constructions for “sensing subsystem” if the phrase is not deemed to be governed by § 112 ¶ 6. Petitioner’s proposed construction is a “self-contained system for sensing within a larger system” “that performs the function recited in the claim.” Pet. 10. Patent Owner’s proposed construction is “a component configured to detect a signal representing an object and convert from one format to another.” Prelim. Resp. 43–44.

Petitioner does not adequately explain the reason for including the “self-contained” modifier, and, for its part, Patent Owner does not adequately explain the inclusion of “convert from one format to another.” Thus, for purposes of this decision, we do not adopt either party’s proposed construction.

2. *“a control and processing subsystem configured to . . .”*

Claim 1 recites “a control and processing subsystem configured to discern a presence of said RFID object from said signal.”

Petitioner argues that one of ordinary skill in the art “would understand that ‘control and processing subsystem’ means ‘a controller or processor.’” Pet. 12 (citing Ex. 1002 ¶¶ 47–49). Patent Owner “agrees with [Petitioner] that a POSITA would understand that ‘control and processing subsystem’ means ‘a controller or processor.’” Prelim. Resp. 48. We accordingly apply that construction in this proceeding.

3. *“an observable and data”*

Claim 7 recites that the control and processing subsystem is configured to coordinate processing “in conjunction with one of an observable and data.”

Petitioner contends that “‘an observable’ means ‘location information’ and ‘data’ means ‘database information.’” Pet. 12 (citing Ex. 1002 ¶¶ 50–51). Patent Owner asserts that “‘one of an observable and data’ should be construed as ‘one of a characteristic or quality that can be detected, and stored information.’” Prelim. Resp. 49.

Because Petitioner’s brief argument does not persuade us that ‘observable’ should be limited to ‘location information,’ and because neither party argues that the construction of this term makes a difference in the patentability analysis, we decline to construe this term at this time.

C. Obviousness of Claims 1, 3–5, 8–10, 15, and 16 over Garber and Werb (Ground 1)

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) any objective evidence of obviousness or non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Petitioner alleges that claims 1, 3–5, 8–10, 15, and 16 of the ’711 patent “are rendered obvious under 35 U.S.C. §103 by Garber in view of Werb.” Pet. 12.

For the reasons discussed below, we determine that Petitioner has shown a reasonable likelihood that it will prevail in establishing the unpatentability of at least independent claim 1.

1. *Garber (Ex. 1005)*

Garber pertains to “RFID devices, including handheld RFID devices, and applications for such devices.” Ex. 1005, 3:25–26. “The devices and applications are described with particular reference to library materials such as books, periodicals, and magnetic and optical media.” *Id.* at 3:29–32.

Garber’s Figure 13 is reproduced below.

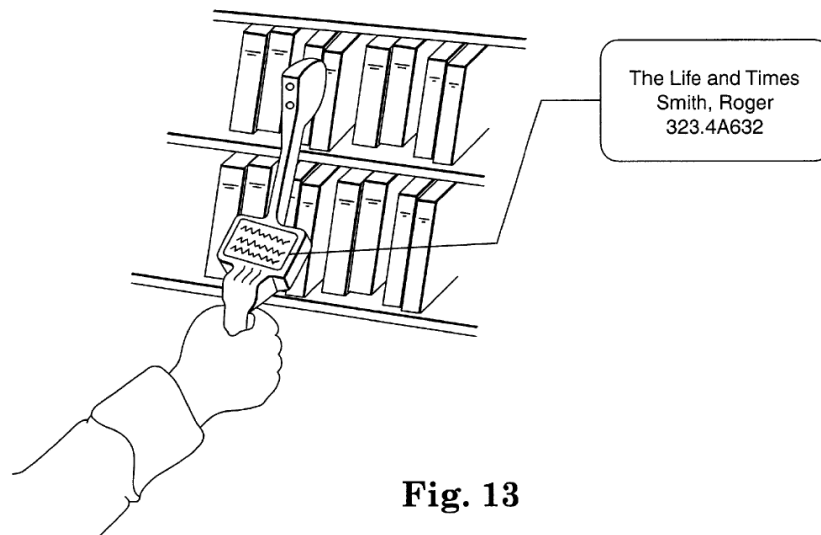


Fig. 13

Garber’s Figure 13 depicts “[a] hand-held RFID device . . . in which the RFID reader, user interface, power source, antenna, processor, and software are all provided in a single integrated unit.” Ex. 1001, 15:42–46.

According to Garber, the hand-held RFID device preferably includes memory, and the memory may be in the form of a handheld computer. *Id.* at 14:59–67. “The portable computer may include . . . a touch-screen display.” *Id.* at 15:1–2. “[T]he functions or methods described . . . are equally applicable to non-portable RFID devices, and . . . the functions or methods described . . . in reference to non-portable RFID devices are similarly applicable to portable RFID devices.” *Id.* at 14:49–54.

Garber explains that “[a]n interrogation zone may be established by placing spaced detection panels across the exits from the room in which the

tagged articles are located, near a conveyor carrying items to be monitored, or the like” and that “[h]and held detection devices may also be used.” *Id.* at 6:54–58.

The reference further explains that “[l]ibrary materials having an RFID tag of [the combination] type could be checked in and out more easily, perhaps without human assistance” and that “the materials would automatically be checked out to a particular patron . . . when the patron passes through a suitable detection zone, and checked back in when the patron re-enters the library with the materials.” *Id.* at 10:11–20.

2. *Werb (Ex. 1006)*

Werb pertains to “location and position identification of mobile and stationary assets, such as items warehoused in a storage facility.” Ex. 1006, 1:5–6. Werb explains that a Real Time Locating System (RTLS) has been used to track assets, and some RTLS’s employ RFID tags. *Id.* at 1:10–11, 1:24–28. According to Werb, “a need exists for a more economical, reliable, and flexible system for coverage of extended facilities, and particularly enclosed facilities where the use of Global Positioning System (GPS) is not possible because communication signals from satellites will not penetrate the structures enclosing the facility.” *Id.* at 3:1–5. Werb discloses a mobile tag reader, that, “[b]y communicating with the tags, the mobile tag reader can generate information suitable for determining the absolute position of the tag reader and/or the movable tags,” and that “[t]he tag reader may store information about the relative position of assets in its vicinity.” *Id.* at 3:11–17. “The relative and/or absolute positions of the tag reader and the tagged assets may be determined using a positioning system onboard the tag reader, such as a GPS or an inertial navigation system, or the positions may be

determined subsequently by the central controller.” *Id.* at 3:17–20.

“[V]arious off-the-shelf technologies, such as speedometers, compasses, gyroscopes, and inertial motion sensors, may be used by the tag reader 3 or central controller 10 to estimate the position of the tag reader 3.” *Id.* at 13:29–31.

3. *The Allegation that Garber is “Defective”*

Patent Owner argues that “the teachings of Garber were previously considered by the [Patent Office] during the prosecution of the ’711 Patent.” Prelim. Resp. 5–6. More specifically, Patent Owner argues that certain patents that “were divisional applications of Garber . . . were considered (twice over) during the prosecution of the ’711 Patent.” *Id.* at 26.

According to Patent Owner, the Examiner “discounted the teachings of Garber with respect to, among other things, location sensing leading to a presumption that Garber lacked the requisite understanding of providing a location of an object employing a single position sensor akin to the claimed subject matter of the ’711 Patent.” *Id.*

It appears that the application for the ’711 patent included just one rejection, for anticipation by a patent to Hull and obviousness based on Hull in combination with other references. *See* Ex. 1004, 148–160. That rejection was overcome with an amendment. *See id.* 182–192 (amendment); 195 (notice of allowance). We find that Patent Owner has not adequately explained how and to what extent the Examiner “considered” and purportedly “discounted the teachings of Garber.” *Id.* at 34.

4. *Obviousness of Claim 1*

For the reasons explained below, but on the current record only, we find that Petitioner has shown that the elements of independent claim 1 are met in the combination.

“[a]n interrogation system”

Petitioner contends that, to the extent that the preamble is limiting, Garber discloses an interrogation system. Pet. 13. Petitioner asserts that Garber discloses an interrogator in the form of a hand-held RFID device, and points to, *inter alia*, Garber’s description of Figure 4 as depicting “a block diagram of an RFID interrogation system interacting with an RFID tag.” *Id.* at 13 (quoting Ex. 1001, 3:46–47).

Patent Owner does not raise any arguments regarding this limitation and we agree, on this record, that this limitation is met in Garber.

*“a sensing subsystem configured to provide
a signal having a signature representing a presence
of a radio frequency identification (RFID) object”*

As discussed above in the claim construction section, we preliminarily determine that this is not a means-plus-function limitation governed by 35 U.S.C. § 112 ¶ 6, and we decline to limit the scope as proposed by each party in the event that § 112 ¶ 6 does not apply.

Under its alternative, non-means-plus-function construction, Petitioner contends that “Garber discloses a ‘self-contained system for sensing [e.g., Garber’s RFID device] within a larger system [e.g., Garber’s library book detection system]’ that performs the function recited in the claim.” Pet. 22 (citing Ex. 1002 ¶ 82). Essentially, Petitioner contends that Garber discloses an RFID sensing subsystem in the form of an RFID reader having a detector 106 and interrogation source 102. *Id.* at 18.

Patent Owner does not raise any arguments regarding this limitation and we agree, on this record, that this limitation is met in Garber.

“a control and processing subsystem configured to discern a presence of said RFID object from said signal”

Petitioner argues that “Garber’s device includes a processor,” as it “discloses the ‘hand-held RFID device is provided in which the RFID reader, user interface, power source, antenna, processor, and software are all provided in a single integrated unit, as shown in FIG. 13.’” Pet. 23 (citing Ex. 1005, 15:43–46). Petitioner further argues that “Garber teaches that its ‘hand-held RFID device can interrogate and identify RFID-tagged items whenever it is activated within range of the items” and that “Garber further teaches that ‘the hand-held device obtains information from the RFID tag, and either immediately displays that information, or immediately displays information stored within the hand-held device that is related to the tagged item.’” Pet. 24 (citing Ex. 1005, 15:63–65, 16:21–25) (emphasis omitted).

Patent Owner does not raise any arguments regarding this limitation and we agree, on this record, that this limitation is met in Garber.

“a single position sensor configured to provide a location of said RFID object in accordance with a movement of said position sensor with respect to said RFID object”

Patent Owner asserts that “Garber discloses that its interrogation system is configured to provide a location of [an] RFID object (e.g., the RFID tags)” and that, “[w]hile Garber is silent as to a position sensor, Werb expressly discloses the advantageous use of a position sensor in an RFID reader to provide a more accurate location of RFID tags in accordance with a movement of said position sensor with respect to said RFID object.” Pet. 27 (citing Ex. 1002 ¶¶ 90–93). Patent Owner points to Werb’s disclosure that “as its mobile tag reader moves within the interrogation system the ‘relative

and/or absolute positions of the tag reader and the tagged assets may be determined using a positioning system onboard the tag reader, such as a GPS or an inertial navigation system.” Pet. 27 (citing Ex. 1006, 3:17–20).

According to Petitioner, Werb discloses that “the position of the tag reader . . . may also be determined and/or predicted, e.g., by using the speed and time of travel of the tag reader 3 in a known direction, by using inertial navigation systems . . . or other devices.” Pet. 28–29 (quoting Ex. 1006, 13:3–6 (emphasis omitted) and citing *id.* 13:29–31 (“inertial motion sensors, may be used by the tag reader 3 . . . to estimate the position of the tag reader 3”). Petitioner concludes that “[t]he Garber-Werb combination thus discloses a position sensor (e.g., inertial motion sensor)” that is “configured to provide a location of said RFID object (e.g., RFID tags) in accordance with a movement of said position sensor with respect to said RFID object (e.g., calculated using know[n] positions of tag reader in at least two locations as reader passes RFID tag).” Pet. 29–30.

Petitioner argues that one of ordinary skill in the art “would have been motivated to modify Garber in view of Werb for several reasons,” including that “[m]onitoring and tracking the location of assets in a facility can be important, for example, for purposes of inventory and process control.” Pet. 51 (citing Ex. 1006, 1:9–10). Petitioner also points to the “advantage” that Werb’s system “using inertial technology and calibration tags” makes it possible to “track and continuously calibrate the position of the tag reader 3” as it moves quickly through the interrogation system.” *Id.* (citing Ex. 1006, 14:1–17, 14:25–15).

Petitioner also argues that “modifying Garber’s hand-held device to include Werb’s position sensor would have been an obvious combination of

known prior art elements that yields a predictable result,” that one “could have made the combination “using known methods,” where the “position sensor would merely perform the same function . . . as taught by Werb,” and that the result would have been “improved item location tracking.” Pet. 52.

Patent Owner makes two arguments as to why the claims would not read on the combination, that “Garber does not disclose any position sensor,” and that “Werb teaches multiple sensors, not [a] single position sensor.” Prelim. Resp. 13.

Regarding Garber, Patent Owner argues that Garber’s “RFID device itself has no understanding of the location (not even a relative location), but the user establishes the location of RFID device and object via the alert” or, “[i]n other words, Garber only ascertains a presence of the object within a read range of the RFID device, not the location of the device or the object.” Prelim. Resp. 13. Patent Owner argues that “Garber’s use of location tags is analogous to the teachings found in U.S. Patent No. 7,129,840 to Hull, et al.,” that the Examiner initially rejected the application . . . in part because of Hull,” and that “[t]he inventor ultimately overcame Hull.” *Id.* This argument is unpersuasive because Petitioner is relying on Werb, not Garber, for the position sensor.

Regarding Werb, Patent Owner argues that the GPS system described in Werb “does not determine the location of an object in accordance with the movement of the position sensor with respect to the object.” Prelim. Resp. 14. Patent Owner further argues that Werb’s “inertial navigation system is a system with a plurality of different types of sensors, which is contrary to the claim limitation in the ’711 Patent of a “position sensor,” let alone a “single position sensor.”” Prelim. Resp. 14. Patent Owner argues that “[t]he inertial

navigation system is a complex system employed in complex applications including the navigation of aircraft, tactical and strategic missiles, spacecraft, submarines and ships.” *Id.* Patent Owner concludes that one of ordinary skill in the art “would not consider a GPS or an inertial navigation system for the interrogation system of the ’711 Patent.” *Id.*

We find these arguments unpersuasive because Petitioner is not relying on the GPS embodiment, and we do not agree that the inertial system is limited to large scale systems or systems with a plurality of sensors. *See* Ex. 13:7–31 (describing a system with one tag reader operated in a facility such as a warehouse); *id.* at 8:18–21 (“tag reader 3 may be associated with a portable device carried by a security guard . . . or embedded in a handheld computer, telephone, or Personal Digital Assistant (PDA)”).

Patent Owner asserts that “Werb also discloses calibration tags 5 to calibrate a position of the tag reader whenever it drives by one of these [calibration] tags 5,” but argues that “[t]he calibration tags 5 of Werb are analogous to the sensors 112 of Hull,” and that “the inventors overcame a rejection based on Hull by amending their application for the ’711 Patent to require only a single position sensor.” *Id.* at 14–15.

We find this argument unpersuasive because it appears that Werb’s Figure 3 embodiment, for example, uses just one sensor, tag reader 3. Patent Owner’s arguments about the prosecution history do not show that Werb’s tag reader would not correspond to the “single position sensor” of claim 1.

Patent Owner argues there would not have been a motivation to combine the teachings because Garber and Werb pertain, respectively, to a library and a warehouse, and “[t]he disparate environments described in Garber and Werb lead to the application of very different solutions to track

the respective assets.” Prelim. Resp. 27 (citing Ex. 1007 ¶ 45). At this preliminary stage, we do not agree that the purported disparate environments would preclude a person of ordinary skill in the art from seeing the applicability of Werb’s RFID location determination teachings to Garber’s RFID sensing system.

Patent Owner, citing the testimony of Mr. Kinney, argues that Werb’s GPS and inertial navigation systems “are not practical for the RFID readers of Garber.” Prelim. Resp. 28 (citing Ex. 2007 ¶ 46–47). This argument is not persuasive because, as noted above, Petitioner is not relying on the GPS embodiment, and Werb explains that its tag reader “may be associated with a portable device carried by a security guard . . . or embedded in a handheld computer, telephone, or Personal Digital Assistant (PDA)”. Ex. 1006, 8:18–21. Patent Owner’s argument about “teaching away” is unavailing because neither Patent Owner nor Mr. Kinney elaborate on the assertion or otherwise explain how Werb, for example, discourages the use of its teachings in Garber. *See DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (“A reference does not teach away, however, if it merely expresses a general preference for an alternative invention but does not ‘criticize, discredit, or otherwise discourage’ investigation into the invention claimed.” (quoting *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004))).

Having considered Petitioner’s arguments and evidence, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 1 as being obvious over Garber and Werb.

5. *Obviousness of Claims 3–5, 8–10, 15, and 16*

As noted above, independent claim 16 recites a method of operating an interrogation system configured the same as or similar to the system of independent claim 1. The remaining challenged claims are all dependent claims for which Patent Owner does not present arguments beyond those regarding independent claim 1 and discussed above.

Having considered Petitioner’s arguments and evidence, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenges to claims 3–5, 8–10, 15, and 16 as being obvious over Garber and Werb.

D. *Obviousness of Claims 6 and 18 over
Garber, Werb, and Anderson (Ground 2)*

Petitioner alleges that dependent claims 6 and 18 would have been obvious over Garber, Werb, and Anderson. *See* Pet. 53–55, 57–58. Claim 6 adds to claim 1 that “[the] control and processing subsystem is configured to employ multiscan, coherent signal processing,” and claim 18 adds a corresponding limitation to claim 16.

Patent Owner argues that the combination fails to teach “multiscan, coherent signal processing” and that there is a lack of a motivation to combine Garber and Anderson. *See* Prelim. Resp. 15–26, 32–33.

Anderson “relates to a paper roll that incorporates RFID components and a system for tracking inventory having RFID components in a warehouse environment.” Ex. 1007, 1:7–10. Anderson describes the multipath error problem, explaining that “[a] warehouse environment is potentially susceptible to multipath errors due to metal or other structures in the warehouse 12 that reflect the electromagnetic waves emitted by the RFID beacons 48” and that “[m]ultipath errors are caused when a radio

signal is received directly by an antenna, but then the same signal is received again as it is reflected off an interfering structure.” *Id.* at 11:22–28.

To address the problem, Anderson explains that “[t]he use of ‘Preprocessing’ filters minimizes the instability effects that multipath may cause by selectively ignoring beacon multipath measurements” and that “Pre-processing filters can be used on radio signals to filter out any erroneous signals.” *Id.* at 11:30–32. “The signals may then be further refined in a Kalman Filter, which is a known multiple-input software filter that can optimally select or reject, in real time, the sensor inputs based on the quality of the respective sensor measurements.” *Id.* at 11:32–36. “The Kalman filter may reject erroneous sensor inputs to calculate the desired output of the position locating system 28 with the location measurement unit 56, and a Kalman filter provides improved overall navigation accuracy.” *Id.* at 11:35–39.

Petitioner asserts that the ’711 patent describes: 1) an integrated mode employing multiscan, coherent signal processing of diverse multiple inputs; 2) that the interrogator uses an adaptive integrating filter to process multiple inputs; and 3) that “adaptive integrating filter 570 may be a single adaptive filter, such as a Kalman filter.” Pet. 53–54 (citing Ex. 1001, 18:37–39, 18:51–58, Fig. 5B). Petitioner contends that, “[l]ike the ’711 patent, Andersen also discloses a computer processor that uses a Kalman filter and performs multiscan, coherent signal processing to improve the quality and accuracy of an RFID system’s measurements.” *Id.* at 54; *see id.* (citing Ex. 1002 ¶¶ 161–165).

Petitioner reasons that Andersen’s express teachings provide a motivation to modify Garber, contending that, “while the Garber-Werb

combination does not disclose the use of an adaptive integrating filter, Andersen does, and provides ample motivation to add a Kalman filter to Garber's hand-held device (i.e., correction of multi scanned signal / multipath errors)." *Id.* at 59 (citing Ex. 1007, 11:25–28, 11:32–36, 12:39–41). Petitioner also contends "the combination is obvious as it yields predictable results," and that a person of ordinary skill in the art "could have combined Andersen's Kalman Filter with Garber's hand-held device using known methods, and such a filter would merely perform the same function—resolving errors to improve detection accuracy, which is entirely predictable." *Id.* at 60.

Patent Owner argues that Anderson fails to teach the recited "multiscan, coherent signal processing." Prelim. Resp. 15. Patent Owner asserts that Andersen discloses "multipath signal error correction," which "relates to correcting signal errors when a single radio transmission signal bounces or is reflected off of different surfaces so that it is received by a receiver at different times," and that "multiscan, coherent signal processing" is different because it involves "coordinat[ing] a processing of a plurality of signals (e.g., resulting from multiple scans) from a sensing subsystem to discern a presence of at least one of metal and RFID objects." Prelim. Resp. 15–16. Patent Owner also argues that Kalman filters are used in many applications and that the disclosure in Anderson of "using Kalman filters for a multipath problem does not dictate that a multiscan, coherent signal processing is performed." *Id.* at 18–19.

For the reasons discussed above, Petitioner has shown a reasonable likelihood that at least claim 1 of the '711 patent is unpatentable. Having decided to institute as to at least one challenged claim, we institute on all

challenged claims and on all asserted grounds. The parties may address further during trial the disputed issues pertaining to this ground, including whether Anderson discloses multiscan, coherent signal processing and whether there would have been a motivation to make the combination.

E. Obviousness of Claim 7 over Garber, Werb, and Anderson (Ground 2)

Claim 7 adds to claim 1 that the “control and processing subsystem includes an adaptive integrating filter and is configured to coordinate a processing of said signal in conjunction with one of an observable and data to discern a presence of said RFID object.” Petitioner alleges that dependent claim 7 would have been obvious over Garber, Werb, and Anderson. *See* Pet. 55–57. Patent Owner argues that the combination fails to teach “an adaptive integrating filter” and that there is a lack of a motivation to combine Garber and Anderson. *See* Prelim. Resp. 21–26.

Petitioner asserts that “Andersen teaches the use of a Kalman filter, i.e., an example of the claimed adaptive integrating filter.” Pet. 55 (citing Ex. 1002 ¶ 167). Petitioner further contends that Garber discloses relying on “an observable” (in the form of location information) and “data” (in the form of information stored within the handheld device) to determine the presence of RFID tags. *Id.* at 55–57.

Patent Owner, similar to its arguments for claims 6 and 18, argues that a Kalman filter can be used for many applications and that Anderson’s disclosure is not a disclosure of the claim’s recited “adaptive integrating filter.” Prelim. Resp. 24–26. Patent Owner argues that “the use of the Kalman filter in the ’711 Patent as an adaptive integrating filter is not the same as—or even analogous to—Andersen’s use of a Kalman filter to address multipath errors.” *Id.* at 24–25 (citing Ex. 2013 ¶ 29).

For the reasons discussed above, Petitioner has shown a reasonable likelihood that claim 1 of the '711 patent is unpatentable. Having decided to institute as to at least one challenged claim, we institute on all challenged claims and on all asserted grounds. The parties may address further during trial the disputed issues pertaining to this ground, including whether Anderson discloses an adaptive integrating filter and whether there would have been a motivation to make the combination.

F. Grounds 3–6

Grounds 3–6 are presented to the extent the Board deems that “RFID sensing subsystem,” “metal sensing subsystem,” and “control and processing subsystem” are means-plus-function terms. *See* Pet. 61, 70. Petitioner, however, does not argue for such constructions, and Patent Owner does not either. *See* Pet. 60–61, 70–71; Prelim. Resp. 34–55.

Because these grounds are premised on claim constructions for which neither party advocates, we do not discuss them further in this decision. However, because we must include all claims and all grounds if we institute, these alternative grounds will be included in the *inter partes* review. *See* 37 C.F.R. § 42.108(a).

IV. CONCLUSION

Petitioner has demonstrated a reasonable likelihood of prevailing in showing the unpatentability of at least one of the challenged claims of the '711 patent. At this stage of the proceeding, we have not made a final determination with respect to the patentability of any of the challenged claims.

V. ORDER

For the foregoing reasons, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1, 3–10, 15, 16, and 18 of the '711 patent is instituted with respect to all grounds of unpatentability set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '711 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

PETITIONER:

Dion M. Bregman
Brent A. Hawkins
Jason Gettleman
James Kritsas
MORGAN, LEWIS & BOCKIUS LLP
Zebra-LoneStar-IPRs@morganlewis.com
dion.bregman@morganlewis.com
brent.hawkins@morganlewis.com
jason.gettleman@morganlewis.com
james.kritsas@morganlewis.com

PATENT OWNER:

Winston O. Huff
MUNSCH HARD KOPF & HARR P.C.
whuff@munsch.com

Glenn W. Boisbrun
BOISBRUN HOFMAN, PLLC
gboisbrun@bh-ip.com