

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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HANSHOW AMERICA INC. and  
HANSHOW TECHNOLOGY CO., LTD.,  
Petitioner,

v.

SES-IMAGOTAG INC.,  
Patent Owner.

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IPR2024-00208  
Patent 11,010,709 B2

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Before JAMES P. CALVE, BRIAN J. McNAMARA, and  
TERRENCE W. McMILLIN, *Administrative Patent Judges*.

McMILLIN, *Administrative Patent Judge*.

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

## I. INTRODUCTION

Hanshow America Inc. and Hanshow Technology Co., Ltd. (“Petitioner”) filed a Petition for *inter partes* review of claims 1–20 of U.S. Patent No. 11,010,709 B2 (Ex. 1001, “the ’709 patent”). Paper 2 (“Pet.”) at 1. SES-Imagotag Inc. (“Patent Owner”) filed a Preliminary Response. Paper 11 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 12, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 13, “Prelim. Sur-reply”). We have jurisdiction under 35 U.S.C. § 314, which provides that 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.”

A decision to institute under § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). In addition, per Board practice, if the Board institutes trial, it will institute “on all of the challenged claims and on all grounds of unpatentability asserted for each claim.” *See* 37 C.F.R. § 42.108(a).

Having considered the arguments and the evidence presented in the Petition, the Preliminary Response, the Preliminary Reply, and the Preliminary Sur-reply, for the reasons described below, we institute *inter partes* review.

## II. REAL PARTIES IN INTEREST

The Petition identifies Hanshow America Inc. (“Hanshow America”) and Hanshow Technology Co., Ltd. (“Hanshow Technology”) as real parties-in-interest. Pet. 1. Patent Owner identifies SES-Imagotag SA and SES-Imagotag Inc. as its real parties-in-interest. Paper 7, 2.

### III. RELATED MATTERS

Petitioner and Patent Owner state that the '340 patent is asserted in the following litigation: *SES-Imagotag SA et al. v. Hanshow America Inc. et al.*, Case No. 1:23-cv-01667-BMC (E.D.N.Y.), filed March 3, 2023. Pet. 1; Paper 7, 2.

### IV. THE '709 PATENT

The '709 patent is titled “Method for Updating Association Data Between Articles and Locations.” Ex. 1001, code (54). The '709 patent relates to “the association between articles of a retail area and locations of said retail area,” and more specifically, to planograms that describe such association data. *Id.* at 1:19–20, 2:6–9. The '709 patent describes that retail locations may include electronic shelf labels (ESLs) for displaying remote-controlled information on articles for sale, where ESLs may communicate with a mobile terminal, such as a mobile phone, by using, for example, “NFC (Near Field Communication) or RFID (Radio Frequency Identification).” *Id.* at 1:26–52. This enables sending location-based information to mobile terminals based on the “identification and location of at least one shelf label with which the mobile terminal starts communicating.” *Id.* at 1:56–63. The '709 patent observes a problem, however, in which the arrangement of articles for sale deviates from a planogram, and so a “location calling on this planogram suffers from incapacity of the planogram to reflect reality.” *Id.* at 2:10–30. The '709 patent proposes “a method for keeping the planogram updated and in accordance with the real arrangement of products in the retail area.” *Id.* at 2:40–44.

Figure 1, reproduced below, illustrates an embodiment of the '709 patent.

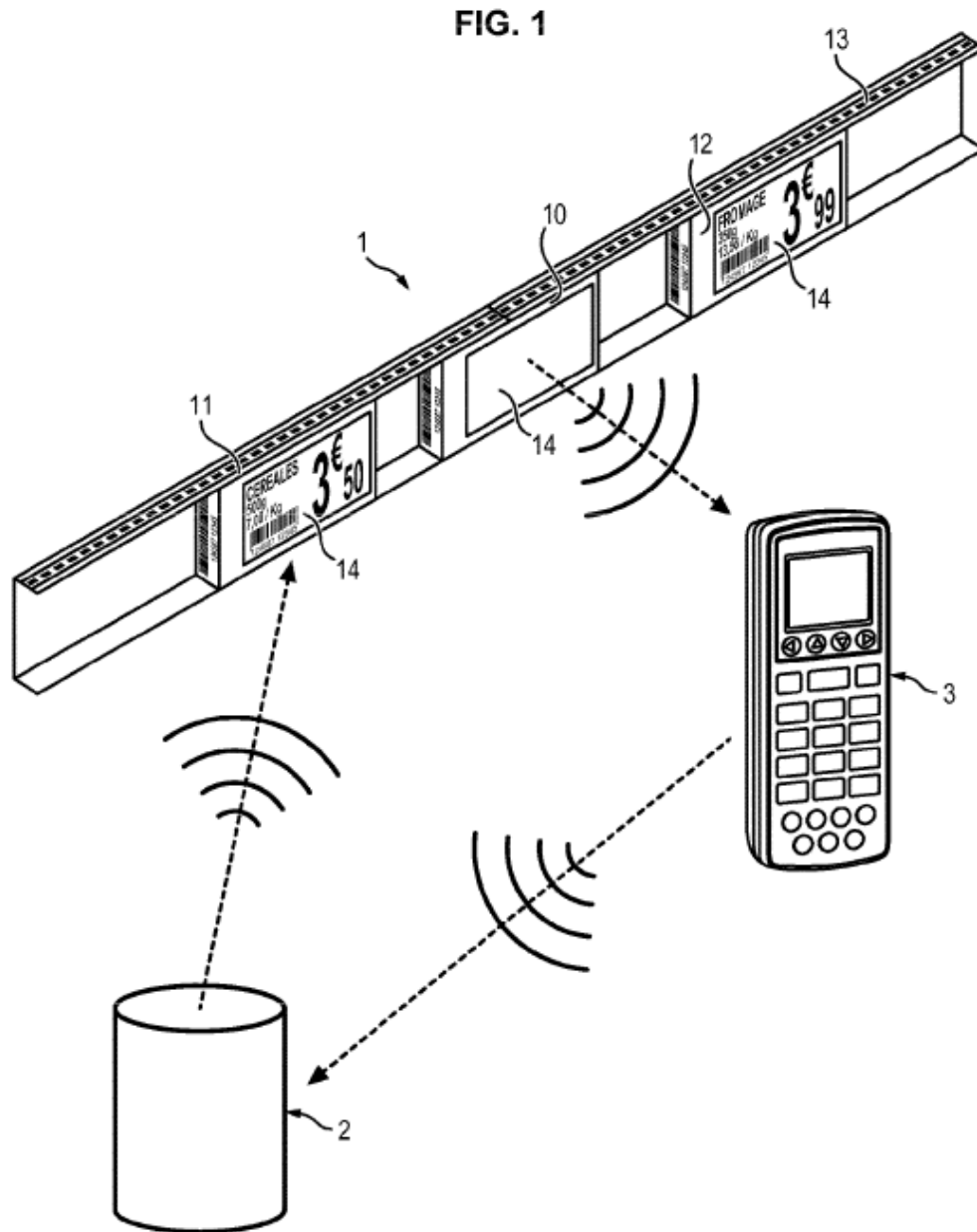


Figure 1 depicts a sequence 1 of ESLs 10, 11, and 12 on shelf rail 13, where “[e]ach ESL is identified by a unique label identifier of its own.” Ex. 1001, 4:49–50, 4:55–56. Each ESL includes display screen 14 for displaying information related to an article with which it is associated. *Id.* at 4:56–58.

Each ESL further includes a radiofrequency module for receiving data from a central station connected to computer system 2, and a radiofrequency peripheral of the RFID or NFC type for communicating with reading device 3. *Id.* at 4:64–5:12. Computer system 2 stores “data relative to the association between articles of a retail area and locations of said retail area,” which constitutes a planogram. *Id.* at 5:16–20. Computer system 2 also stores “data relative to the association between the label identifier and a location of the retail area which corresponds to the location of the ESL identified by said identifier, as well as to the article with which the ESL is associated.” *Id.* at 5:21–25.

In order to update the planogram when rearranging ESLs, for example, when adding an ESL such as ESL 10 in Figure 1, the new ESL must be located relative to the other ESLs. Ex. 1001, 5:43–51. This involves using “reading device 3 to acquire (step S1) a label identifier of an ESL 11 or 12 adjacent to the location of the added ESL 10.” *Id.* at 6:25–27. An operator then “uses the reading device 3 to acquire the label identifier of the ESL 10,” preferably by NFC. *Id.* at 6:55–57. “The reading device 3 transmits (step S2) to the computer system 2 the sequence of label identifiers comprising the identifier of the adjacent label 11, 12 and the label identifier of the added ESL 10,” and “also transmits the indication of relative positioning of said adjacent ESL 11 or 12 relative to the added ESL 10.” *Id.* at 7:9–14. An operator may use reading device 3 to acquire a reference of an article intended to be associated with ESL 10, for example, by reading a barcode or communicating with an RFID chip, or by manual entry. *Id.* at 6:57–7:8. Computer system 2 receives the information acquired by reading device 3, “and uses it to update (step S3) the association data between the

articles of the retail area and the locations of said retail area, i.e., the planogram.” *Id.* at 8:25–28.

## V. ILLUSTRATIVE CLAIM

Petitioner challenges claims 1–20 of the ’709 patent. Pet. 2–3.

Claims 1, 10, and 11 are independent. Claim 1 is illustrative, and recites:

1. [1a] A method for updating a planogram registered in a computer system, to reflect an addition of a shelf label in a shelf of a retail area, [1b] wherein the planogram comprises association data between articles of the retail area and locations of the retail area, the method comprising:

[1c] acquiring, by a reading device, a sequence of label identifiers comprising a label identifier of an added shelf label reflecting an addition of the shelf label in the shelf of the retail area, and also comprising a label identifier of an adjacent shelf label which is adjacent to the added shelf label [1d] according to a scrolling direction of the locations of the retail area,

[1e] the retail area having a plurality of shelf labels distributed in the retail area, [1f] each of the shelf labels being associated with a respective article and being disposed near a respective location associated with the article, [1g] each of the shelf labels being associated with a label identifier of its own,

[1h] wherein the adjacent shelf label is either the preceding shelf label or the following shelf label in the shelf according to the scrolling direction and in relation to the added shelf label,

wherein [1i] a location of the adjacent shelf label is preliminarily known in the planogram;

[1j] identifying a location corresponding to the added shelf label in the shelf of the retail area, comprising:

[1k] transmitting, by the reading device, the sequence of label identifiers to the computer system,

[11] updating, by the computer system, the planogram on the basis of the sequence of label identifiers, by determining:

[1m] articles associated with the labels of the sequence of label identifiers, and

[1n] locations of the articles, on the basis of an obtained location of the added shelf label, wherein [1o] the obtained location is a location in the planogram which is adjacent to the preliminarily known location of the adjacent shelf label.

*Id.* at 10:11–48 (bracketed designators added to reflect Petitioner’s parsing of the claim (*see* Pet. v) and in order to follow the arguments of the parties; the original formatting from the issued patent has been retained).

## VI. ASSERTED GROUNDS

Petitioner challenges claims 1–20 of the ’709 patent based on the grounds set forth in the table below (Pet. 2–3).

| Claims Challenged | 35 U.S.C. §      | Reference(s) Cited <sup>1</sup> |
|-------------------|------------------|---------------------------------|
| 1–5, 10–15, 20    | 103 <sup>2</sup> | Wu <sup>3</sup>                 |

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<sup>1</sup> Petitioner contends that the cited art qualifies as prior art under applicable law. *See* Pet. 3–4. Patent Owner does not dispute the prior art status of the cited art. *See* Prelim. Resp. We determine preliminarily that the cited art qualifies as prior art.

<sup>2</sup> The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103, was effective on March 16, 2013. The application for the ’709 patent is based on a PCT application filed on July 25, 2016, which entered the national stage on Jan. 25, 2018, and which claims priority to a foreign application filed July 27, 2015. Ex. 1001, codes (22), (86), (30), 1:8–13. Because the date of the priority claim is after the effective date of the applicable AIA amendment, the AIA version of § 103 applies for purposes of institution.

<sup>3</sup> US 9,378,513 B2, issued June 28, 2016; filed July 17, 2014 (Ex. 1003).

| Claims Challenged      | 35 U.S.C. § | Reference(s) Cited <sup>1</sup>              |
|------------------------|-------------|----------------------------------------------|
| 1–6, 10–16, 20         | 103         | Wu, Chaves <sup>4</sup>                      |
| 1–5, 7–9, 10–15, 17–20 | 103         | Wu, Itou <sup>5</sup> , Auclair <sup>6</sup> |
| 1–5, 10–15, 20         | 103         | Wu, Fujiwara <sup>7</sup>                    |

Petitioner supports its showing of unpatentability of the challenged claims of the '709 patent with the Declaration of Manos M. Tentzeris, Ph.D. (Ex. 1009). Patent Owner did not submit any testimony in support of its arguments, so the testimony of Dr. Tentzeris is unrebutted by any contrary testimony at this stage.

VII. DISCRETIONARY INSTITUTION, 35 U.S.C. § 325(d)

Patent Owner argues that we should exercise our discretion under 35 U.S.C. § 325(d) to deny institution. *See* Prelim. Resp. 17–33. In particular, Patent Owner contends Wu is “materially identical” to U.S. Patent Application Publication No. 2015/0178767 A1 (“Wu Publ.”), which “was considered multiple times in connection with the prosecution of the '709 Patent, and as such, the Board should invoke its discretion to deny institution.” *Id.* at 17. Petitioner argues that we should decline to exercise our discretion to deny institution. *See* Pet. 91; Prelim. Reply 2–8.

In evaluating arguments under Section 325(d), we use

[a] two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has

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<sup>4</sup> US 2009/0231135 A1, published Sept. 17, 2009 (Ex. 1006).

<sup>5</sup> US 2017/0293959 A1, published Oct. 12, 2017, filed Sept. 28, 2015, with a priority claim to a foreign application filed Sept. 30, 2014 (Ex. 1004).

<sup>6</sup> US 2013/0325638 A1, published Dec. 5, 2013 (Ex. 1005).

<sup>7</sup> JP 2008-77131 A, published Apr. 3, 2008 (Ex. 1007).

demonstrated that the Office erred in a manner material to the patentability of challenged claims.

*Advanced Bionics*, IPR2019-01469, Paper 6 at 8. “If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error [under the second part], the Director generally will exercise discretion not to institute *inter partes* review. *Id.* at 8–9. “At bottom, this framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Id.* at 9.

As to Part 1 of the *Advanced Bionics* test, the Petition states that, although Wu “was identified as prior art during prosecution, the Examiner did not apply it against the claims, discuss it, or indicate a substantive evaluation of it. Thus, there is nothing in favor of exercising discretion under §325(d).” Pet. 91. According to Petitioner, “this Office never substantively evaluated Wu Publ. during examination” and “the foreign Examiners applied Wu Publ. in 2016 to patent claims materially different from the challenged claims of the ’709 Patent.” Prelim. Reply 3–4 (citing Ex. 1002, 36–38 and noting that the challenged claims are not the claims of the foreign patent application, but claims that result from amendments made in 2020 to overcome a prior art rejection).

Patent Owner argues that the Examiner was made aware that Wu was considered in the French and PCT prosecutions and that the Examiner initialed an Information Disclosure Statement (IDS) identifying Wu as having been considered. Prelim. Sur-reply 3–4. According to Patent Owner, the Examiner searched unsuccessfully for better art and the Examiner’s failure to discuss Wu “means only that the examiner determined it was too weak to use for a rejection.” *Id.* at 2–3.

We agree with Patent Owner that, for Part 1 of the *Advanced Bionics* test, Wu previously was presented to the Office. As a preliminary matter, we determine that the Wu Publ. (Ex. 2005) that was referred to during prosecution of the '709 patent is substantially identical to the Wu patent (Ex. 1003) relied on in this proceeding. In the Preliminary Response, Patent Owner contends that “Wu [(Ex. 1003)] is substantively identical to its pre-grant U.S. Patent Application Publication 2015/0178767A1 (‘Wu Pub.’) [(Ex. 2005)].” Prelim. Resp. 2. The Preliminary Response states:

The Wu Patent issued from U.S. Patent Application No. 14/333,941, which was published as the Wu Pub. The Wu Pub. differs from the Wu Patent only with respect to the claims—which Petitioner does not cite. *Compare* Wu (Ex. 1003), Figs. 1–5E, 1:1–9:31, *with* Wu Pub. (Ex. 2005), Figs. 1–5E, ¶¶[0001]–[0076]. The Wu Patent and the Wu Pub. contain identical specifications, as an electronic comparison shows. *See* Ex. 2006 (showing only citation differences—*e.g.*, paragraph vs. column/line number—between the Wu Publication and the Wu Patent, and no differences in the respective figures). The disclosures of the Wu Pub. and Wu Patent are, therefore, effectively identical.

Prelim. Resp. 20.

Petitioner does not dispute that Wu (Ex. 1003) and the Wu Publ. (Ex. 2005) are substantially the same. *See generally* Prelim. Reply. Indeed, for purposes of its arguments under Part 1 of the *Advanced Bionics* test, Petitioner “assum[es] Wu Publ. and Wu are identical.” *Id.* at 3. The Wu Publ. contains the same teachings as Wu and the Wu Publ. is the same or substantially the same as Wu.

With regard to whether Wu previously was presented to the Office, the Wu Publ. is cited as one of the “References Cited” on the face of the challenged '709 patent. Ex. 1001, code (56). The Wu Publ. is cited in the

file history of the '709 patent. Ex. 1002, 23, 79, 84, 130, 139, 144–149, 182–185. And, the Examiner signed and initialed an IDS indicating he had considered the Wu Publ. Ex. 1002, 79–80. Under Part 1 of the *Advanced Bionics* test, we determine that Wu previously was presented to the Office.

As to Part 2 of the *Advanced Bionics* test, Petitioner argues that the Office could not have analyzed Wu because the Office never fully evaluated it. Prelim. Reply 6–7. According to Petitioner, “the failure to analyze Wu Publ. suggests the Examiner did not fully appreciate the importance of that reference” and “weighs against discretionary denial.” *Id.* at 7. Petitioner also argues that Patent Owner’s only substantive argument is that, because Wu does not explicitly discuss a planogram, the Petition fails to address adequately limitations 1[i] and 1[o].<sup>8</sup> *Id.* at 8. According to Petitioner, Patent Owner’s argument is inconsistent with the express definition of the planogram in the claims of the '709 patent and the Petition fully addresses limitations 1[i] and 1[o]. *Id.*

Patent Owner argues that in view of the reasoned statements in the French and PCT prosecution, the Examiner had no basis to apply Wu in a rejection. *Id.* at 9. According to Patent Owner, Petitioner’s argument that the Examiner failed to appreciate the importance of the Wu publication fails because it is “pure say-so.” *Id.*

However, Patent Owner directs our attention to no evidence that the Office addressed the teachings of Wu during prosecution. We determine that the signed and initialed IDS, without more, does not indicate that the

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<sup>8</sup> Limitation 1[i] is “a location of the adjacent shelf label is preliminarily known in the planogram” and limitation 1[o] is “the obtained location is a location in the planogram which is adjacent to the preliminarily known location of the adjacent shelf label.” Pet. v–vi.

Office conducted any analysis or evaluation of Wu. There is no mention of Wu by the Examiner and no articulated consideration of Wu by the Office. As noted above, *Advanced Bionics* provides that “[a]t bottom, this framework reflects ***a commitment to defer to previous Office evaluations*** of the evidence of record unless material error is shown.” *Advanced Bionics*, Paper 6 at 9 (emphasis added). Here, despite Wu (or more precisely, the substantially identical Wu. Publ.) having been previously presented to the Office, we are not directed to, and we cannot find, any analysis or evaluation by the Office of Wu in the file history. *See generally* Ex. 1002.

Under Part 2 of the *Advanced Bionics* test, we must consider the realities of what the references disclose relative to the challenged claims and determine whether the Petition demonstrates error material to the determination of patentability. *See Keysight Technologies, Inc. v. Centripetal Networks, Inc.*, IPR2022-01421 (Paper 14) (PTAB Aug. 24, 2023) (Decision Vacating the Decision Denying Institution, and Remanding to the Patent Trial and Appeal Board for Further Proceedings) (*Keysight-1421*). In *Keysight-1421*, the Examiner allowed the challenged patent claims despite initialing an IDS indicating the Examiner had considered the record of a previous IPR, i.e., the ’148 IPR, where the Federal Circuit had affirmed a Board determination that the claims of a related patent were unpatentable over the same references cited by the petitioner. *See Keysight-1421*, Paper 14 at 3. According to petitioner in *Keysight-1421*, “P.O. submitted the ’148 FWD among hundreds of other references for consideration, but the Examiner never provided any discussion, analysis, or other findings on the applicability of the ’148 FWD to the ’009 claims.” *See Keysight-1421*, Paper 8 at 3. Petitioner argued that, notwithstanding the

initialed IDS, the Examiner had not considered the references and therefore “it is not possible for Petitioner to show how the examiner would have erred if he might have considered them.” *Id.* at 9. In view of the initialed IDS, the panel determined that the Examiner had considered the references and, because Petitioner did not even attempt to show error material to patentability, the panel declined to institute. *See Keysight-1421*, Paper 9 at 10.

The Director agreed with the panel that the Examiner had considered the references, but after fully considering arguments Petitioner advanced in the context of showing a reasonable likelihood of prevailing, the Director found:

My review of the ’148 FWD, and the cited prior art references discussed therein, indicates that the Examiner, during examination of the ’009 patent, misapprehended or overlooked the determinations by the Board in the ’148 FWD—specifically, its findings and analysis of the disclosures of the Roese, Golnabi, Huima, Hayter, and Esbensen references—with respect to the challenged claims. *See* Ex. 1020, 153–157; *Advanced Bionics* at 10 (“[I]f the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something persuasive. . . .”)

*Keysight-1421*, Paper 14 at 7. Thus, if the prosecution record is not well developed, the question turns on whether Petitioner showed the Office erred by overlooking something persuasive. *Id.* And, we examine the prosecution record for a “clear explanation from the Examiner as to why the [previously considered art] did not impact . . . patentability” of the challenged claims. *Id.* at 8.

In this case, Petitioners cites Wu as a primary reference. Pet. 2–3. Both the Written Opinion of the International Searching Authority (Ex.

1002, 139) and the French Written Opinion (Ex. 2008, 5) find that the priority applications “involve an inventive step” because “no document of the prior art discloses, nor suggests updating association data relating to the association between products of a sales area and locations of said sales area, through the acquisition, by a reading device, of a sequence of at least two label identifiers whose labels are adjacent, in a direction of scrolling of locations of the sales area, and one of the identifiers corresponds to the label to be located, and the other to a label whose location is known.” Ex. 1002, 139; Ex. 2008, 5.

In the context of the inventive step noted in the foreign office written opinions, the issue seems to be related to claim language similar to limitation 1[l], i.e., whether Wu discloses or suggests “updating, by the computer system, the planogram on the basis of the sequence of label identifiers.” The Examiner does not discuss this issue. *See generally* Ex. 1002. As the prosecution record of the ’709 patent is not well developed on this issue and is silent on any evaluation of Wu, we consider whether the Petition demonstrates whether the Office erred by overlooking something persuasive. For the reasons discussed below, we determine the Petition shows material error as to an issue of patentability. *See Keysight-1471*, Paper 14 at 7 (quoting *Advanced Bionics*, Paper 6 at 10 (“[I]f the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something persuasive.”)).

Claim 1 is drawn to “[a] method of updating a planogram registered in a computer system, to reflect an addition of a shelf label in a shelf or a retail area.” Ex. 1001, 10:11–13. The claim further states “the planogram

comprises association data between articles of the retail area and locations of the retail area.” *Id.* at 10:13–15. As the claim recites the definition of a planogram, we need not further construe the term for purposes of this analysis. *See* Section VIII, *infra*.

The claimed updating of the planogram requires “determining: articles associated with the labels of the sequence of identifiers and locations of the articles, on the basis of an obtained location of the added shelf label.” Ex. 1001, 10:41–45. Claim 1 further defines the “obtained location” as “a location in the planogram which is adjacent to the preliminary known location of the adjacent shelf label” (*id.* at 10:46–48) and states “the location of the adjacent shelf label is known in the planogram” (*id.* at 10:33–34).

Claim 1 does not limit how the planogram, the location information, or the product information is input or obtained. The claim only states that the planogram (the association data) is “update[ed], by the computer system, . . . on the basis of the sequence of label identifiers.” *Id.* at 10:39–40. Wu states that controlling device 120 may be a computer that stores label location table 121 and label content table 122. Ex. 1003, 2:51–67, 3:16–17. Wu also explicitly states that the relationship between the tables can be created by the controlling device (computer 120). Ex. 1003, 3:36–39. Wu’s label content table 122 associates the label location information (e.g., S01\_R01) with the product displayed at that location (e.g., ESL\_DISP-1). Ex. 1003, Figs 1, 3A–3D, 5A–5D. Thus, we agree with Petitioner that Wu’s label content table 122 appears to be the claimed planogram. Pet. 27.

Wu states that the manager can change the label content table 122 by the controlling device 120 (computer) and the manager then transmits the displaying information to the label according to the label location table

121. Ex. 1003, 3:32–35. Wu does not state that the manager creates the association between the label location table 121 and the label content table 122. Even if the manager is updating the planogram, the manager is doing it with controlling device 120 (computer). Petitioner cites its expert for this proposition. Ex. 1009 ¶¶ 117–121. But Wu discloses much more.

Recognizing that label content table 122 associates labels and locations, Petitioner correctly refers to label content table 122 as the planogram. Pet. 12, 27. Petitioner then references Figure 5C as an example of adding Product G. *Id.* at 28. Figure 5C illustrates the “third action” or “third case” where a label is installed between 2 existing labels. Ex. 1003, 2:35–36, 3:54–58. Wu discloses that the location S01\_R1.5 can be obtained by interpolation, e.g., by dividing the sum of R1 and R2 by 2. *Id.* at 5:37–63, 7:43–52. Evidence that Wu uses the computer to do this is found in the flowchart of Figure 4B (steps extending A (“need to install”) from Figure 4A). *See also* Ex. 1003, 7:63–8:38 (referring to determination of S02\_R1.5). In particular, step S410 of Figure 4B is “create the relationship between the label identifying information and the label location information of the newly installed electronic shelf label.” As noted above, controlling device 120 (computer) creates the relationship between the tables, i.e., computer 120 updates the planogram. The fact that location R1.5 can be determined by interpolation indicates the update is based on the sequence of label identifiers. This appears to meet the claim limitations.

Petitioner cites Ex. 1003, 3:32–35 and 6:14–18 (referring to Fig. 5A, not Fig. 5C) as “expressly disclos[ing] **updating** the label content table 122 the **planogram**.” Pet. 28. Petitioner also cites Figure 5C of Wu. *Id.* at 28–29; *see also* Ex. 1003, 3:36–42 (disclosing that in one architecture the

relationship between the label identifying information and the label location information can be created by controlling device 120 or in another architecture by deploying device 130). Thus, Wu discloses controlling device 120 (a computer (*see* Ex. 1003, 2:67–68)) or deploying device 130 (a smart phone, a tablet PC or a handheld device (*see id.* at 3:12–13)) can create the claimed “planogram compris[ing] association data between articles of the retail area and locations of the retail area.” Ex. 1001, 10:13–15 (claim 1). Petitioner also cites its expert for the proposition that an ordinarily skilled artisan would have known computer systems can be programmed to perform the updating as claimed. Pet. 29–30 (citing Ex. 1009 ¶¶ 120–121).

We have taken into account all the arguments and evidence presented by the parties in determining whether the Office erred in a manner material to the patentability of the challenged claims. Based on the record presented, we determine that Petitioner has demonstrated error by the Office. Accordingly, under the facts here, exercising our discretion to deny institution under § 325(d) is not warranted.

## VIII. CLAIM CONSTRUCTION

In *inter partes* reviews, the Board construes claims using the same claim construction standard employed in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2023). The “words of a claim ‘are generally 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. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim

limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner contends, at this stage, that “no claim construction is necessary to resolve the controversy involved in this IPR, and the terms of the ’709 Patent should be given their ordinary and customary meaning.” Pet. 4. Patent Owner does not propose any claim constructions. *See generally* Prelim. Resp.

At this stage, no need exists to expressly construe any claim terms to resolve the parties’ disputes. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Nonetheless, there may be claim construction issues or issues as to the ordinary and customary meaning of claim terms that the parties may wish to address during trial. In the Preliminary Response, Patent Owner argues that Petitioner fails to give the terms in limitations 1[i] and 1[o] their ordinary and customary meaning and, thus, Petitioner fails to show Wu discloses these limitations. *See* Prelim. Resp. 35–38. Specifically, Petitioner contends that “Petitioner asserts—without explanation or evidence—that Wu’s ‘label content table 122[] ... is the claimed planogram’” (*id.* at 36) and “the Petition does not offer any evidence linking th[e] ‘label location information’ data [in “Wu’s label content table 122] to actual *product*

locations as recorded or represented *in a planogram*” (*id.* at 37). Petitioner contends that Patent Owner’s argument is inconsistent with the express definition of “planogram” in the ’709 patent and “the Petition fully addresses” limitations 1[i] and 1[o]. Prelim. Reply 8. Limitation 1[b] of the ’709 patent recites “the planogram comprises association data between articles of the retail area and locations of the retail area” (Ex. 1001, 10:13–15). Claim construction “begins and ends . . . with the actual words of the claim.” *Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002) (quoting *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998)). And, the specification of ’709 patent provides, “[a] planogram is a set of association data among articles of a retail area and locations of said retail area.” Ex. 1001, 2:6–7. The specification, or more precisely, the written description, is the “single best guide to the meaning of a disputed term.” *Grace Instrument Indus., LLC v. Chandler Instruments Co.*, 57 F.4th 1001, 1008 (Fed. Cir. 2023) (quoting *Vitrionics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). We rely on these passages in the claims and specification of the ’709 patent as setting forth the ordinary and customary meaning of planogram in the context of the ’709 patent and the challenged claims.<sup>9</sup>

If either party contends that explicit claim construction is necessary or that it is necessary to make an explicit determination as to the ordinary and customary meaning of any claim term in order to make a final determination whether any challenged claim is unpatentable, it should

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<sup>9</sup> As discussed *infra* in Section IX.C., we also rely on this recitation in the claims and this passage in the specification in evaluating the showing in the Petition for limitations [1i] and [1o].

clearly explain why during trial and provide a clear and unambiguous construction or meaning with supporting evidence including specifically identifying the challenges, claims, and limitations to which the construction or meaning is necessary.

## IX. OBVIOUSNESS ANALYSIS

### *A. Principles of Law*

Under 35 U.S.C. § 103(a), “[a] patent claim is unpatentable if the differences between the subject matter sought to be patented 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.” *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (similar language). “[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR*, 550 U.S. at 416 (citing *United States v. Adams*, 383 U.S. 39, 50–51 (1966)). The question of obviousness involves resolving 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 ordinary skill in the art; and when presented (4) objective evidence of non-obviousness (not presented here). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Further, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *See KSR*, 550 U.S. at 418.

*B. Level of Ordinary Skill in the Art*

Petitioner contends that

A person having ordinary skill in the art relating to the subject matter of the '709 Patent as of the Critical Date ("POSITA") would have had at least a Master of Science Degree in an academic area emphasizing electrical engineering, computer engineering, wireless telecommunication systems, or an equivalent field (or a similar technical Master's degree, or higher degree).

Pet. 6 (citing Ex. 1009 ¶ 31). Petitioner further contends, in the alternative, that "a POSITA would have had a Bachelor's Degree (or higher degree)" in one of the fields noted above, with "two or more years of work experience" in one of those fields. *Id.* According to Petitioner, "[a]dditional education in a relevant field or relevant industry experience may compensate for a deficit in one of the other aspects of the requirements stated above." *Id.* Patent Owner adopts Petitioner's assessment of the level of ordinary skill at this stage.

Prelim. Resp. 36 n.9.

Determining the level of ordinary skill in the art involves various factors, 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) (citation omitted). The prior art of record also reflects the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). For purposes of this institution decision, we adopt the assessment offered by Petitioner, as it is not disputed by the Patent Owner and is consistent with the '709 patent and the asserted prior art.

*C. Discussion of Obviousness Arguments*

The Petition presents four obviousness grounds. Pet. 2–3. The first ground is a single reference obviousness ground in which Petitioner challenges claims 1–5, 10–15, and 20 as being obvious in view of Wu. *See* Pet. 2, 6–49. In the second ground, Petitioner challenges claims 1–6, 10–16, and 20 as being obvious in view of Wu and Chaves. *See id.* at 2, 49–64. In the third ground, Petitioner challenges claims 1–5, 7–9, 10, 11–15, and 17–20 as being obvious in view of Wu, Itou, and Auclair. *See id.* at 2, 64–83. In the fourth ground, Petitioner challenges claims 1–5, 10, 11–15, and 20 as being obvious in view of Wu and Fujiwara. *See id.* at 3, 83–90. For each ground, Petitioner supports its contentions with citations to the prior art and the testimony of Dr. Tentzeris. For each asserted combination, Petitioner also articulates with supporting reasoning and evidence why a skilled artisan would have been motivated to combine the relied-on teachings of the prior art.

There is considerable overlap in the claims challenged and the teachings relied upon in these grounds. For most of the claim limitations, Petitioner relies upon Wu alone even for the second, third and fourth grounds in which additional references are cited. *See* Pet. 52–56 (citing Chaves (Ground 2) for allegedly disclosing “retail area,” “acquiring, by a reading device, a sequence of label identifiers,” “transmitting, by the reading device, the sequence of label identifiers to the computer system,” and “transmitting . . . a reference of an article with which the added shelf label is associated with”), 70–72 (citing Itou (Ground 3<sup>10</sup>) for allegedly disclosing

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<sup>10</sup> Auclair is also relied on for Ground 3 (*see* Pet. 2), but is cited by Petitioner only for teaching the additional limitations recited in dependent

“retail area,” “acquiring, by a reading device, a sequence of label identifiers,” and “transmitting, by the reading device, the sequence of label identifiers to the computer system”), 83–87 (citing Fujiwara (Ground 4) for allegedly disclosing “retail area,” “acquiring, by a reading device, a sequence of label identifiers,” and “transmitting, by the reading device, the sequence of label identifiers to the computer system”).

Our discussion of issues under 35 U.S.C. 325(d) extensively addresses the subject matter disclosed in Wu. And, we have fully considered all of Petitioner’s reasoning and evidence concerning the limitations of the challenged claims and motivation to combine.

As Patent Owner argues only that Petitioner fails to show Wu discloses limitations 1[i] and 1[o] and the corresponding limitations in challenged independent claims 10 and 11 (*see* Prelim. Resp. 35–38), we turn our attention to those arguments. Limitation 1[i] is “a location of the adjacent shelf label is preliminarily known in the planogram” and limitation 1[o] is “the obtained location is a location in the planogram which is adjacent to the preliminarily known location of the adjacent shelf label.” Pet. v–vi. As noted above, Petitioner contends that “Petitioner asserts—without explanation or evidence—that Wu’s ‘label content table 122[] ... is the claimed planogram’” (*id.* at 36) and “the Petition does not offer any evidence linking th[e] ‘label location information’ data [in “Wu’s label content table 122] to actual *product* locations as recorded or represented *in a*

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claims 7–9 and 17–19. *See* Pet. 72–78. Patent Owner does not dispute the showing in the Petitioner as to the additional limitations of dependent claims 7–9 and 17–19. *See generally* Prelim. Resp.

*planogram*” (*id.* at 37). We determine that these contentions lack merit and Petitioner has sufficiently shown that Wu discloses these limitations.

Contrary to Patent Owner’s contention, the Petition does include reasoning and evidence that Wu’s label content table 122 is a planogram as claimed. Limitation 1[b] of the ’709 patent recites “the planogram comprises association data between articles of the retail area and locations of the retail area.” Ex. 1001, 10:13–15; *see also id.* at 2:6–7 (“A planogram is a set of association data among articles of a retail area and locations of said retail area.”). With regard to limitation 1[b], the Petition states:

Wu discloses that the label content table 122 (the **planogram**) “records a relationship between a first label location information and a first label displaying information of a first electronic shelf label.” Ex. 1003, [1:64–67]. FIG. 5C of Wu depicts such a planogram associating products and locations. These products and locations are **of the retail area**. *See* Section III.E.2.a.(1). Thus the planogram comprises **association data between articles of the retail area and locations of the retail area**. Ex. 1009, ¶73.

122  
}

| label location information | label displaying information |
|----------------------------|------------------------------|
| S01_R1                     | product A                    |
| S01_R1.5                   | product B                    |
| S01_R2                     | product C                    |
| S02_R1                     | product D                    |
| S02_R1.5                   | product G                    |
| S02_R2                     | product E                    |
| S02_R3                     | product F                    |

Ex. 1003, FIG. 5C.

Therefore, Wu discloses [1b] or at least renders [1b] obvious. Ex. 1009, ¶74.

Pet. 13 (alteration in original). Petitioner provides a showing that Wu’s label content table 122 is a planogram that is in accordance with the claims and specification of the ’709 patent.

Patent Owner also criticizes the showing in the Petition as to the “location” elements of limitations 1[i] and 1[o] on the basis that Wu does not link the label location information in the label content table 122 “to any particular physical locations.” Prelim. Resp. 36. Patent Owner contends that the computation of relative label shelf location information as disclosed in Wu does not meet the claim “location” elements. *Id.* at 36–37. The Patent Owner argues that “Petitioner offers no explanation or evidence of how label location information—which on its face does not appear to relate to a particular physical location—can meet the claim.” *Id.* at 37.

To this argument, Petitioner responds:

P[atent] O[wner] argues that Wu’s label location information is not a “particular physical location” because it identifies a “relative” location. POPR, 36–37. But the words “particular” and “physical” don’t appear in the definition of “planogram” and are never used to modify the term “location” in the specification. (*See* Ex. 1001, *passim*.) Further, the ’709 patent presents a method to record locations in a planogram which includes “relative” location information, noting “a first coordinate can designate the shelf of a retail area, while a second can designate a section of the shelf, a third the level of the shelf, and a fourth *the order of the location on this shelf*.” ’709 Patent at 8:44–47 (emphasis added). These coordinates identify a “relative” location in exactly the same sense as the label location information in Wu’s label content table. *See* Ex. 1009, ¶¶ 51, 54, 63–64.

Finally, Wu’s label location information does satisfy P[atent] O[wner]’s imported requirements because it identifies a “particular physical location.” Wu uses both a shelf code and a location code (such as “S01\_R1”) to record label location information. *See* Ex. 1003 at 3:23–28, FIG. 5C. With “S01” identifying a shelf and “R1” being “the order of the location on this shelf,” this location information is just as “particular” as the coordinates described in the ’709 Patent. *See* ’709 Patent at 8:44–47. Moreover, using the distances between labels and

label dimensions, this information can be readily converted to a precise physical location. *See* Ex. 1009 at 273–274.

Prelim. Reply 9–10. Petitioner’s position as to the “location” elements of limitations 1[i] and 1[o] is well-taken. The claims and the specification of the ’709 patent do not support Patent Owner’s position. We determine that the showing in the Petition as to the “location” elements of limitations 1[i] and 1[o] is more than sufficient to support institution.

Patent Owner also argues that “[t]he Petition and supporting declaration are vague, full of incorrect references, and otherwise require the Board to guess at arguments made, and supposed evidence offered, throughout.” Prelim. Resp. 38. We disagree. We have not needed to guess at what arguments are made or the evidence offered in the Petition. The Petition is sufficiently clear and adequately supported by evidence to support institution.<sup>11</sup>

## X. CONCLUSION

For the foregoing reasons, we determine that trial should be instituted on claims 1–20 of the ’709 patent.

## XI. ORDER

Upon consideration of the record before us, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–20 of U.S. Patent No. 11,010,709 B2 is instituted with respect the grounds set forth in the Petition (*see* Pet. 2–3); and

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<sup>11</sup> In this regard, we again note that the showing in the Petition is supported by the Declaration of Manos M. Tentzeris, Ph.D. (Ex. 1009) while Patent Owner’s arguments in the Preliminary Response are not supported by any contrary declaration testimony.

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 11,010,709 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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Patent 11,010,709 B2

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