

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HANSHOW AMERICA INC. AND HANSHOW
TECHNOLOGY CO., LTD.,

Petitioners

v.

SES-IMAGOTAG INC.,

Patent Owner.

IPR2024-00208

U.S. Patent No. 11,010,709

PATENT OWNER'S SUR-REPLY

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2005	U.S. Patent Application Publication No. 2015/0178767A1 to Wu et al.
2006	Comparison Document of Wu (Ex-1003), Figs. 1–5E, 1:1–9:31, <i>with</i> Wu Pub. (Ex-2005), Figs. 1–5E, ¶¶[0001]–[0076].
2007	Translation of French patent office (Institut National De La Propriété Industrielle, or “INPI”) Preliminary Search Report, February 12, 2016, with certification
2008	Translation French patent office (Institut National De La Propriété Industrielle, or “INPI”), “Opinion écrite” (Office Action), February 17, 2016, with certification
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LISTING OF CHALLENGED CLAIMS

Claim 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,
[1l]	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.
Claim 2	
[2a]	The method according to claim 1, wherein
[2b]	acquiring the sequence of label identifiers comprises receiving, by the reading device, an indication of relative positioning, relative to the location of the added shelf label to be located, and the adjacent label whereof the location is known to the computer system, the indication of relative positioning being transmitted by the reading device to the computer system.
Claim 3	
[3a]	The method according to claim 2, wherein
[3b]	receiving the indication of relative positioning comprises: identifying, from the acquisition order of the label identifiers of the sequence of label identifiers, the indication of relative positioning of the added shelf label, relative to the location of the adjacent label.
Claim 4	
[4a]	The method according to claim 1, further comprising:
[4b]	transmitting, by the reading device and to the computer system, data corresponding to an association between the label identifier of the added shelf label and a reference of an article with which the added shelf label is associated with.
Claim 5	
[5a]	The method according to claim 1, wherein
[5b]	the added shelf label is one of a plurality of electronic shelf labels to be located, the electronic shelf labels to be located being adjacent to each other in the scrolling direction of the locations of the retail area, and

[5c]	wherein the acquiring comprises acquiring the label identifiers of the plurality of electronic shelf labels to be located in the order of their arrangement.
Claim 6	
[6a]	The method according to claim 5, wherein
[6b]	each electronic shelf label of the sequence is fitted with a radiofrequency peripheral, and wherein
[6c]	the acquiring comprises acquiring, by the reading device, the label identifiers of the electronic shelf labels by setting up
	communication via radiofrequency with the electronic shelf labels and the reading device.
Claim 7	
[7a]	The method according to claim 1, wherein
[7b]	the reading device comprises a displacement measuring member, and the method further comprises:
[7c]	determining, by the reading device, the displacement between the label identifier of the adjacent shelf label whereof the location is preliminarily known and the label identifier of the added shelf label.
Claim 8	
[8a]	The method according to claim 7, further comprising:
[8b]	determining, by the reading device, the distance between the adjacent shelf label whereof the location is known and the added shelf label to be located from the displacement of the reading device between the identifier of the adjacent shelf label whereof the location is known and the identifier of the added shelf label, and
[8c]	wherein the identifying further comprises obtaining the location of the added shelf label, by the computer system, and using the distance to update the planogram.
Claim 9	
[9a]	The method according to claim 1, further comprising:

[9b]	acquiring, by the reading device, a label identifier of the adjacent shelf label,
[9c]	acquiring, by the reading device, a characteristic dimension of the location associated with the shelf label acquired the reading device,
[9d]	transmitting, by the reading device, the characteristic dimension of the location with the label identifier to the computer system.
Claim 10	
[10a]	A non-transitory computer program product comprising program code instructions for updating a planogram registered in a computer system to reflect an addition of a shelf label in a shelf of a retail area, comprising:
[10b]	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
[10c]	according to a scrolling direction of the locations of the retail area,
[10d]	the retail area having a plurality of shelf labels distributed in the retail area,
[10e]	each of the shelf labels being associated with a respective article and being disposed near a respective location associated with the article,
[10f]	each of the shelf labels being associated with a label identifier of its own, wherein
[10g]	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
[10h]	a location of the adjacent shelf label is preliminarily known in the planogram;
[10i]	identifying a location corresponding to the added shelf label in the shelf of the retail area, comprising:
[10j]	transmitting, by the reading device, the sequence of label identifiers to the computer system,
[10k]	updating, by the computer system, the planogram on the basis of the sequence of label identifiers, by determining:

[10l]	the articles associated with the labels of the sequence of label identifiers, and
[10m]	the respective locations of the articles, on the basis of an obtained location of the added shelf label, wherein
[10n]	the obtained location is a location in the planogram which is adjacent to the preliminarily known location of the adjacent shelf label.
Claim 11	
[11a]	A system for managing a planogram,
[11b]	the planogram comprising association data between articles of a retail area and locations of the retail area, the system comprising:
[11c]	a plurality of electronic shelf labels,
[11d]	each of the shelf labels being associated with a label identifier of its own,
[11e]	a reading device adapted to acquire the label identifiers of the plurality of electronic shelf labels and
[11f]	to acquire the references of the articles associated with the electronic shelf labels,
[11g]	a computer system in which the planogram is registered,
[11h]	the computer system being configured to receive, from the reading device, a transmitted sequence of label identifiers, and
[11i]	being further configured to update the planogram by determining an obtained location of an added shelf label reflecting an addition of a shelf label of the retail area, wherein
[11j]	the obtained location is a location in the planogram which is immediately adjacent to the known location of the adjacent shelf label,
[11k]	the reading device being configured to: acquire a sequence of label identifiers comprising the label identifier of the added shelf label, and further comprising the label identifier of an adjacent shelf label which is adjacent to the added shelf label
[11l]	according to a scrolling direction of the locations of the retail area, wherein
[11m]	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
[11n]	a location of the adjacent shelf label is preliminarily known in the planogram, and
[11o]	transmit the sequence of label identifiers to the computer system.
Claim 12	
[12a]	The system of claim 11, wherein
[12b]	the reading device is further configured to: acquire an indication of relative positioning, relative to the location of the added shelf label and the adjacent label; and transmit the indication to the computer system.
Claim 13	
[13a]	The system of claim 12, wherein
[13b]	the reading device is further configured to: identify, from the acquisition order of the label identifiers of the sequence of label identifiers, the indication of relative positioning of the added shelf label, relative to the location of the adjacent label.
Claim 14	
[14a]	The system of claim 11, wherein
[14b]	the reading device is further configured to: transmit to the computer system data corresponding to an association between
	the label identifier of the electronic and a reference of an article with which the added shelf label is associated with.
Claim 15	
[15a]	The system of claim 11, wherein
[15b]	the added shelf label is one of a plurality of electronic shelf labels to be located, the electronic shelf labels to be located being adjacent to each other in the scrolling direction of the locations of the retail area, and
[15c]	wherein the reading device is further configured to: acquire the label identifiers of the plurality of electronic shelf labels to be located in the order of their arrangement.

Claim 16	
[16a]	The system of claim 15, wherein
[16b]	each electronic shelf label identified in the sequence is fitted with a radiofrequency peripheral, and wherein
[16c]	the reading device is further configured to acquire the label identifiers of the electronic shelf labels by setting up communication via radiofrequency with the electronic shelf labels and the reading device.
Claim 17	
[17a]	The system of claim 11, wherein
[17b]	the reading device comprises a displacement measurement member, and wherein
[17c]	the reading device is further configured to: Determine the displacement between the label identifier of the adjacent shelf label whereof the location is preliminarily known and the label identified of the added shelf label.
Claim 18	
[18a]	The system of claim 17, wherein
[18b]	the reading device is further configured to determine the distance between the adjacent shelf label and the added shelf label from the displacement of the reading device between the label identifier of the adjacent shelf label whereof the location is known, and the added shelf label.
Claim 19	
[19a]	The system of claim 18, wherein
[19b]	the computer system is configured to obtain the location of the added shelf label as a function of the preliminarily known location of the adjacent shelf label and as a function of the determined distance.
Claim 20	
[20a]	The system of claim 11, wherein

[20b]	the computer system is further configured to: update the planogram on the basis of the sequence of label identifiers, by determining: articles associated with the labels of the sequence of label identifiers, and locations of the articles, on the basis of the obtained location of the added shelf label.
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I. INTRODUCTION

All claims can be upheld as valid for three reasons, two involving claim construction (“locations” and “planogram”) and one involving a failure of the prior art (“acquiring” and “transmitting...*a sequence* of label identifiers.”).¹ The Board need not reach claim construction, however, because the “sequence” limitations are not met. On reply, Petitioners impermissibly shift the burden to Patent Owner, and then present new arguments riddled with technical errors and misrepresentations to try to backfill the deficient Petition. The petition fails for this omission alone.

For the claim-construction issues, PO’s constructions are correct and not taught by the prior art. Faced with voluminous intrinsic and extrinsic support, all Petitioners offer is attorney argument in disagreement. Petitioners present no evidence as to how a *POSITA* would understand the terms-at-issue, and its arguments are divorced from the intrinsic record and thus lack merit. Petitioners’ prior art tracks only the relative *order* of labels on each shelf, separately; it cannot meet claims that require identifying the specific “locations” of labels to build a “planogram” *of the retail area*, collectively.

For these reasons, Petitioners failed to satisfy their burden of demonstrating invalidity of any of the asserted claims.

¹ All emphasis added unless otherwise indicated.

II. ARGUMENTS

A. **Wu, alone or combined with other prior art, fails to disclose “acquiring” or “transmitting,” by a reading device, a sequence of label identifiers.**

Each independent claim recites “acquir[ing]” and “transmit[ting],” by a reading device, “a sequence of label identifiers,” including the identifier of: (1) “an added shelf label” and (2) “an adjacent shelf label” next to “the added shelf label.” Wu does not teach such a sequence and has no need for that information. Petitioners’ Reply presents unsupported conjecture that is insufficient to show unpatentability by a preponderance of the evidence. Moreover, Petitioners’ alleged reasons for combining Wu with other references to account for this deficiency are generic at best, and do not explain why a POSITA would have been motivated to modify Wu. Petitioners’ failure to meet its burden on these limitations is dispositive for all challenged claims in all grounds in the Petition.

1. **Ground 1: Petitioners’ new arguments on reply fail to demonstrate how Wu meets this limitation.**

Wu does not teach “acquir[ing]” or “transmit[ting],” by a reading device, *a sequence* of label identifiers required by each independent claim. To salvage its case on reply, Petitioners rewrite Wu’s disclosure to encompass operations Wu never advances; conflate anticipation, inherency, and obviousness to paper over omissions in the Petition and Wu; and present brand new arguments. Each of these should be rejected.

Wu's operation is straightforward. When installing a new shelf label next to an existing one, Wu explains that a reading device: (1) acquires the *label identifier* for the new label; (2) acquires the *location code* of the existing shelf label(s); and (3) derives a *new location code* from the existing location code for association with the new label identifier. *See, e.g.*, Ex-1003, Fig. 2 (steps S101, S104-106), Fig. 4B (step S408-410), 3:59-4:42 (describing Figure 2 operation), 7:4-18 (describing Figure 4B operation); Ex-2010, ¶¶74-76, 123-25.

The Petition presented two conflicting depictions of Wu's operation. The first agreed with the operation above: (1) “[t]he *identifier of the added shelf label...is acquired*”; and then (2) “*the location of an adjacent shelf label*” is acquired. Paper 2 (“Petition”), 15-16. But as PO explained in response, this operation fails to meet the claims because only a single label identifier (the new shelf label's), not a sequence of identifiers, is acquired and transmitted by the reading device. Paper 26 (“POR”), 46-47. The second conjectured (without support) that, because Wu's Figure 3B depicts an arrow from each “electronic shelf label” (ESL-1 and ESL-2), “[a] POSITA *would understand* that this represents the acquisition of label identifiers of [labels] ESL-1 and...ESL-2, which forms a sequence of label identifiers.” Petition, 17. In response, PO explained that this too is incorrect. POR, 46-48.

In reply, however, Petitioners contend for the first time that “[i]t would be *obvious* to use the reading device to acquire a second label identifier in order to

obtain the referential label location code of an existing shelf label.” Paper 31 (“Reply”), 15-16. In other words, by Petitioners’ new reading, rather than start from a “location code” for the existing shelf label, a POSITA would have modified Wu to perform an *extra* step: acquire an existing label identifier first, and *then* look up its associated (existing) location code. Neither Wu nor Petitioners’ expert support this new reading; it is advanced only to meet the claims using transparent hindsight.

Petitioners instead shift the burden to PO to explain why it *would not* have been obvious to add this extra step, (*id.*, 16), despite never raising this argument before. It is Petitioners’ burden to explain their challenge in the Petition, and the burden never shifts to PO. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015); *Masimo Corp. v. Apple Inc.*, IPR2023-00745, Paper 44, 9 (Oct. 15, 2024). Nor can Petitioners meet that burden by introducing new arguments on reply. *Bright Data Ltd. v. Oxylabs, UAB*, IPR2023-00186, Paper 26, 20 (July 15, 2024) (rejecting as untimely petitioner’s attempt to “change the focus of its argument” to address a prior-art deficiency); *Am. Honda Motor Co. Inc. v. Neo Wireless LLC*, IPR2022-01567, Paper 59, 35-36 (Nov. 1, 2024) (rejecting new obviousness theories raised on reply, collecting authorities); 37 C.F.R. §42.23; U.S. Pat. Trial and Appeal Board, Consolidated Trial Practice Guide (“CTPG”), 73 (Nov. 2019). Because Petitioners never before argued that it would have been

obvious based on Wu to acquire (and transmit) a second label identifier *to obtain the location code of the existing label*, Petitioners cannot make that argument now.

Even if timely, this argument is wrong. Petitioners offer no evidence from a POSITA to support the obviousness of “acquir[ing] a second label identifier...to obtain the referential label location code for an existing shelf label.” Reply, 16. Petitioners’ expert—Dr. Tentzeris—said no such thing when the petition was filed, and no declaration was submitted on reply. Unsupported attorney argument cannot substitute for expert opinion. *See SATA GmbH & Co. KG v. Anest Iwata Corp.*, IPR2013-00111, Paper 44, 10 (May 20, 2014) (“Attorney argument is not evidence of the knowledge or understanding of those in the art.”); *VSR Indus., Inc. v. Cole Kepro Int’l, LLC*, IPR2015-00182, Paper 33, 22 (Apr. 28, 2016); *In re Geisler*, 116 F.3d 1465, 1471 (Fed. Cir. 1997).

Indeed, Petitioners’ argument is contrary to Wu’s disclosure. Wu discloses using location codes to derive label identifiers ***but not vice versa***. *See, e.g.*, Ex-1003, 2:10-14 (“The first label identifying information corresponding to the first label location information is obtained according to the label location table.”); 6:44-47 (same), 7:23-26 (same), 9:18-21 (same). Wu therefore supports PO’s position (that Wu’s reading device has no need to acquire and transmit existing label identifiers) and is contrary to Petitioners’ (that Wu’s reading device would obviously do so when adding a new label).

Petitioners *infer* obviousness by combining several distinct teachings of Wu. Petitioners first repeat their Petition arguments that the arrows in Figure 3B indicate multiple label identifiers are acquired. Reply, 16-18. But Wu never explains *what* the arrows from the *shelf labels* represent, and Wu never associates these arrows with the *label identifiers*. See Ex-1003, Fig. 3B; *compare* Reply, 17 (citing Ex-1003, 4:53-59 as indicating the transfer of label identifiers), *with* Ex-1003, 4:53-59 (explaining that “ ‘ESL-1’ is already installed... ‘ESL-2’ is to be installed,” without indicating *what*, if anything, Figure 3B depicts being transferred).²

Petitioners then, for the first time on reply, combine this original argument with newly cited disclosures, arguing that Figures 4A-4B demonstrate “[t]he information stored in the label location table [121] must be obtained through other means, [such as] a reading device that acquires an identifier.” (Reply, 17-18).

The Board should decline to consider this argument for two reasons: first, Petitioners provide no expert support; second, PO had no opportunity to present

² Petitioners also mischaracterize PO as contending that Wu “creat[es] a location code for an added shelf label *without acquiring any information* from an adjacent shelf label.” Reply, 17. PO stated that Wu obtains information—specifically *location codes*—from the adjacent shelf label. POR, 49 (“[W]hen adding a shelf label, all Wu needs regarding the existing shelf label(s) is the existing ‘label location’ code....”).

contrary evidence. But even if considered, the argument is contrary to Wu and thus fails.

Wu's Figures 4A-B depict the process of *updating* shelf labels when new products and/or labels are added or moved. Ex-1003, 5:64-6:7. To do so, Wu discloses following the same installation operations outlined above (acquiring the new label identifier and existing location code, and deriving a new location code) to update label *location* table (121). *Id.*, 7:66-8:35, Fig. 5A (annotated).

121
⎵

label identifying information	label location information
ESL-1	S01_R1
ESL-2	S01_R2
ESL-3	S01_R1.5
ESL-4	S02_R1
ESL-5	S02_R2
ESL-6	S02_R3

Wu then compares the location code in that table (121) to label *content* table (122) to ensure the product identified at that location is correct. *Id.*

122
⎵

label location information	label displaying information
S01_R1	product A
S01_R1.5	~~product B~~ product B'
S01_R2	product C
S02_R1	product D
S02_R2	product E
S02_R3	product F

Wu does not explain how a *new* location code is added to label content table (122) prior to the comparison (e.g., manually or automatically), (*cf. id.*, 3:32-35 (suggesting manager changes table (122), generally)), but because table 122 does not contain label identifiers (just location codes and product identifiers), Wu does not need a label identifier to perform this step (S412). Petitioners' untimely argument as to Wu's Figures 4A-B should be rejected.

Finally, although Petitioners previously cited Figure 2, (Reply, 15), the Reply presents a brand-new argument based on it: that Wu's determination whether shelf labels already exist on the shelf *requires* "obtain[ing] the label identifying information of an adjacent shelf label." Reply, 18. This argument can be dismissed as untimely and unsupported too; regardless, it is also wrong.

Figure 2 depicts a decision tree in which conditions dictate which steps are performed. Ex-1003, Fig 2 (depicting *if* "another electronic shelf label is already disposed at one side," proceed to step S104, and *if* "two electronic shelf labels are already disposed at two sides," proceed to step S105). Petitioners point to these *conditions* as if the system performs these steps, but Wu nowhere discloses that, let alone that their performance requires label identifiers. *See* Ex-2010, ¶125 (walking through Figure 2's *steps* without using label identifiers). These conditions require only a yes/no evaluation of whether other labels are present; they do not demand any

more information—such as label identifiers *or* locations—to move onto the next step. Ex-1003, Fig. 2.

At base, despite presenting a slew of new arguments on reply, Petitioners still fail to identify any teaching that Wu acquires (and transmits) a *sequence* of label identifiers as claimed. That omission is fatal to the Petition.

2. Grounds 2-4: Petitioners still offer no cogent reason to combine disparate prior-art elements to meet the limitations.

Petitioners’ fallbacks—three different combinations with Wu—all suffer the same fatal flaw: the prior-art teachings are disparate, with no reasoned motivation to modify Wu.

Combining prior art requires “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Combining disparate teachings from different references simply because they are “directed to the same art or same techniques” is insufficient. *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012) (finding “a conclusory statement that a [POSITA] would have known, based on the ‘modular’ nature of the claimed components, how to combine any of a number of references...is not sufficient and is fraught with hindsight bias.”); *Microsoft Corp. v. Enfish, LLC*, 662 F. App’x 981, 990 (Fed. Cir. 2016) (affirming Board’s finding of non-obviousness for failure to

proffer specific motivation). Here, merely showing that other art acquires and transmits label identifiers, without explaining why a POSITA would have been motivated *to modify Wu* to do so, is insufficient. That is exactly what Petitioners do and, accordingly, Petitioners have not met their burden as to any challenged claim for Grounds 2-4.

In Ground 2, Petitioners combine Wu and Chaves—which teaches tracking labels on *every item*—and argue that modifying Wu to acquire/transmit multiple identifiers would improve “efficiency” and “error resistance.” Petition, 60-61. Petitioners never explain why Wu would transmit multiple *label* identifiers in the first instance, since Wu *requires* only one. Nor do Petitioners explain how Wu’s efficiency or error resistance would be improved (it wouldn’t, (Ex-2010, ¶136)) by transmitting additional information Wu does not need. Worse still, Chaves does not disclose acquiring label identifiers; Petitioners simply call Chaves’s “item identifier” a “label identifier.” They are not the same things; Chaves explains that the “item identifier...identif[ies] the particular items,” meaning the same items would have the same identifiers even if located in different areas of a store. Ex-1006, [0048]; *see also id.*, [0038]-[0039]; Ex-2010, ¶¶130-32. Chaves does not acquire a unique identifier assigned to each of the same item, let alone a label. Ex-2010, ¶¶130-32.

In Ground 3, Petitioners combine Wu and Itou—which teaches taking pictures of store shelves to verify the labels match their associated products. Despite Itou’s

distinct teachings, Petitioners point to the motivation for combining *Wu and Chaves*, and an unsupported *KSR* rationale. Reply, 20 (citing Petition, 60-61, 79-80). This is improper. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1379 (Fed. Cir. 2016) (finding motivations from different prior-art combinations insufficient to demonstrate obviousness). Regardless, as with Chaves, Petitioners never explain why Wu would be modified in the first instance. *See* POR, 52-55.

Moreover, Itou does not disclose a reading device that acquires *and* transmits *label identifiers*. Ex-2010, ¶141. Itou’s so-called “reading device” (a camera) merely acquires (and optionally transmits) a picture, from which the label identifiers are extracted. Ex-1004, [0043]-[0046], [0055]; Reply, 19 (quoting Itou, [0055] as teaching “information processing apparatus 2000 acquires *the target image*”). Itou does not teach extracting label identifiers from the picture (the purported acquisition) *and then transmitting them*. Ex-2010, ¶141.

Similar deficiencies exist with Ground 4. Wu and Fujiwara acquire a label identifier (Wu) or label identifiers (Fujiwara) for fundamentally different purposes. POR, 55. Although Petitioners now contend that “a POSITA *could* have applied the known technique of Fujiwara to read collectively a plurality of shelf labels,” (Reply, 21), Petitioners needed to explain *why* a POSITA *would* have done so. *InTouch Techs., Inc. v. VGO Commc’ns., Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014) (finding a POSITA “*could* combine these references” insufficient). But Petitioners again

relied on motivations based on *the combination of Wu and Chaves*. Petition, 89; Reply, 21. That cannot satisfy Petitioners' burden. *Magnum Oil*, 829 F.3d at 1379.

B. Petitioners have failed to demonstrate that the prior art taught “locations” as properly construed.

1. The term “location(s)” demands more than an ordinal arrangement.

Resolving whether Wu discloses the claimed shelf-label “locations” turns on whether “locations” includes a mere ordinal arrangement with no notion of physical space, as Petitioners contend. Petitioners' position is not supported by the intrinsic evidence.

Petitioners first mischaracterize PO's position as “require[ing] that locations be provided *as a function of distance, in units that represent a measured distance*,” meaning “a distance between labels *is measured* for all claims, despite that it is only required by claims 7, 8, 17, and 18.” Reply, 2; *see also* Reply, 4. These arguments misstate PO's position and raise a meritless claim-differentiation argument.

PO's construction does not *require* measuring distance, but that “locations” be “represented in units *that allow* distance from a point of reference...to be determined.” Although dependent claims 7, 8, 17, and 18 recite *one way* to determine a label's location, claim differentiation presumes only that the claims from which they depend encompass *additional ways*. *See Comark Commc'ns, Inc. v. Harris*

Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998) (claim-differentiation doctrine “create[s] a presumption that each claim in a patent has a different scope.”).

That the '709 Patent specification describes only one (novel) way to measure distance does not limit all claims to that method.³ “The law is clear that patent documents need not include subject matter that is known in the field of the invention and is in the prior art.... To hold otherwise would require every patent document to include a technical treatise for the unskilled reader.” *S3 Inc. v. NVIDIA Corp.*, 259 F.3d 1364, 1371 (Fed. Cir. 2001). Various ways to measure distance were known. *See, e.g.*, Ex-2010 ¶¶55, 62 (metric/imperial units and measurable coordinates). The '709 Patent does not need to expressly recite other conventional ways to measure distance to impart a broader scope to the independent claims as compared to dependent claims 7, 8, 17, and 18, with their distinct distance-measurement methods. To the contrary, separately claiming one measurement process that allows distance to be determined *supports* PO’s construction that “locations” demands a unit-based representation.

³ Petitioners’ reliance on the '709 Patent’s European counterpart is misplaced. Reply, 4 n.2. The English-language portion on which Petitioners rely demonstrates only that limitations similar to claims 7, 8, 17, and 18 were incorporated into the independent claims of the counterpart.

Petitioners also recast the '709 Patent's disclosure that label locations are determined during installation (down to "centimeters") as instead determining only an "order of shelf labels." Reply, 2-3. To do so, Petitioners *presume* that the '709 Patent overcame the imprecision of prior-art triangulation methods "because *the order of shelf labels is recorded during installation.*" Reply, 3. Nowhere does the '709 specification characterize "locations" as a mere "order," and Petitioners cite nothing in support. Petitioners transparently attempt to draw unsupported similarities to Wu.

Petitioners then misrepresent the '709 specification to prop up their overbroad construction. Petitioners contend the '709 Patent refers to "location[s]" as "'an indication of relative positioning,' without distance." Reply, 3. Not so; the '709 Patent discloses that an "*indication of relative positioning*" is an input *provided by an operator* to indicate the direction of a new label relative to an existing label (e.g., to the right or left), and not that it defines the label's location. *See, e.g.,* Ex-1001, 3:3-19, 6:35-43 ("The operator also points out an indication of relative positioning of the adjacent label relative to the added label."), 7:35-48. Instead, a separate "*information of relative positioning*" that includes "*a relative distance between the ESL[s]*" may define the *location* of the label. *Id.*, 7:60-8:6.

Petitioners also rely on how "locations" are characterized in the planogram, (Reply, 3)—as coordinates of increased specificity: (1) the shelf; (2) the section of

the shelf; (3) the level of the shelf; and (4) the “order of the location on this level,” (Ex-1001, 8:40-50)—but this is misplaced. Petitioners summarily declare that this means locations are represented “ordinally without measuring distance,” (Reply, 3), but such arguments are unsupported and overlook that the “order” is one of “*the location*” which, again, is described as providing measurable units. *See, e.g.*, Ex-1001, 1:44-2:2, 2:7-9, 8:1-18, 8:25-39; Ex-2010, ¶¶54-58.

The ’709 Patent consistently uses the term “locations” to refer to units that allow distances to be determined; it never suggests the term broadly encompasses any ordinal arrangement.

2. Wu’s ordinal arrangement is insufficient to teach “location(s)”.

Apart from rehashing their Petition arguments, (Reply, 10-11; POR, 31-35), Petitioners now suggest Wu’s location codes do, or can be reconfigured to, represent distance consistent with PO’s construction, (Reply, 11-13). Petitioners’ new arguments are unsupported and wrong.

Petitioners first suggest that Wu’s system and processes can be configured to represent distance in units. Reply, 11-12 (“[T]he distance between Wu’s location codes can be kept constant....In this way, Wu’s location codes can be considered units that allow distance [to be measured].” (citations omitted)). Petitioners therefore implicitly concede that Wu *does not* by default tie “location codes” to any sort of

“location” of measurable distance without a restrictive and unsupported modification.

Petitioners premise their new theory on their expert’s deposition testimony, who summarily opined (without support) that Wu’s extrapolation and interpolation processes must “*necessarily and inherently*” account for distance. *Id.* (citing Ex-2026, 32:17-24). But as PO’s expert explained (with support) in response, Wu’s location codes are unitless, and neither Petitioners nor their expert explain why units of distance would be *inherent* nor any reason to **modify** Wu to moor the codes to distance. Ex-2010, ¶¶97-99. Indeed, Petitioners cite nothing to support their argument that “a POSITA *could* extrapolate or interpolate from locations represented by a measured distance...expressed in another obvious unit (*e.g.*, centimeters).” Reply, 12; *InTouch*, 751 F.3d at 1352 (“could” not enough). This unsupported attorney argument is riddled with hindsight. *Zoltek Corp. v. United States*, 815 F.3d 1302, 1313 (Fed. Cir. 2016) (“Hindsight reconstruction for litigation ends is not of probative value.”).

C. Petitioners have failed to demonstrate that the prior art taught a “planogram” as properly construed.

1. Petitioners fail to dispute the plain meaning of “planogram”

“Planogram” has a plain meaning referring to different retail-planning schemes. POR, 21-24. But Petitioners stretch the term—encompassing anything that

“associate[es] data among articles of a retail area and locations of said retail area,” including a database that tracks the mere *order* of labels on each shelf—based on a single sentence in the ’709 Patent. Petitioners flout fundamental claim-construction principles.

“The words of a claim are generally given their ordinary and customary meaning,” as would be understood by “a person of ordinary skill in the art.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (cleaned up). To take on a different meaning, “a patentee must clearly set forth a definition...other than its plain and ordinary meaning,” and “clearly express an intent to redefine the term.” *Thorner v. Sony Comp. Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (marks omitted).

PO’s evidence as to how a POSITA would have understood “planogram” stands un rebutted. Petitioners offer no evidence from a POSITA on reply. *Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (“Attorney argument is not evidence and cannot rebut other admitted evidence” (cleaned up)). Petitioners have only the original opinions of their expert who summarily found the prior art taught planograms. But these opinions do not speak to the term’s plain meaning because the expert *assumed* the term had been redefined. Ex-1009, ¶¶64 (“[Wu’s] table is the claimed planogram,” citing the perceived redefinition), 73, 129; *see Respironics, Inc. v. Zoll Med. Corp.*, IPR2013-00322, Paper 48, 3 (Jan. 2, 2015) (rejecting arguments as to how a POSITA would have

understood a claim term as based on “no credible evidence” despite arguing the claim was met more generally).

Petitioners argue the '709 Patent redefined the term “planogram” broadly, (Reply, 6; *id.*, 13 (“the '709 Patent expressly defined ‘planogram’”), 14 (“a clear definition [of planogram] is provided by the '709 Patent”)), but never identify a *clear* intent to do so, *Thorner*, 669 F.3d at 1365. Petitioners dismiss the claims’ non-limiting description of a planogram as “*comprising* a set of association data” (*see, e.g.*, Ex-1001, cls. 1, 11) because the specification replaces the word “comprising” with “is” and “constituting.” Reply, 6 (citing Ex-1001, 2:6-7). No authority suggests “is” or “constituting” establish *per se* definitions, and the use of different language suggests *no* clear intent to redefine the term. *See Sonos, Inc. v. Int’l Trade Commc’n*, No. 2022-1421, 2024 WL 1507605, at *5 (Fed. Cir. Apr. 8, 2024) (finding a “non-exclusive recitation” of features a term may encompass “does not evince the required clear intent to adopt a definition different from the term’s ordinary meaning”).

Petitioners justify their redefinition as being consistent with a planogram’s functionality described in the specification. Petitioners contend that “association data” can determine “at which height, on which shelf, and over how many linear meters” a product sits. Reply, 6-7 (quoting Ex. 1001 at 2:7-9). This misses the point, which is compounded by Petitioners’ erroneous interpretation of “locations.” Petitioners merely recognize that the '709 Patent’s highest-level summary of a

“planogram” encompasses and is consistent with more-specific functionality. But Petitioners overlook that associating products to their locations may identify the height, shelf, and linear extent of a product, *only if the associated location provides such information*. Petitioners’ combined constructions of locations (any ordinal representation) and planograms (any association of products to these ordinal representations) would lack basic planogram functionality described throughout the art and ’709 Patent. *See, e.g.*, Ex-2010 ¶¶61-66.

Even if “planogram” were lexicographically defined, however, the purported definition requires associations between products and “locations of *said retail area*.” At a minimum, the collective phrase would be understood consistent with the plain meaning of “planogram” to require more than a mere ordinal arrangement of products on individual shelves, untethered to the retail area. Ex-2010, ¶¶54, 61-66; POR, 38-39.

Petitioners then accuse PO of reading in “how many linear meters” products are provided into the construction of planogram. Reply, 8. PO’s construction never required this. POR, 21-22 (explaining “planograms generally include information as to...how much shelf space is dedicate to each product,” citing Ex-2019, 4-10, Ex-2020, 5:57-61, Ex-2017, 1:12-21, Ex-2018, 1:31-36, Ex-2010, ¶62). To rebut this strawman argument, Petitioners contend that characterizing a product’s “linear” extent is optional, (Reply, 8 (citing Ex-1001, 9:6-27)), but the citation Petitioners

rely upon describes *different* functionality—using planograms for shelf “fronting or facing” designs.

Petitioners then advance another claim-differentiation argument: because only claim 9 requires “acquiring a characteristic dimension” of the product, that is optional for other claims. Reply, 8. But claim 9 recites a process of “acquiring, *by the reading device*, a characteristic dimension *of the location associated with the shelf label*.” (Ex-1001, cl. 9). Petitioners fail to show how a “characteristic dimension of the *location associated with the shelf label*” equates to the *product’s* linear extent, let alone how differentiation from this claim renders optional other characteristics like a product’s height, shelf, or linear extent.

Finally, Petitioners mischaracterize PO’s prosecution-history arguments and misrepresent the Patent Office prosecution. Petitioners mischaracterize PO’s position as requiring “a planogram...to be a visual representation, in line with the planogram of Sarma.” Reply, 9. Not so. POR, 25-26 (arguing only what the Examiner *did not* consider to be a planogram). Petitioners also claim that “the Examiner cited Mitsuoka [sic] to teach the planogram of claim 8” and that “Mitsouka, like Okina and Wu, discloses a planogram in the form of a database,” citing a figure. Reply, 9. Although the Examiner cited Mitsouka for claim 8, the remainder is false.

The figure Petitioners rely upon is from **Okina**, not Mitsouka. *See* Ex-2012, Fig. 16. Petitioners’ presentation is misleading, if not deceptive. The Examiner did

not identify *Okina*—which taught a database of ordered shelf labels, like Wu—as teaching the “planogram” of then-pending claim 8. Ex-1002, 59-68. Moreover, when the Examiner cited Mitsouka for claim 8, the Examiner never identified any teaching as expressly constituting the claimed “planogram,” (*id.*, 64-66), and Mitsouka’s translation does not recite a “planogram.” *Id.*, 91-105. The Examiner noted, however, that Mitsouka met the claim, generally, by teaching exacting, three-dimensional coordinate measurements to identify the locations of shelf labels. *Id.*, 64-66.

At base, a planogram’s plain meaning ***does not*** encompass a database that tracks only labels’ ordinal arrangement on individual shelves. Petitioners’ unsupported attorney argument and record misrepresentations fail to demonstrate otherwise.

2. Wu’s ordinal database does not constitute a “planogram”

Petitioners contend a database reflecting the ordinal arrangement of labels on individual shelves constitutes a planogram. This is inconsistent with the plain meaning of “planogram,” and Petitioners’ position is unsupported.

Rather than map Wu’s disclosure to “planogram’s” plain meaning, Petitioners first rehash Petition arguments that Wu meets the perceived lexicographical definition. Reply, 13-14. Petitioners then dismiss PO’s plain-meaning evidence as “extrinsic,” and summarily contend that a “planogram” need only be “a plan” that does not need to “include every piece of information that might be useful.” Reply,

14. Worse still, Petitioners suggest that even if Wu’s “label content table” cannot constitute a planogram, a “planogram’s user” can rely on “shelves [that] are often numbered in retail areas and signage... to indicate where shelves are located.” *Id.*

This is improper attorney argument (*SATA*, IPR2013-00111, Paper 44, 10; *VSR*, IPR2015-00182, Paper 33, 22; *Geisler*, 116 F.3d at 1471), and Petitioners miss the point; the issue is whether POSITAs would have considered Wu’s label-content table (122) a “planogram,” and the record evidence shows they would not. Ex-2010, ¶¶105-09. Petitioners’ expert opinion is inapposite because he had *assumed* the ’709 Patent redefined the term. *See, e.g.*, Ex-1009, ¶¶64 (“[Wu’s] table is the claimed planogram,” citing the perceived redefinition), 73, 129. And to now suggest a POSITA would have combined Wu’s barebones label-content table (122) with physically browsing a retail area as a “planogram” strains credulity.

Petitioners then shoehorn additional information into Wu’s label-content table (122) with no evidentiary basis. Petitioners contend that Wu’s table *implicitly* provides: (1) “how products are grouped” because it may contain “the identity of adjacent products”; (2) “where products are located” because “products with the same shelf code are grouped on the same shelf”; and (3) “how much shelf space each product is provided” because shelf space “is a function of how many products are placed on a given shelf” and each product on a shelf has the same shelf code. Reply, 14-15. Wu does not disclose these features.

The only information Wu's table (122) *expressly* provides is which products sit on which shelf and in what order. *See, e.g.,* Ex-1003, Fig. 5A. Wu's table does not provide shelf locations in the retail area or relative to other shelves. Ex-2010, ¶¶96, 106-08. Wu therefore cannot tell how products are arranged *relative to other shelves*, or even when two products sit next to one another on different shelf segments; all Wu can tell is the order of products on a shelf-by-shelf basis. *Id.* Accordingly, even if "planogram" were lexicographically defined, Wu does not teach associations between products and "locations *of said retail area.*"

Nor can Wu indicate "how much shelf space each product is provided" because, contrary to Petitioners' arguments, Wu does not indicate "how many products are...on a given shelf" or their dimensions. Reply, 15; POR, 40. Although Petitioners contend on reply that "it would have been obvious to include 'geometrical information such as the characteristic dimensions of the locations associated with shelf labels,'" (Reply, 15), Petitioners' arguments are untimely and mistaken. They cite the Petition's analysis of *claim 9[c]*, (*id.* (citing Petition, 75-76), directed to "acquiring...a characteristic dimension *of the location* associated *with the shelf label*," (Ex-1001, cl. 9). Petitioners never suggested modifying Wu's label-content table (122) to capture product dimensions or shelf-space provisions, let alone provide a motivation to do so.

A POSITA would not have understood Wu's label-content table (122) to constitute a "planogram" because it is far too barebones. Petitioners' (mostly new) arguments on reply do not suggest otherwise.

D. Petitioners misunderstand the requirements of claims 7, 8, 17, and 18 and teachings of the prior art.

Petitioners' contentions that Wu combined with Itou and Auclair teach a "displacement measuring member" that measures displacement using "label identifiers," and measures distance using displacement of the reading device, misapprehends the claims and prior art.

Petitioners repeat the Petition's mistakes by conflating "displacement" and "distance." "Different claim terms are presumed to have different meanings." *Bd. of Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 1371 (Fed. Cir. 2008). The '709 Patent uses "displacement" for movement, and "distance" for length-units of measure. *See, e.g.*, Ex-1001, 3:37-51 ("a *distance*...is determined from the *displacement* of the reading device"), 5:42-45, 7:63-8:11. Itou's (stationary) camera cannot teach a "displacement measuring member" as Petitioners contend because Itou never tracks movement. *See, e.g.*, Petition, 72 ("Itou discloses a displacement measuring member that measures the displacement (distance) between product and label."); Reply, 22 (contending Itou measures "displacement" by

applying coordinates *to a picture captured by a stationary camera*); Ex-1009, ¶¶243, 247, 248.

Regardless, Itou does not determine “the *displacement between [two] label identifier[s]*,” as claimed, but only the *distance* between the labels. Reply, 22. Petitioners nonetheless contend (without support) that because Itou evaluates distance, and *separately* extracts shelf label IDs, the claims are met. *Id.* Petitioners then contend that Auclair’s user-inputted “geometrical information” to update planograms somehow constitutes “a determination of displacement between adjacent labels,” but Petitioners’ only support is a near verbatim, conclusory statement from their expert. *Id.* (citing Ex-1009, ¶248). Petitioners get the technology wrong, and their conclusory obviousness analysis cannot suffice to meet Petitioners’ burden. *ActiveVideo*, 694 F.3d at 1327.

E. Dr. Tentzeris’s opinions should be afforded minimal, if any, “due weight”

Petitioners recognize that conclusory expert opinions are afforded no weight. Reply, 24. But Petitioners credit their expert’s testimony because “Patent Owner has not shown that the *entirety* of Dr. Tentzeris’ declaration is conclusory.” Reply, 24. Contesting every opinion would consume more pages than a Response affords, yet there appears to be no dispute that a conclusory argument, backed by conclusory expert opinion, cannot meet Petitioners’ burden. The handful of examples PO

identified demonstrate that much of Petitioners’ analysis—how a POSITA would have understood the prior art, applied the art to the claims, or combined different elements—is based largely on their and their expert’s say-so, without providing the *how or why* those conclusions were reached. The Board does not afford such conclusory opinions weight. *Content Square SAS v. Medallia Inc.*, IPR2022-00316, Paper 13, 37-38 (July 14, 2022); *NXP B.V. v. Bell Semiconductor, LLC*, IPR2021-00967, Paper 32, 37 (Oct. 6, 2022); *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15-17 (Aug. 24, 2022).

III. CONCLUSION

For these reasons, Patent Owner respectfully requests that the Board find that Petitioners have not proven by a preponderance of the evidence that any claim of the ’709 Patent is unpatentable.

January 17, 2025

Respectfully submitted,

/ Jessica Kaiser /

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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 SUR-REPLY** contains 5,578 words, excluding those portions identified in 37 C.F.R. § 42.24(b), as measured by the word-processing system used to prepare this paper.

January 17, 2025

Respectfully submitted,

/ Jessica Kaiser /

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on January 17, 2025, a copy of **PATENT OWNER'S SUR-REPLY** was served upon the below-listed counsel by electronic mail:

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