

**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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Case No. IPR2024-00189

Patent No. 10,674,340

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**PATENT OWNER'S PRELIMINARY RESPONSE**

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**APPENDIX 1: CLAIM LISTING**

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [1pre] | A method for communicating spatially localized information to a mobile terminal, the method being performed by a central server configured to access a planogram associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within a plane perpendicular to a floor of the predetermined area, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier, the method comprising:                                             |
| [1a]   | receiving a communication from a mobile terminal, the communication comprising a unique identifier received by the mobile terminal from a radio-frequency peripheral located in the predetermined area, the unique identifier being particular to the radio-frequency peripheral, wherein the radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, wherein the communication range is less than twenty centimeters; |
| [1b]   | determining a location of the mobile terminal within the predetermined area based on the location associated with the unique identifier of the received communication in the planogram, the location of the mobile terminal comprising the vertical and horizontal position of said location; and                                                                                                                                                                                                                                                                                                                                                |
| [1c]   | transmitting to the mobile terminal spatially localized information associated with the location of the mobile terminal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| [2]    | The method according to claim 1, further comprising: when the mobile terminal is positioned relative to the radio-frequency communication peripheral within the communication range, energy of electromagnetic waves emitted by the mobile terminal activating the radio-frequency communication peripheral, thereby setting-up a radio-frequency communication between the mobile terminal and the radio-frequency peripheral, wherein the communication                                                                                                                                                                                        |

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | range is a range of the electromagnetic waves emitted by the mobile terminal.                                                                                                                                                                                                                                                                                                                                                                             |
| [3]    | The method according to claim 1, wherein the central server receiving the communication from the mobile terminal is via the Internet.                                                                                                                                                                                                                                                                                                                     |
| [4]    | The method according to claim 1, wherein the spatially localized information is further associated with account data specific to the user of the mobile terminal previously stored in a database accessible to the central server via a communication network.                                                                                                                                                                                            |
| [5pre] | A system for communicating spatially localized information to a mobile terminal, the system comprising:                                                                                                                                                                                                                                                                                                                                                   |
| [5a]   | a central server configured to access a planogram associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within a vertical plane of the predetermined area, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier;            |
| [5b]   | a mobile terminal configured to communicate with the central server; and                                                                                                                                                                                                                                                                                                                                                                                  |
| [5c]   | a plurality of radio-frequency peripherals distributed throughout the predetermined area, wherein each radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, wherein the communication range is less than twenty centimeters, |
| [5d]   | wherein the central server is configured to:                                                                                                                                                                                                                                                                                                                                                                                                              |
| [5e]   | receive a communication from a mobile terminal, the communication comprising a unique identifier received by the mobile terminal from a radio-frequency peripheral located in the predetermined area, the unique identifier being particular to the radio-frequency peripheral;                                                                                                                                                                           |
| [5f]   | determine a location of the mobile terminal within the predetermined area based on the location associated with the                                                                                                                                                                                                                                                                                                                                       |

|        |                                                                                                                                                                                                                                                                                     |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | unique identifier of the received communication in the planogram, the location of the mobile terminal comprising the vertical and horizontal position of said location; and                                                                                                         |
| [5g]   | transmit to the mobile terminal spatially localized information associated with the location of the mobile terminal.                                                                                                                                                                |
| [6pre] | The system according to claim 5, wherein at least one radio-frequency peripheral is an electronic label which comprises:                                                                                                                                                            |
| [6a]   | a radio-frequency communication module configured to receive data representing information relating to an item from a central server;                                                                                                                                               |
| [6b]   | a memory to store said data;                                                                                                                                                                                                                                                        |
| [6c]   | a microcontroller to control the display of information relating to an item;                                                                                                                                                                                                        |
| [6d]   | a display screen to display said item-related information.                                                                                                                                                                                                                          |
| [7]    | The system according to claim 6, wherein the mobile terminal is adapted to transmit data to the electronic label via the radio-frequency communication module of said electronic label.                                                                                             |
| [8]    | The system according to claim 5, wherein the chip and the antenna are arranged at different points of the radio-frequency peripheral, and wherein the radio-frequency peripheral comprises connections configured to ensure a communications link between the antenna and the chip. |
| [9]    | The system according to claim 8, wherein the chip is connected to a microcontroller of the radio-frequency peripheral, and wherein the antenna is arranged on or within a case inside which the microcontroller is housed.                                                          |

**APPENDIX 2: PETITIONER’S ASSERTED GROUNDS**

Petitioner asserts the follow grounds:

| <b>Ground</b> | <b>Petitioner’s Asserted Art</b>        |
|---------------|-----------------------------------------|
| 1             | Claims 1–9: Fujiwara                    |
| 2             | Claims 1–9: Fujiwara, Arntzen           |
| 3             | Claims 1–5, 8–9: Bandy, Fowler          |
| 4             | Claims 1–5, 8–9: Bandy, Fowler, Arntzen |

## **I. INTRODUCTION**

Petitioner challenges the validity of claims 1–9 of U.S. Patent No. 10,674,340 (EX-1001, “’340 Patent”). Petitioner filed two petitions challenging the same nine claims, and this is Petitioner’s first-ranked Petition (IPR2024-00190 (the “190 IPR”) is second-ranked). In the Preliminary Response in the 190 IPR, Patent Owner explains in detail why two petitions are not justified. The Petition in this IPR challenges all nine claims of the ’340 Patent under the first two grounds, and seven of the nine challenged claims (including both independent claims) in two additional grounds. All four challenges in this Petition rely on Section 102(b) prior art, and Patent Owner agrees and stipulates that none of the art in this Petition is subject to a priority challenge.

As discussed in this Preliminary Response (and the Preliminary Response in the 190 IPR), despite Petitioner spreading ten obviousness grounds over two petitions to challenge just nine total claims, Petitioner has failed to show a reasonable likelihood of success for a single challenged claim in any of those grounds. In this Preliminary Response, Patent Owner explains why Petitioner has failed to meet its institution burden for any challenged claim in the four obviousness challenges in this Petition.

This Petition asserted two primary obviousness grounds: Fujiwara (Ground 1) and a combination of Bandy and Fowler (Ground 3). Both grounds suffer from a similar defect. As to both grounds, Petitioner fails to show that the asserted art discloses or renders obvious the recited “planogram” including the required horizontal and vertical positions [1pre] or the ability to determine such horizontal and vertical positions [1b]. Fujiwara (alone) and Bandy in combination with Fowler are directed to different types of systems, unconcerned with either a planogram or specific horizontal and vertical positions within a store. Indeed, Bandy and Fowler are not only different from the invention recited in the ’340 Patent, but they are fundamentally incompatible with each other. Petitioner does not—because it cannot—show that a POSITA would have been motivated to combine these very different references or what the resulting combination would be.

The other two grounds (Grounds 2 and 4) add another reference, Arntzen, but Petitioner’s reliance on Arntzen does not address the Petition’s deficiencies in Grounds 1 and 3. Accordingly, the Grounds 1 and 3 deficiencies carry through to Grounds 2 and 4. In addition, Petitioner’s analysis of Arntzen is entirely cursory, and fails to show a

POSITA would have been motivated to combine, for example, Bandy and Fowler with Arntzen.

## **II. BACKGROUND**

### **A. Overview of the Technology.**

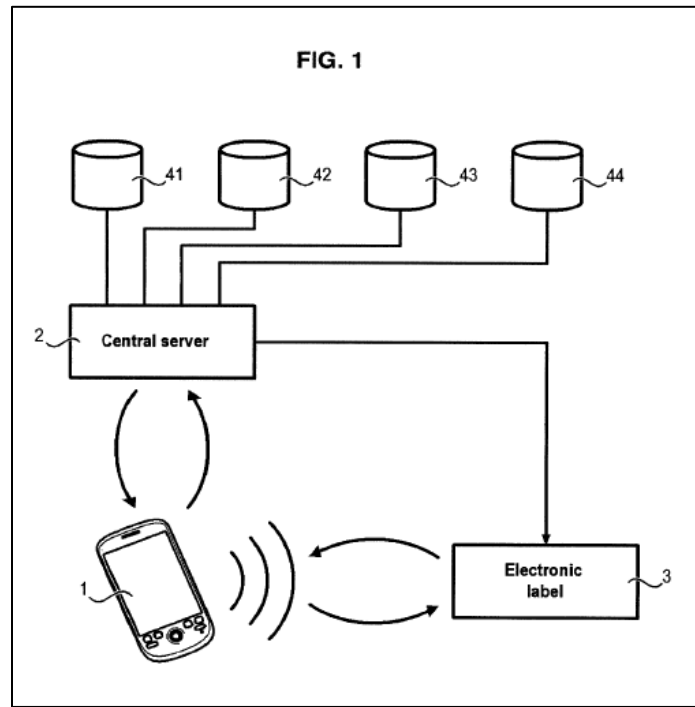
In retail stores, goods are displayed on shelves; the front of the shelves (*i.e.*, rails) may include labels displaying information about the goods (*e.g.*, price). For example, a grocery store shelf containing eggs might include a label on the shelf rail identifying the brand of eggs, the number of eggs in each carton, and the price of each carton. If the store decides to instead display cheese in this location, the existing label for eggs on the shelf rail would be replaced with a new label providing information about the cheese now in that location.

Electronic shelf labels are used in supermarkets or other retail stores to display information about an item, for instance, its sale price. EX-1001, 1:13–2:4. There are several advantages to electronic labels over their paper cousins, including allowing automated price changes. *Id.*, 1:36–42. But at the time of the invention, electronic label systems were “relatively rigid” in their display possibilities and often could only update price. *Id.*, 1:48–56.

**B. Overview of the '340 Patent.**

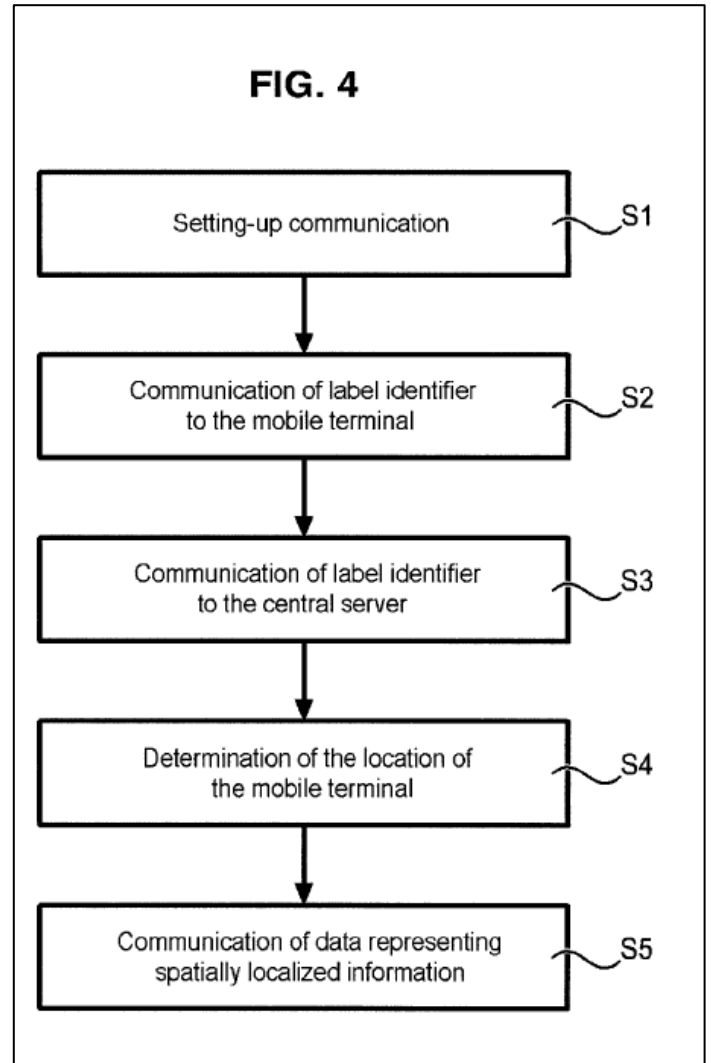
In contrast with the prior art, the invention disclosed in the '340 Patent expanded the versatility of electronic shelf labels by disclosing systems and methods allowing customers to receive spatially localized information complementing the information the consumer sees in the sales area. *Id.*, 2:8–14. Spatially localized information can include, for instance, health data associated with particular products, or medical contra-indications including the presence of allergens specified by the shopper. *Id.*, 7:9–15. Providing such information requires knowing the exact location of the shopper in reference to the particular items that the shopper is interested in. The '340 Patent describes systems and methods directed to such precise location determination—both vertical and horizontal position—and the provision of information relevant to a shopper at that precise location.

Figure 1, below, is a non-limiting example of such a system. A customer with a “mobile terminal”—*e.g.*, smartphone—can communi-



cate with a central server in a store through WIFI, 3G or otherwise. *Id.*, 3:59–4:28. Electronic shelf labels are distributed throughout the sales area, and each label has a unique label identifier. *Id.*

As shown in Fig. 4, right, the mobile terminal activates the shelf label via radio-frequency, thereby setting up communication with the label. *Id.*, 6:6–10. The label provides its unique identity to the mobile terminal, which then communicates via WIFI (or otherwise) with a server. The server is responsible for determining the precise location of the mobile terminal “using the data of a planogram associating a location with the label identifier. A planogram



lists the locations of all the electronic labels 3 and of the items on sale in the sales area.” *Id.*, 6:29–37. The “uniqueness of the label identifier and of the location associated with each electronic label 3 allows unambiguous determination of the location of the electronic label,” *id.*, 6:43–47, and therefore, the shopper. Once the “unique” location of the shopper is identified, specific relevant information can be provided to the shopper based on that unique location.

The type of RFID used is central to making this system work. Specifically, the '340 Patent discloses that the use of near-field communication with “relatively short range” is required. *Id.*, 6:53–55. A range of “less than 20 cm, more preferably less than 10 cm, and ... even 5 cm,” *id.*, is used for two reasons. First, the short range is necessary to avoid interference with other labels and to obtain highly precise location information. *Id.* Second, the short range is important for security reasons. As the '340 Patent describes it,

[A] short range requires *deliberate* action by the user of the mobile terminal 1 to set up communication between the mobile terminal 1 and the electronic label 3. The user then has no reason to fear for the protection of private life and since the system proves to be little intrusive it cannot easily be diverted from its primary vocation set forth in this description.

*Id.*, 6:59–65.<sup>1</sup>

The '340 Patent includes two independent claims: claim 1 (method) and claim 5 (system); both require the four main elements of (1) a planogram, (2) a mobile terminal, (3) “radio-frequency peripherals” configured with an antenna, near-field communication, and a

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<sup>1</sup> All emphasis added unless otherwise noted.

communication range of less than 20 cm, and (4) a server that can determine location of the mobile terminal based on the association of the unique identifier of the radio-frequency peripheral and location (horizontal and vertical position) in the planogram and transmit to the mobile terminal “spatially localized information.” *See id.*, claims 1, 5.<sup>2</sup>

Claim 1 is reproduced below with those elements emphasized:

[1pre] A method for communicating spatially localized information to a *mobile terminal*, the method being performed by *a central server configured to access a planogram associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within*

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<sup>2</sup> For the Board’s convenience, Patent Owner adopts Petitioner’s limitation numbering in this Preliminary Response. By doing so, Patent Owner does not concede that Petitioner has properly isolated key limitations, as in fact it has not, but instead, bundles limitations together to attempt to obscure the fact that the art does not teach all of the limitations of the claims.

*a plane perpendicular to a floor of the predetermined area, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier, the method comprising:*

*[1a] receiving a communication from a mobile terminal, the communication comprising a unique identifier received by the mobile terminal from a radio-frequency peripheral located in the predetermined area, the unique identifier being particular to the radio-frequency peripheral, wherein the radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, wherein the communication range is less than twenty centimeters;*

*[1b] determining a location of the mobile terminal within the predetermined area based on the location associated with the unique identifier of the received communication in the planogram, the location of the mobile terminal*

*comprising the vertical and horizontal position of said location; and*

*[1c] transmitting to the mobile terminal spatially localized information associated with the location of the mobile terminal.*

**C. Asserted Prior Art References.**

**1. Fujiwara**

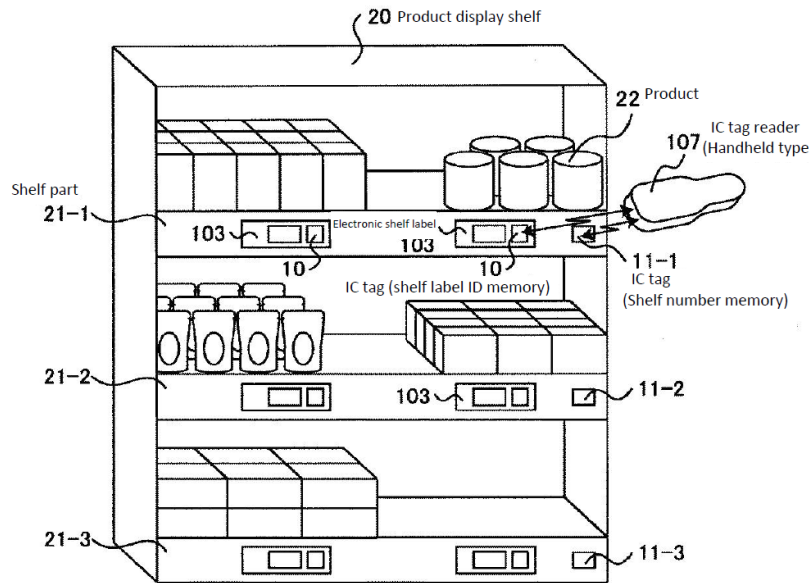
Petitioner's primary reference is Fujiwara (Japan Patent Application Publication No. 2008-77131A, EX-1004, with a purported translation at EX-1003). As an initial matter, the declaration accompanying EX-1003 is deficient. The declaration does not appear to be signed by someone with personal knowledge, and does not include the statutorily required statement under penalty of perjury. *See* 37 C.F.R. §42.2 (defining "affidavit" as "affidavit or declaration under § 1.68 of this chapter. A transcript of an ex parte deposition or a declaration under 28 U.S.C. 1746 may be used as an affidavit."); 37 C.F.R. §1.68 ("Declaration in lieu of oath" requires "the declarant is on the same document, warned that willful false statements and the like are punishable by fine or imprisonment, or both"); 28 U.S.C. §1746 (An unsworn declaration can be used for an affidavit if the statement is "subscribed by [the

author], as true under penalty of perjury....”). Indeed, the declaration expressly disclaims responsibility for errors. EX-1003, 1. This deficiency appears to be more than a mere technicality that can be remedied post-institution because the translation appears to contain errors. *See id.*, [0040] (“Hereinafter, a preferred embodiment of the collaborative system of electronic shelf label and mobile information terminal *li* and the like of the present invention will be described in detail, while referring to the drawings.”).

As represented in the purported translation, Fujiwara discusses a system using a microwave transmitting and receiving unit to read an electronic shelf label with an IC (integrated circuit) tag. *Id.*, Abstract, [0072], [0076]. Fujiwara also has a store server with an electronic shelf label database in which the server stores a sender ID and shelf label location information. *Id.* Fujiwara expressly defines its “location information” as “the shelf number of the product display shelf.” *Id.*, [0009]. Fujiwara consistently describes its server’s electronic shelf label database 301 as containing the shelf number and the electronic shelf label ID. *Id.*, [0044], [0062], [0086], [0093].

Fujiwara's microwave communication system operates up to "several tens of centimeters." *Id.*, [0072], [0082]. Figure 11 of Fujiwara, reproduced below, illustrates Fujiwara's system. *Id.*, [0090].

[FIG. 11]



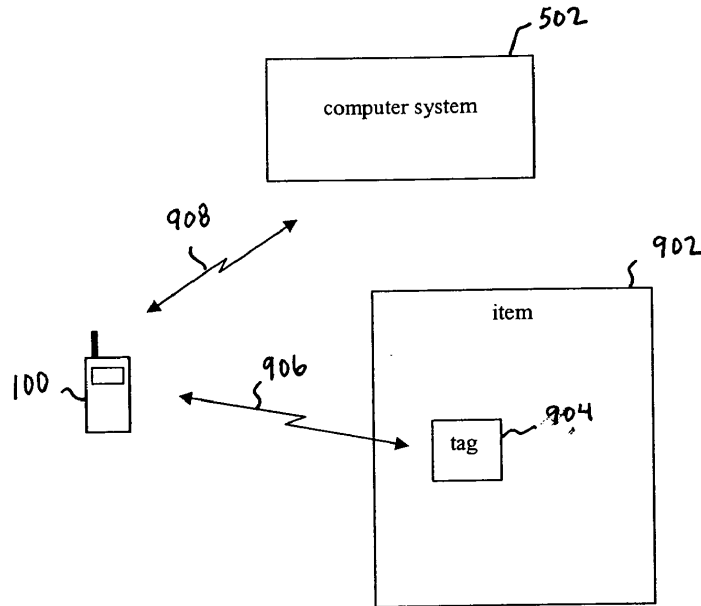
Fujiwara discloses distributing "advertising information" based on the "location information of the product" to a mobile information terminal. *Id.*, [0096]. Unlike the '340 Patent, however, Fujiwara is not concerned with the exact location (including horizontal position *and* vertical position) of the IC tag reader. Instead, Fujiwara is concerned only with the shelf number and not the horizontal position along that shelf. *Id.*, [0044], [0062], [0086], [0093], Fig. 14.

Although Petitioner relies on Fujiwara in a single-reference obviousness ground, Petitioner fails to explain or engage with the clear

differences between Fujiwara and the '340 Patent claims, as discussed in detail below in Section III.A.

## 2. Bandy

Bandy (U.S. Patent Application Publication No. 2007/024436A1, EX-1006) discloses a mobile device downloading a product database of a merchant. EX-1006, [0012], [0034]. Thus, Bandy is fundamentally different than the '340 Patent because in Bandy, the mobile device already has a downloaded product database before a user ever further interacts with any product tags. *Id.*, [0008], [0034] (“In an embodiment, the mobile communications device is used to download a product database of a merchant, such as at a time when the user nears or enters the store of the merchant.”). Bandy further discloses using the mobile device to read RFID tags associated with an “item of interest” to the user. *Id.*, [0034]. Figure 9 of Bandy, reproduced below, shows the mobile device (100) interacting with an RFID tag associated with an item. *Id.*, [0054].



Unlike in the '340 Patent, Bandy does not disclose determining the location of the mobile device at all. Instead, at most, Bandy discloses the merchant's computer system receiving a tag ID number and returning additional product information, which can be location data regarding the item in the store. *Id.*, [0056].

### 3. Fowler

Fowler (U.S. Patent Application Publication No. 2008/0231228A1, EX-1007) discloses a "media enhanced shopping cart." EX-1007, [0001]. As shown in Figures 1 and 13 of Fowler, reproduced below, Fowler's shopping cart includes RFID antennas (228) built into the shopping cart and/or into a video display attached to the shopping cart. *Id.*, [0097].

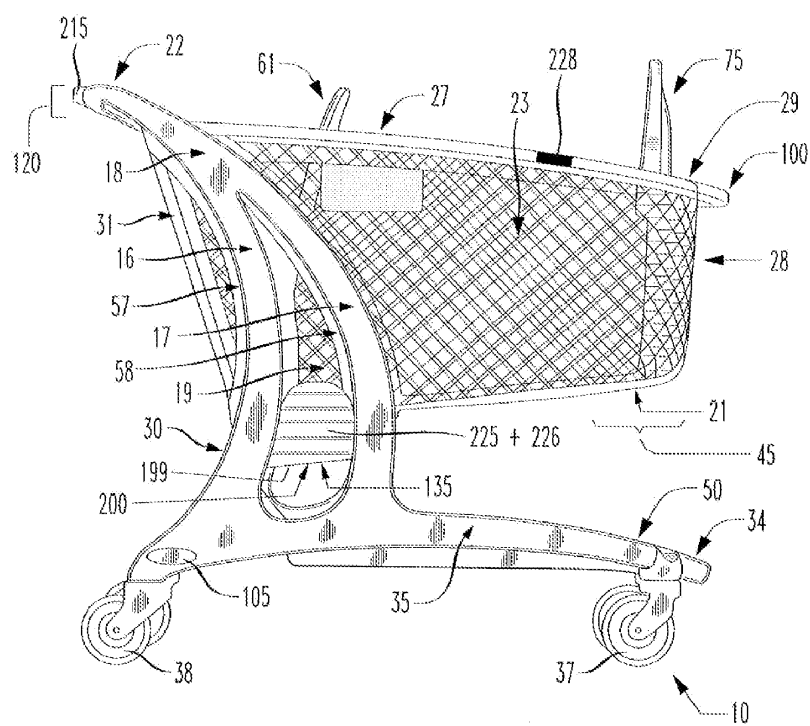
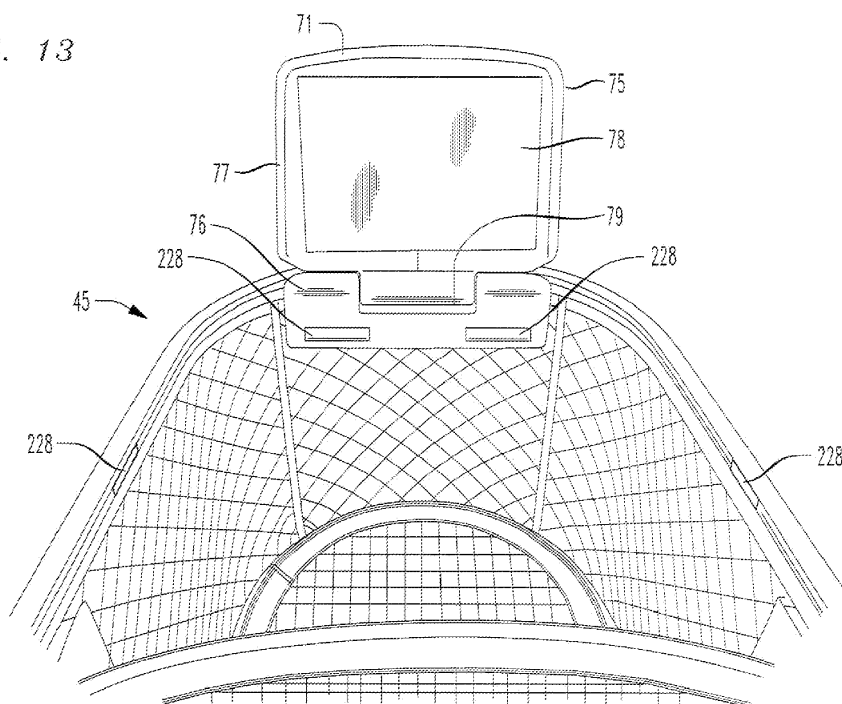


FIG. 13



Fowler further discloses an RFID reader that is located in various positions on the cart, such as “on the underside of the cart” or integrated with the video display. *Id.*, [0097].

But Fowler does not disclose the user maneuvering the shopping cart to read particular tags within a limited communication range. Instead, Fowler is designed to read the RFID tags from a distance as the user pushes the cart. *Id.*, [0136]–[0138]. In particular, RFID antennas disclosed by Fowler have a particular beam that covers an area that is six to eight feet tall, allowing the cart-based RFID reader to cover the complete height of a shelf, and eighteen inches wide. *Id.*, [0137]–[0138]. In other words, when a customer rolls the cart down an aisle, Fowler’s cart is designed to pick up RFID tags that are placed at various heights on the shelf, even though the cart remains on the ground.

#### **4. Arntzen**

Arntzen (International Patent Application Publication No. WO2010/082835A1, EX-1005) discloses a system for displaying and updating information on electronic shelf labels. EX-1007, 1:1–10, 3:22–29. Arntzen discloses communicating with electronic displays using handheld units via Near Field Communication (NFC) and/or Bluetooth. *Id.*, 12:15–21. Unlike the ’340 Patent, Arntzen does not disclose

anything related to determining the location of handheld units. Petitioner uses Arntzen for the limited purpose of supplying “NFC tag modification” and “RF modification” to Fujiwara (Petition, 54–55), and “NFC tag modification” to the combination of Bandy and Fowler (*id.*, 92).

### **III. PETITIONER HAS NOT ESTABLISHED A REASONABLE LIKELIHOOD OF SUCCESS IN SHOWING THAT ANY CLAIM IS UNPATENTABLE**

“Petitioner bears the burden on institution of demonstrating a reasonable likelihood that it will prevail in showing the unpatentability of at least one claim. ... Petitioner must file a Petition that, among other requirements, ‘identifies ... the evidence that supports the grounds for the challenge to each claim.’” *SMIC, Ams. v. Innovative Foundry Techs., LLC*, IPR2020-00837, Paper 13 at 13–14 (Oct. 9, 2020) (citing 35 U.S.C. §§314(a) and 312(a)(3)). Here, the Board should deny institution of *inter partes* review under 35 U.S.C. §314(a) because Petitioner has not met its burden to demonstrate a reasonable likelihood that it will prevail as to any challenged claim based on the information contained within the Petition.

The Petition presents only obviousness grounds. Petition, 2–3. A claim is invalid under 35 U.S.C. §103(a) as obvious only 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 the POSITA. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). An obviousness determination must be based on four factual inquiries: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the art; and (4) objective indications of non-obviousness. *Id.* (citing *Graham v. John Deere Co. Kan. City*, 383 U.S. 1, 17–18 (1966)). A party alleging obviousness is “required to place themselves in the minds of those of ordinary skill in the relevant art *at the time the invention was made*, to determine whether that which is now plainly at hand would have been obvious at such earlier time.” *Millennium Pharms., Inc. v. Sandoz Inc.*, 862 F.3d 1356, 1367 (Fed. Cir. 2017). When a limitation is missing from the asserted prior-art references, this gap cannot be filled simply by blanket assertions of common sense and “this is particularly true where the missing limitation goes to the heart of an invention.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362–63 (Fed. Cir. 2016). Petitioner has not met this burden for any challenged claim under any ground of unpatentability (Grounds 1–4) as discussed in detail in Sections III.A–III.B, below.

**A. Grounds 1–2: Petitioner does not show Fujiwara alone or in combination with Arntzen renders any challenged claim obvious**

**1. Petitioner fails to make any showing Fujiwara discloses or renders obvious the recited “planogram,” as required by all challenged claims.**

Limitation [1pre] recites, in relevant part, “a central server configured to access *a planogram* associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within a plane perpendicular to a floor of the predetermined area, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier,” and limitation [1b] recites “determining a location of the mobile terminal within the predetermined area based on the location associated with the unique identifier of the received communication in the *planogram*, the location of the mobile terminal comprising the vertical and horizontal position of said location.”

Petitioner asserts Fujiwara’s electronic shelf database teaches the recited “planogram” (Petition, 18, 20), but provides no supporting explanation or evidence. Although unclear, it appears Petitioner is either ascribing no meaning at all to “planogram” or perhaps arguing that any

organization of data is a “planogram.” But without explanation or support this is insufficient to show a reasonable likelihood of success. Fujiwara does not use the term “planogram” (*see* EX-1003), and so Petitioner had an obligation to explain why Fujiwara’s electronic shelf database teaches a “planogram.” At a minimum, Petitioner should have addressed the usage of “planogram” in one of its own asserted references. EX-1007, [0221] (“The aisle RFID reader 225 and antennas 226 may assist the store management with store planograms and inventory. *A planogram* is a diagram of fixtures and products that illustrates how and where retail products should be displayed, usually on a store shelf, bin or counter in order to influence consumer selection.”).

Petitioner wholly failed to do so. The Petition’s discussion of the recited “planogram” in Grounds 1–2 asserts only that Fujiwara’s electronic shelf label database teaches it—without explanation. *See* Petition, 20, 31. Petitioner’s expert’s declaration adds no analysis. *See* EX-1009, ¶¶73, 77, 99. Instead, Petitioner and its expert leave Patent Owner and the Board to guess as to Petitioner’s reasoning; this is insufficient for institution.

The Petition also refers to a “planogram maintenance embodiment” in Fujiwara. Petition, 29 (citing EX-1003, [0090]–[0095]); EX-

1009, ¶94 (citing same). But Fujiwara does not call this disclosure a “planogram maintenance embodiment”—Fujiwara never uses the term “planogram” at all. *See* EX-1003. Instead, the cited portion of Fujiwara (*id.*, [0090]–[0095]) discusses Figures 11 and 12, but as can be seen in Figure 12, the store server’s (which Petitioner maps as the recited “central server”) only action in this embodiment is storing a received “shelf number 313 and shelf label ID 311 in the electronic shelf label database 301.” *Id.*, Fig. 12, step S1207, [00093]. Accordingly, Figure 12’s corresponding disclosure discusses how a person in charge of a store can update Fujiwara’s electronic shelf label database but says nothing about that database teaching a “planogram.” *See id.*, [0091].

Independent claim 5 recites similar limitations in [5a], [5d], and [5f], and for those limitations, Petitioner offers no further analysis, relying only on its contentions for limitations of claim 1. *See* Petition, 42–44. Each of the remaining challenged claims depend from either claims 1 or 5. In addition, Petitioner relies on Arntzen in Ground 2 to address only RF (radio frequency) and NFC (near field communication), and that analysis does not address Petitioner’s failure to demonstrate—or provide meaningful analysis regarding—a “planogram.” *Id.*, 54–56.

Because Petitioner has not sufficiently shown Fujiwara teaches or renders obvious the recited “planogram,” Petitioner has not shown a reasonable likelihood of success in prevailing as to any claim challenged in Grounds 1–2.

**2. Petitioner fails to make any showing Fujiwara discloses or renders obvious the recited “horizontal position,” as required by all challenged claims.**

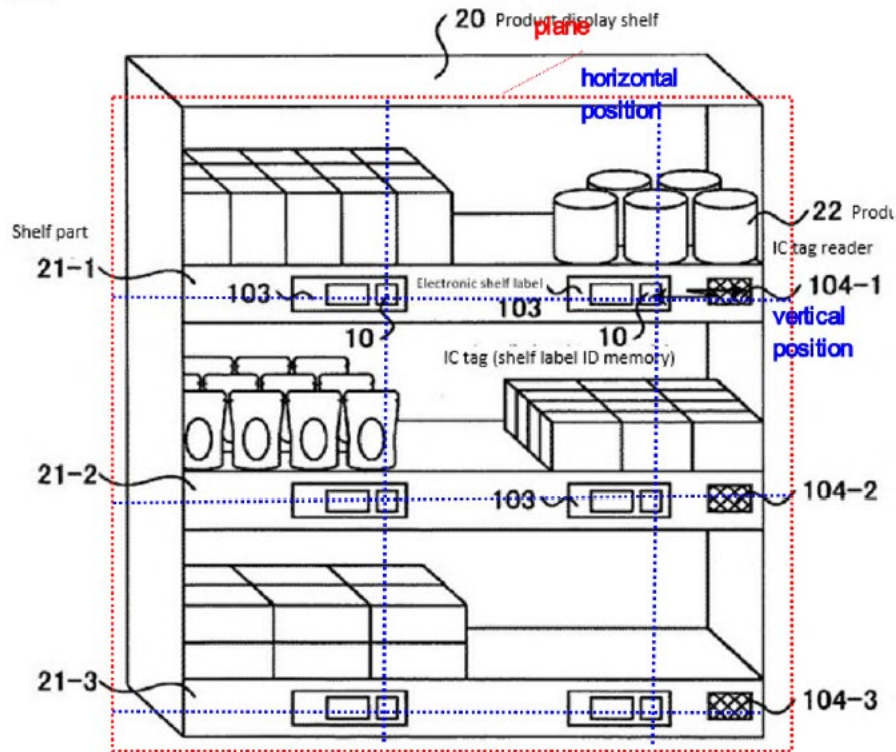
Limitation [1pre] recites, in relevant part, “a central server configured to access a planogram *associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within a plane perpendicular to a floor of the predetermined area*, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier,” and limitation [1b] recites “determining a location of the mobile terminal within the predetermined area based on the location associated with the unique identifier of the received communication in the planogram, *the location of the mobile terminal comprising the vertical and horizontal position of said location.*”

Even assuming Fujiwara’s electronic shelf label database teaches a “planogram” (which Petitioner has not shown as discussed above),

Petitioner has not shown either that Fujiwara’s electronic shelf label database associates a unique identifier with a horizontal position (as required by [1pre]) or that Fujiwara’s store server (which Petitioner maps as the recited “central server”) determines a horizontal position (as required by [1b]). Petitioner’s contentions otherwise are based on mischaracterizations of Fujiwara’s disclosure as discussed below.

First, for [1pre], Petitioner maps the recited “vertical position” to Fujiwara’s shelf number 313, and the recited “horizontal position” to “the horizontal position of the electronic shelf label along the horizontal shelf part 21, as shown in FIG. 4.” Petition, 21. Petitioner then reproduces Figure 4 with annotations in color added by Petitioner (below) including the identified “horizontal position.” *Id.*, 22.

[FIG. 4]



That Petitioner can identify a horizontal position of each IC tag 10 in Figure 4 is not sufficient to satisfy the requirements of claim 1. *See Advanced Lighting Concepts v. Mate, LLC*, IPR2023-01258, Paper 9 at 16 (Feb. 13, 2024) (explaining that petitioner failed to demonstrate a reasonable likelihood that the prior art disclosed a limitation because petitioner relied on part of the specification and figures that did not mention the limitation). Instead, Petitioner needed to show that Fujiwara *associates* the unique identifier for each IC tag 10 with its horizontal location in the electronic shelf label database (which Petitioner maps as the “planogram” for [1pre]) so that Fujiwara’s store server can

determine the horizontal position from that database when it later receives the unique identifier of that IC tag from the mobile terminal. But Petitioner makes no such showing. Importantly, Fujiwara expressly defines its “location information” as “the shelf number of the product display shelf” (EX-1003, [0009]), which Petitioner maps only as the vertical—and not the horizontal—position (Petition, 21).

Petitioner provides no additional clarity in its discussion of [1b], again apparently mapping only the vertical position (i.e., Fujiwara’s shelf number). *Id.*, 32. In other words, Petitioner has pointed to no teaching in Fujiwara showing its electronic shelf database includes a horizontal position or that its store server determines a horizontal position from a received unique identifier of IC tag 10.

Petitioner’s alternative theories are also unclear and unsupported. For example, Petitioner appears to conflate the recited “vertical position” and “horizontal position” by arguing the whole shelf can be the horizontal position. *See* Petition, 32–34 and annotated Figure 11. But this would render the “horizontal position” limitations of the challenged claims meaningless. *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 951 (Fed. Cir. 2006) (rejecting claim construction that would have made limitation “meaningless”); *Exxon Chem. Pats., Inc. v. Lubrizol Corp.*,

64 F.3d 1553, 1557 (Fed. Cir. 1995) (“We must give meaning to all the words in [patent] claims.”).

Petitioner further speculates that “a POSITA, familiar with the typical layout of a retail store, would find it obvious that multiple product display shelves 20 can be placed side by side within an aisle, and thus the horizontal position of a product display shelf 20 within the aisle is the claimed horizontal position.” Petition, 22 (citing EX-1009, ¶76). Petitioner, however, provides no support for this assertion, other than conclusory and unsupported expert testimony. The only additional analysis Dr. Tentzeris adds to parroting the Petition’s conclusory statements is that “Fujiwara discloses a plurality of product display shelves in Ex. 1003, [0097].” EX-1009, ¶76. But this provides no support at all because that paragraph discusses dividing the entire sales floor into zones that each have multiple product display shelves. *See* EX-1003, [0097]; *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15–16 (Aug. 24, 2022) (precedential) (affording expert opinion little to no weight or probative value when it replicates the flawed analysis of the petition verbatim and fails to “cite to any additional supporting evidence or provide any technical reasoning to support” the opinion); *TQ Delta LLC v. Cisco Sys., Inc.*, 942 F.3d 1352, 1362 (Fed. Cir. 2019) (rejecting “*ipse*

*dixit* declaration” that was “[u]ntethered to any supporting evidence, much less any con-temporaneous evidence”); *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012) (rejecting “a conclusory statement” regarding what “a person of ordinary skill in the art would have known” as “not sufficient and is fraught with hindsight bias.”).

Petitioner also does not attempt to square its conclusory obviousness assertion (because it cannot) with the portion of [1 pre] that requires “each of the plurality of locations being associated one-to-one with a corresponding unique identifier.” Petitioner maps as the recited “unique identifier” Fujiwara’s shelf label ID 311 which is “identification information of the electronic shelf label 103.” Petitioner’s obviousness theory would not have the recited “one-to-one” correspondence because in Fujiwara’s Figure 4, the ID for each electronic shelf label on shelf part 21-1 would have the same location (two-to-one correspondence rather than the recited one-to-one correspondence). Further, Petitioner provides no rationale for limiting each shelf in Fujiwara’s product shelf display 20 of Figure 4 to only a single electronic shelf label and thus only a single product (which would be required to maintain the recited “one-to-one” correspondence).

In sum, Petitioner never shows Fujiwara teaches or renders obvious the “horizontal position” recited in [1pre] or [1b]. Independent claim 5 recites similar limitations in [5a], [5d], and [5f], and for those limitations, Petitioner offers no further analysis, relying only on its contentions for limitations of claim 1. *See* Petition, 42–44. Each of the remaining challenged claims depend from either claim 1 or 5. In addition, Petitioner relies on Arntzen in Ground 2 to address only RF and NFC, and that analysis does not address this deficiency. *Id.*, 54–56.

Because Petitioner has not sufficiently shown Fujiwara teaches the recited “horizontal position,” Petitioner has not shown a reasonable likelihood of success in prevailing as to any claim challenged in Grounds 1–2.

**B. Grounds 3–4: Petitioner does not show the Bandy-Fowler combination or those References in further combination with Arntzen renders any challenged claim obvious**

**1. Petitioner fails to make any showing either Bandy or Fowler discloses or renders obvious a “planogram” as recited in all challenged claims.**

Limitation [1pre] recites, in relevant part, “a central server configured to access *a planogram* associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined

by a vertical and horizontal position within a plane perpendicular to a floor of the predetermined area, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier,” and limitation [1b] recites “determining a location of the mobile terminal within the predetermined area based on the location associated with the unique identifier of the received communication in the *planogram*, the location of the mobile terminal comprising the vertical and horizontal position of said location.” Petitioner has not shown that either Bandy or Fowler discloses or renders obvious the recited “planogram.”

As with Grounds 1-2, Petitioner does not meaningfully engage with this limitation. As to Bandy, the whole of Petitioner’s analysis is below:

Bandy discloses that computer system 502 associates the identification number with item 904 and is able to obtain further data related to item 904 after having received the identification number, due to this association. Ex. 1006, [0056]. Bandy discloses that the item data may comprise location data regarding the item in store 500 (predetermined area). Ex. 1006, [0057]. This association is thus the claimed planogram.

Petition, 63.

Petitioner provides no explanation in support, and Petitioner's expert merely parrots the Petition's conclusory analysis (EX-1003 ¶178). *Xerox*, IPR2022-00624, Paper 9 at 15–16; *TQ Delta*, 942 F.3d at 1362; *ActiveVideo Networks*, 694 F.3d at 1327.

Petitioner asserts that “Fowler discloses a **planogram** that involves the **location** of products within the store.” Petition, 65 (emphasis in original) (citing EX-1007, [0221]). But Petitioner does not explain how Fowler's use of that term—“a diagram of fixtures and products that illustrates how and where retail products should be displayed, usually on a store shelf, bin or counter in order to influence consumer selection,” EX-1007, [0221]—is consistent with what Petitioner claims to be the customary meaning of that term. Moreover, mentioning a “planogram” generally is insufficient to show Fowler teaches the *recited* “planogram.” Nor does Petitioner explain how Fowler discloses (because it does not) using the planogram to determine the location of any mobile terminal, or even Fowler's shopping cart. Instead, Fowler specifically discusses using the shopping cart to “enabl[e] retailers to locate products throughout the store to manage, update, and design the store planogram in an efficient and consistent manner.” *Id.*, [0222].

Petitioner also asserts that Fowler’s “base store map” teaches the recited “planogram.” Petition, 66 (“a base map of the store (the planogram)”), 68 (“Fowler expressly discloses that a series of virtual **locations** are created and positioned within the defined framework of the store, i.e., the base store map (**planogram**)” (emphasis in original)). Petitioner provides no explanation why Fowler would use the term “base store map” instead of “planogram,” when Fowler uses “planogram” elsewhere in the specification. Nor does Petitioner explain whether Fowler’s uses of these terms are different or whether either are consistent with what Petitioner claims to be the plain and ordinary meaning.

Ignoring Bandy’s lack of disclosure of a planogram, and Fowler’s lack of disclosure of using a planogram as required by [1pre] and [1b], Petitioner asserts a “POSITA would also look at the disclosures of Fowler to supplement the planogram of Bandy, as this involves no more than the combination of familiar elements in a known way.” *Id.*, 65. In other words, Petitioner seeks to fill the gap in Bandy (where no planogram is disclosed) with the planogram disclosed in Fowler for an entirely different purpose. Not only is this illogical, it is unsupported,

relying again on the conclusory opinion of Dr. Tentzeris. *Id.* (citing EX-1009, ¶184).

Independent claim 5 recites similar limitations in [5a], [5d], and [5f], and for those limitations, Petitioner offers no further analysis, relying only on its contentions for limitations of claim 1. *See id.*, 82-83. Each of the remaining challenged claims depend from either claims 1 or 5. In addition, Petitioner relies on Arntzen in Ground 4 only to address NFC, and that analysis does not address the deficiency regarding “planogram.” *Id.*, 91-92.

Because Petitioner has not sufficiently shown the Bandy-Fowler combination teaches the recited “planogram,” Petitioner has not shown a reasonable likelihood of success in prevailing as to any claim challenged in Grounds 3–4.

**2. Petitioner fails to make any showing either Bandy or Fowler discloses or renders obvious a “vertical and horizontal position” as recited in all challenged claims.**

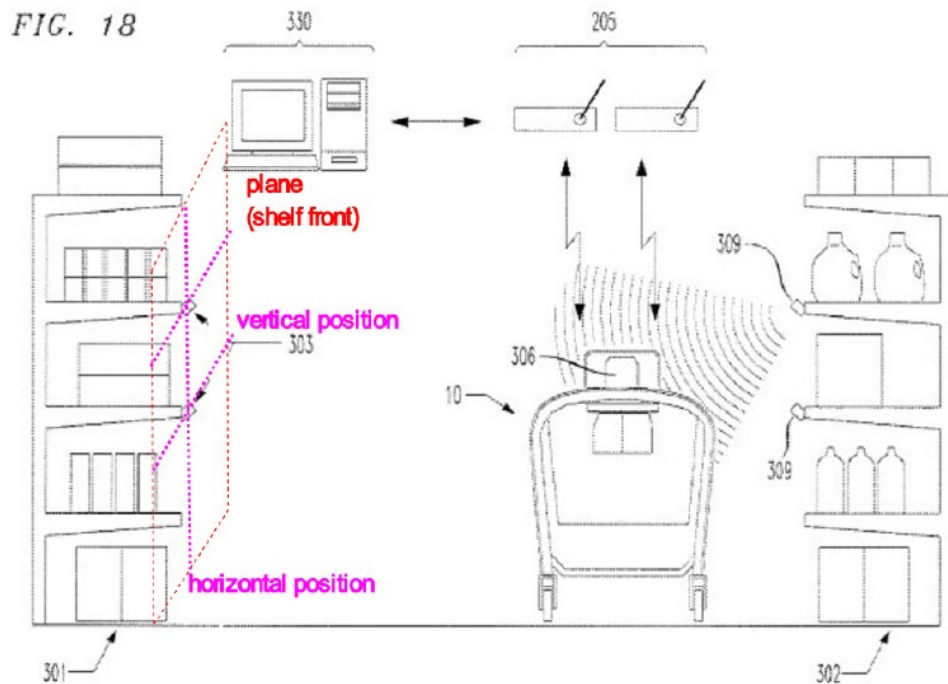
Limitation [1pre] recites “a central server configured to access a planogram *associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within a plane perpendicular to a floor of the*

*predetermined area*, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier,” and limitation [1b] recites “determining a location of the mobile terminal within the predetermined area based on the location associated with the unique identifier of the received communication in the planogram, *the location of the mobile terminal comprising the vertical and horizontal position of said location.*”

Even assuming the Bandy-Fowler combination teaches a “planogram” (which Petitioner has not shown as discussed above), Petitioner has not shown the combination teaches the recited horizontal and vertical positions. Petitioner argues, as to Fowler: “A POSITA would understand that a location of a product on a shelf or bin necessarily comprises a vertical and horizontal position within a plane (the shelf front plane) perpendicular to a floor of the predetermined area of the store.” Petition, 65 (citing EX-1009, ¶185).

Petitioner’s entire argument that the combination of Bandy and Fowler discloses the recited positions is based on Figure 18 of Fowler (Petitioner’s annotated version reproduced below), and paragraph [0137] of Fowler. Petition, 65–66 (“Fowler further discloses ‘RFID tags

EX-1007, [0137]).



Petitioner's assertion has at least two significant flaws. First, as with Grounds 1–2, Petitioner does not meet its institution burden by merely being able to annotate a figure showing vertical and horizontal positions on shelves in a reference. Petitioner must explain why those positions meet the claim limitations, something Petitioner has not done for Fowler.

Second, as to [1b], in the portion of Fowler cited by Petitioner, Fowler describes the purpose of having RFID tags at different heights as allowing better coverage of the cart-based RFID antennas. EX-1007,

[0137]. The paragraph cited by Petitioner discusses “maximiz[ing] the effectiveness of the reader distribution pattern” and that “the RFID reader/antenna are positioned at approximately the middle of the shelf height, thereby allowing an about equidistant scan pattern above and below the position of the RFID reader/antenna to cover the complete height of the shelf.” *Id.* Petitioner maps Fowler’s cart as the recited “mobile terminal” (*see* Petition, 72), and a cart, as it moves through a store, remains at a consistent vertical position. Thus, it makes no sense in Fowler to determine the vertical position of the cart, as required in [1b]. Dr. Tenzeris’ declaration on this point is also conclusory. Petition, 66–67 (citing EX-1009, ¶186), 74–75 (citing EX-1009, ¶203).

Independent claim 5 recites similar limitations in [5a], [5d], and [5f], and for those limitations, Petitioner offers no further analysis, relying only on its contentions for limitations of claim 1. *See* Petition, 82–83. Each of the remaining challenged claims depend from either claims 1 or 5. In addition, Petitioner relies on Arntzen in Ground 4 only to address NFC, and that analysis does not address the deficiency regarding position. *Id.*, 91–92.

Because Petitioner has not sufficiently shown the Bandy-Fowler combination teaches the recited “vertical position” and “horizontal

position,” Petitioner has not shown a reasonable likelihood of success in prevailing as to any claim challenged in Grounds 3-4.

**3. Petitioner fails to show a POSITA would have been motivated to combine Bandy with Fowler.**

Petitioner asserts that a POSITA would have been motivated to use the purported teachings of Fowler regarding location data with the Bandy’s reader-based system. Petition, 87–88. But these systems are fundamentally incompatible, preventing a POSITA from being motivated to combine them. *See Tri-Arc LLC v. Safe Rack LLC*, IPR2020-01566, Paper 12 at 33 (Mar. 25, 2021) (finding it would not be obvious to combine “incompatible” “heavy” and “lightweight” systems).

Bandy discloses “RFID [radio-frequency identification] tag and reader technology.” EX-1006, [0004], [0005], [0013]. Bandy describes the user utilizing a mobile communications device to interact with items, such as by interrogating a tag associated with an item of interest. *Id.*, [0034]. In particular, Bandy describes using a mobile communications device such as a cell phone, laptop computer, or handheld computing device to “enhance[] access to items for a user.” *Id.*, [0036]. The purpose of Bandy is for the user to request, and the system to provide, information about a particular item that has been scanned. *Id.*, [0023]–[0024], [0049]–[0057], Figs. 7–8. Thus, Bandy discloses using RFID

technology in a reader operated by the user to gain information about specifically-scanned products, but fails to disclose anything related to the location of the reader.

Fowler, on the other hand, uses RFID technology in an entirely different way that is incompatible with Bandy's user-operated reader. In Fowler there is no reader operated by the user. Instead, Fowler discloses a shopping cart that comprises a number of RFID antennas. EX-1007, [0136]. The reader itself may be kept in the housing of the shopping cart, integrated with a video display fixed to the cart, or even located underneath the cart. *Id.* According to Fowler, the antennas may have a beam "approximately (18) inches wide and approximately six (6) to eight (8) feet high...." *Id.*, [0138]. The specific apertures and radiation patterns are shown in Figures 20A through 20D, reproduced below. *Id.*, [0031]–[0034], [0138].

FIG. 20A

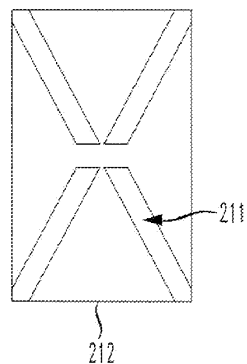


FIG. 20B

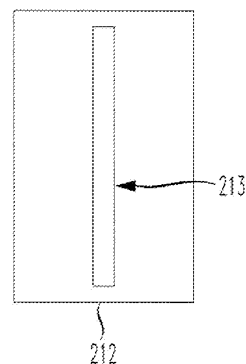


FIG. 20C

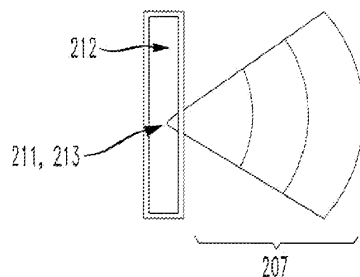


FIG. 20D

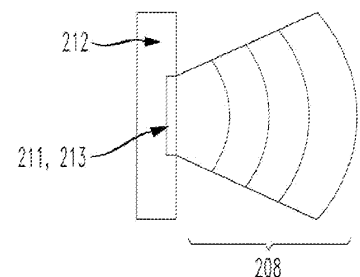


Figure 15 of Fowler, reproduced below, shows an overhead view of the disclosed cart and the associated RFID tags.

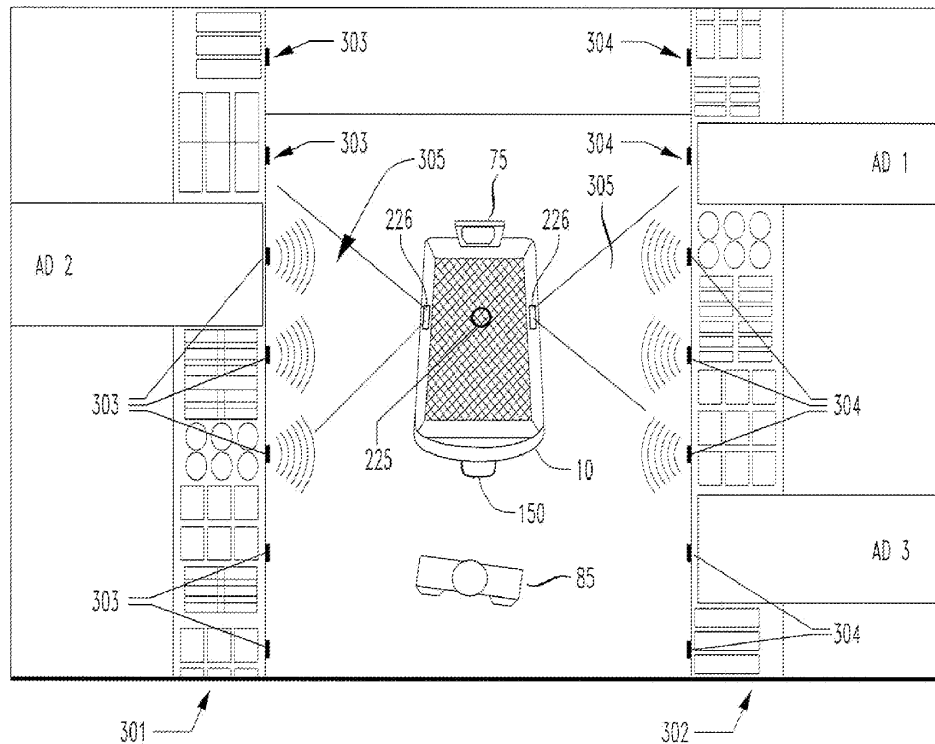


FIG. 15

In this figure, items 303 and 304 represent the RFID tags distributed throughout the store. *Id.*, [0141]. Items 226, on the sides of the cart, represent RFID antennas. *Id.*, [0136]. The purpose of Fowler's system is to determine the location of the shopping cart based on the interaction of the RFID antennas and the RFID tags. *Id.*, [0004]. Thus, Bandy discloses using RFID technology in a way that is invisible to the user, to locate the cart within the store.

Petitioner fails to provide any explanation for why a POSITA would be motivated to take the user-driven, location-agnostic system of Bandy and combine it with the user-passive, location-based system of

Fowler. According to Petitioner, the combination would “make it easier for the customer to find products.” Petition, 88. But Bandy discloses a system where the customer has already found the product and scanned it with the reader. EX-1006, [0034] (“[T]he user can utilize the mobile communications device to interrogate a tag associated with an item of interest to identify the item, and to use the identification information to download further information about the item.”), Fig. 8. And Petitioner does not explain how this would enhance Fowler in any way. This is, therefore, no additional benefit at all.

Further, Petitioner fails to explain how the teachings of the two references would be combined. Would the user have to steer the cart disclosed by Fowler towards specific products to get information on those products in the combination? If so, this seems like a worse solution than simply holding a handheld reader up to a product. If on the other hand, Petitioner is proposing putting the location system of Fowler into a handheld device, Petitioner provides no explanation of how that would be accomplished, given Fowler’s extensive and explicit use of multiple of specially-designed antennas with a particular beam shape and size in order to properly scan RFID tags without user involvement. *See, e.g.*, EX-1007, [0138].

Petitioner further fails to show how the purported Bandy-Fowler combination meets the limitations of the claims. Instead, Petitioner asserts that various portions of limitations are met by Bandy and/or Fowler alone. For example, for [1a], Petitioner first asserts that Bandy meets a portion of the limitation. Petition, 70–72. Petitioner then asserts that Fowler meets some other portion of the limitation. *Id.*, 72–73. Then Petitioner takes an improper logical leap by concluding “Bandy-Fowler discloses each and every limitation of [1a]....” *Id.*, 73. But Petitioner has never described what “Bandy-Fowler” is.

Beyond the general incompatibility of Bandy and Fowler, Petitioner fails to sufficiently support its statement that “a POSITA would have been motivated and able to use the command and background knowledge of NFC standards such as ISO 14443, as well as Fowler’s passive RFID tags, to implement Bandy’s RFID tags.” Petition, 90. As described above, Bandy and Fowler have different purposes and use RFID tags in very different ways. *TCL Indus. Holdings Co. v. Koninklijke Philips N.V.*, IPR2021-00496, Paper 13 at 5–6 (May 10, 2022) (finding the Petitioner failed adequately show why a POSITA would have applied teaching of one reference to another reference that had “a different context and purpose”). Fowler, in particular, uses RFID tags,

along with specially designed RFID antennas, as “locationing” system. EX-1007, [0004], [0138]. Petitioner provides no explanation for why or how a POSITA would use ISO 14443 compliant tags in the custom system disclosed in Fowler.

Further, Petitioner provides no support for the assertion that a POSITA would be motivated to use passive RFID tags in place of the active RFID tags purportedly disclosed by Bandy. Petition, 90. Notably, Fowler discloses use of both active and passive RFID tags. EX-1007, [0139]. Neither Petitioner nor Dr. Tentzeris provides any basis for the purported advantages of passive RFID tags, such as “saved cost and easier maintenance.” Petition, 90 (citing EX-1009, ¶244). By referencing the passive RFID tags in discussing the “less than twenty centimeters” limitation, Petitioner implies that passive RFID tags have a more limited communication range than active RFID tags. But Petitioner never explains why such a limited range would be a benefit for either Bandy or Fowler.

In fact, Fowler teaches away from a modification that would reduce the communication range to less than twenty centimeters. *See Chamberlain Grp., LLC v. Overhead Door Corp.*, IPR2022-00842, Paper 9 at 21 (Oct. 25, 2022). Fowler discloses specifically-designed

antennas that have “a beam approximately eighteen (18) inches wide and approximately six (6) to eight (8) feet high....” EX-1007, [0138]. This would allow the RFID antennas, built into the shopping cart, to detect RFID tags farther away than twenty centimeters. Reducing the communication range to less than twenty centimeters would reduce the “effectiveness of the reader distribution pattern,” including by preventing the reader from “cover[ing] the complete height of the shelf,” both of which are counter to the stated goals of Fowler. *Id.*, [0137].

Therefore, because Petitioner fails show a POSITA would be motivated to combine Bandy and Fowler, or what such a combination would entail, Petitioner does not have a reasonable likelihood of success of showing any claim is unpatentable for Ground 3. Because Ground 4 also requires this combination (with the additional Arntzen reference) (Petition, 91), Petitioner also does not have a reasonable likelihood of success of showing any claim is unpatentable for Ground 4.

**4. Petitioner fails to show a POSITA would have been motivated to combine Bandy and Fowler with Arntzen.**

According to Petitioner, for Ground 4, “Arntzen supplies the NFC tag modification.” Petition, 92. In other words, Ground 4 is essentially identical to Ground 3, except that where Ground 3 relies on the

knowledge of a POSITA (and various NFC standards that Petitioner did not file as exhibits) to modify the purported Bandy-Fowler combination to implement NFC, Ground 4 relies on an explicit combination of Bandy, Fowler, and Arntzen to make that modification. And similar to Ground 3's failure to show why a POSITA would have been motivated to make such a modification, Petitioner fails in Ground 4 to show why a POSITA would have been motivated to combine Bandy, Fowler, and Arntzen.

Petitioner fails to provide any analysis for why a POSITA would have modified Bandy-Fowler to implement Arntzen's NFC technology. Instead, Petitioner relies entirely on its previous discussion, in Ground 2 (Fujiwara in combination with Arntzen). Petition, 92 (citing Petition, Sections III.F and III.G). But the argument regarding motivation to combine an entirely different primary reference (Fujiwara) cannot support Petitioner's argument regarding combining Bandy-Fowler with Arntzen.

Therefore, because Petitioner fails show a POSITA would have been motivated to combine Bandy, Fowler, and Arntzen, Petitioner does not have a reasonable likelihood of success of showing any claim is unpatentable for Ground 4.

**IV. THERE IS NO GOOD CAUSE FOR A PRE-INSTITUTION REPLY**

In view of the deficiencies in the Petition discussed above, Petitioner might seek to file a pre-institution reply. But there would be no good cause for a pre-institution reply. All of Patent Owner’s arguments above address the merits of the Petition, and Petitioner could have—and should have—addressed these issues in the Petition itself. Petitioner would have no good cause to bolster the merits of its Petition in a pre-institution reply. *See, e.g., Ontel Prods. Corp. v. Guy A. Shaked Invs. Ltd.*, IPR2020-01703, Paper 10 at 2 (Feb. 4, 2021) (denying reply for “subjects that Petitioner should have developed in its Petition”).

**V. CONCLUSION**

For the reasons set forth above, Petitioner cannot meet its burden of establishing that at least one claim is unpatentable as obvious over the cited art, and the Board should exercise its discretion to deny institution. Patent Owner respectfully requests that the Board deny institution of this Petition for all challenged claims of the ’340 Patent.

February 28, 2024

Respectfully submitted,

By: /Jessica C. Kaiser/

Jessica C. Kaiser

Reg. No. 58,937

Lead Counsel for Patent Owner

**CERTIFICATE OF COMPLIANCE**

Pursuant to 37 C.F.R. § 42.24(d), I, Jessica C. Kaiser, certify that  
PATENT OWNER'S PRELIMINARY RESPONSE contains 8,418 words,  
excluding those portions identified in 37 C.F.R. § 42.24(a), as measured by the  
word-processing system used to prepare this paper.

February 28, 2024

Respectfully submitted,

By: /Jessica C. Kaiser/

Jessica C. Kaiser

Reg. No. 58,937

Lead Counsel for Patent Owner

**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. § 42.6(e), I certify that on February 28, 2024, a copy of **PATENT OWNER'S PRELIMINARY RESPONSE** was served upon the below-listed counsel by electronic mail:

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Dated: February 28, 2024

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