

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ADB Safegate Sweden AB,
ADB Safegate BV, and
ADB Safegate Americas, LLC

Petitioners,

v.

Honeywell International Inc.,
Patent Owner.

Case No.: PGR2023-00053
U.S. Patent No. 11,538,349

PETITIONERS' REPLY UNDER 37 C.F.R. §42.23

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TABLE OF EXHIBITS

No.	Description
1044	Expert Declaration of Dr. Mark Campbell
1045	Deposition Transcript of Christopher K. Wilson

I. INTRODUCTION

In response to the Patent Owner Response (Paper No. 15) (“POR”) in the Post Grant Review (“PGR”) of claims 1-20 (“the Challenged Claims”) of U.S. Patent No. 11,538,349 (“the ’349 Patent” EX1001) owned by Honeywell Corporation (“Patent Owner” or “Honeywell”), Petitioners ADB Safegate Sweden AB, ADB Safegate BV, and ADB Safegate Americas, LLC (collectively, “Petitioners” or “Safegate”) file this Reply pursuant to 37 C.F.R. §42.43.

Patent Owner’s arguments in the POR are insufficient to rebut the Grounds in the Petition as explained herein. Accordingly, the Board should find each Ground supported by a preponderance of the evidence and thus claims 1-20 of the ’349 Patent unpatentable.

II. CLAIM CONSTRUCTION

Petitioners disagree with Patent Owner’s two proposed constructions. POR, 16-19. Petitioners also address a disputed construction implied by the Petition and POR.

A. “Directional ... guidance”

Patent Owner’s construction of “directional ... guidance” ignores the plain and ordinary meaning while relying on a permissive example in the specification to assert a construction that is both significantly narrower than the plain and ordinary meaning and inconsistent with claim construction principles. Patent Owner’s

construes “directional ... guidance” to mean “navigational instructions, including the horizontal deviation with respect to the center line of a path.” POR, 16. No claim, including each independent claim, actually uses the term “horizontal deviation with respect to the center line of a path.” Accordingly, Patent Owner’s construction relies on the specification, which provides the only description of “horizontal deviation with respect to the center line of the path.” EX1001, 10:8-11.

Patent Owner cites no evidence to support that a POSITA would understand the plain and ordinary meaning of “directional ... guidance” as requiring “horizontal deviation with respect to a center line of a path.” Rather, under a plain and ordinary meaning, “direction ... guidance” provides a pilot with information for how to direct the aircraft, e.g., “continue to,” “turn right,” “adjust course to X degrees,” etc. In other words, “directional ... guidance” is simply telling the pilot which way to go. This understanding is entirely consistent with Dr. Campbell’s deposition testimony positively cited by Patent Owner (POR, 17) that direction information provided as guidance to the pilot includes “which direction to go.” EX2003, 29:6-17; *see also* EX1044, ¶¶52-55; EX1045, 106:17-107:15 (Mr. Wilson recognizing that “directional guidance” can be provided without “horizontal deviation”).

In addition, the only mention in the specification of “horizontal deviation with respect to a center line of a path” in relation to “directional ... guidance” makes clear that it *can be* provided, but not that such information is necessary or essential.

Specifically, the specification states the “guidance module of the central docking system **can, for example, provide** the remaining distance and the horizontal deviation with respect to the center line of the path (e.g., lead-in line) that the aircraft is supposed to follow.”¹ EX1001, 10:8-11. “Can” and “for example” are permissive terms that make clear it is *possible* to provide information like “horizontal deviation.” The absence of terms like “required,” “necessary,” “important,” “critical,” or “essential” confirm the permissiveness as opposed to a requirement of “horizontal deviation.” Nor does anything in the file history suggest “horizontal deviation” to be a requirement of “directional ... guidance.”

“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments ... [and] have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005). Unless the specification is “clearly limited to a particular form of the invention” using words like “the present invention requires ...” or “the present invention is ...” or describing features as “required” or “very important,” it is improper to limit the claims to include that feature. *Hill-Rom Servs., Inc. v. Stryker*

¹ The specification does *not* describe the “invention” as providing the “horizontal deviation” as suggested by Patent Owner. *See* POR, 16. In fact, “invention” is never used in the specification.

Corp., 755 F.3d 1367, 1372 (Fed. Cir. 2014). Put simply, if the specification lacks “words of manifest exclusion or restriction,” then “we do not import limitations from the specification into the claims.” *Id.* at 1372-73.

In this case, instead of using words of manifest exclusion or restriction, the specification uses the permissive terms “can” and “for example” with respect to the use of “horizontal deviation” for “directional ... guidance.” Patent Owner has therefore improperly imported limitations from the specification into the claim term “directional ... guidance.” With nothing in the specification or file history requiring a construction beyond the plain and ordinary meaning, Petitioners submit that “directional ... evidence” should be given its plain and ordinary meaning.

B. “Speed guidance”

Patent Owner’s asserted construction of “speed guidance” fails for the same reasons as its “directional ... guidance” construction. Like that construction, Patent Owner again ignores the plain and ordinary meaning while relying on a permissive example in the specification to assert a construction inconsistent with claim construction principles that improperly narrows the plain and ordinary meaning. Instead of construing “speed guidance” in accordance with its plain and ordinary meaning of instructing a pilot how to regulate speed (e.g., “5 mph” or “slow down” or “stop”), Patent Owner’s construes “speed guidance” to mean “instructions concerning maximum speeds for approaching a gate.” POR, 18. Since no claim

actually uses the term “maximum speeds for approaching a gate,” Patent Owner again relies on a solitary mention of the term in the specification.

Like “horizontal deviation,” the specification’s sole mention of “maximum speeds” makes clear that it *can be* provided, but not that such information is necessary or essential. Specifically, the specification states the “docking system **can also provide** and monitor maximum speeds for approaching a gate. These speed thresholds **can be set** and monitored, and instructions **can be passed** to the pilot to slow down.” EX1001, 10:16-19 (emphasis added). Here again, the specification uses the permissive term “can” for providing information like “speed thresholds,” but not terms like “required,” “necessary,” “important,” “critical,” or “essential.” The file history also has no suggestion that “maximum speeds” be a requirement of “speed guidance.”

By describing “maximum speeds” with a permissive term like “can,” the specification again avoids words of manifest exclusion or restriction. Patent Owner has therefore improperly imported limitations from the specification into the claim term “speed guidance.” With nothing in the specification or file history requiring a construction beyond the plain and ordinary meaning, Petitioners submit that “speed guidance” should be given its plain and ordinary meaning.

C. “Displaying ... with the merged data set”

Though neither party provides an explicit construction, the Petition and POR reveal by implication a conflicted construction of “displaying ... with the merged data set.” The Petition interprets it to mean that the displayed direction and speed guidance are determined by the “merged data set.” *See* Petition, 54 (“Berkmo therefore teaches using the combined output data to determine pilot maneuvering guidance information, including directional and speed guidance, and displaying it on display 130 or on an aircraft cockpit display.”). The POR, in contrast, interprets it to mean the “merged data set” itself is displayed with the direction and speed guidance. *See* POR, 59 (“Such data [from the merged data set] must be displayed in the messages with the directional and speed guidance based on a plain straight forward reading of the claims.”); *see also* EX1045, 112:8-15 (Patent Owner’s expert agreeing the merged data set is displayed, not used to determine the direction and speed guidance). Regardless of the applied construction, the ’349 Patent claims are invalid under both constructions as explained herein.

III. THE BOARD SHOULD AFFIRM ALL ASSERTED GROUNDS

A. Ground #1: Claims 1-20 are invalid under 35 U.S.C § 101

1. The ’349 Patent claims lack elements essential to patentability of *Thales*’ claims

In contrast to the *Thales*’ claims, the ’349 Patent claims recite conventional components in a conventional configuration while merely displaying guidance and

merged data together without connecting the guidance determination to the merged data. In finding the *Thales*' claims not directed to an abstract idea, the Federal Circuit held that:

The claims specify a *particular configuration of inertial sensors* and a *particular method of using the raw data from the sensors* in order to more accurately calculate the position and orientation of an object on a moving platform. The *mathematical equations are a consequence of the arrangement of the sensors and the unconventional choice of reference frame in order to calculate position and orientation*. Far from claiming the equations themselves, the *claims seek to protect only the application of physics to the unconventional configuration of sensors* as disclosed.

Thales Visionix Inc. v. United States, 850 F.3d 1343, 1349 (Fed. Cir. 2017) (emphasis added). The '349 Patent claims fail to recite a particular configuration, a particular method of using the collected data, or an unconventional configuration of components.

With respect to receiving and merging data, claim 1 recites “receiving camera image data,” “receiving [LIDAR/RADAR] sensor data,” and “merging the camera image data and the LIDAR/RADAR sensor data into a merged data set,” where that merged data includes different types of “data for determining” or “data for forming.” Nothing in these limitations recites any particular configuration of sensors to provide the received data nor any particular configuration or limitation on how the received

data is merged. Nor were any of these limitations unconventional. Indeed, receiving and merging data from a camera with LIDAR or radar data, whether guiding aircraft or automobiles, was well-understood, routine, and conventional at the relevant time. EX1004, Figs. 1-3, ¶¶16-32, 116-130, 139; EX1003, ¶¶40-41, 54, 87; *see also Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (“a process of gathering and analyzing information of a specified content, then displaying the results, and not any particular assertedly inventive technology for performing those functions [is] directed to an abstract idea.”).

Claim 1’s final step of “displaying messages” likewise fails to find a parallel to *Thales*. In *Thales*, the final step recites “an element adapted to ***receive signals from said first and second inertial*** sensors and configured to ***determine an orientation of the object*** relative to the moving frame ***based on the signals received from the first and second inertial sensors.***” *Thales*, 850 F.3d at 1345. The element not only receives the signals from the inertial sensors, but also determines the object orientation based on those received signals. *Thales* thus ***connected*** the unconventional configuration of sensors with determining object orientation based on the received sensors signals.

But the “displaying messages,” according to Patent Owner’s own construction, merely ***displays*** at least some portion of the merged data with the guidance. Unlike *Thales*, claim 1’s final step does not recite the guidance is

determined from the merged data. Rather, the merged data is just displayed with the guidance. Claim 1 and the other '349 Patent claims thus fail to recite the key elements of making a determination from signals provided by unconventional arrangement of sensors relied on to find the *Thales*' claims as not being directed to an abstract idea.

2. The claims are directed to an abstract idea

The '349 Patent claims are in fact directed to an abstract idea and map to claims found as such by the Federal Circuit. The Federal Circuit holds “it is not enough to merely identify a patent-ineligible concept underlying the claim; we must determine whether that patent-ineligible concept is what the claim is ‘directed to.’” *Rapid Litig. Mgmt. Ltd. v. Cellzdirect, Inc.*, 827 F.3d 1042, 1050 (Fed. Cir. 2016). To determine what the claim is directed to, the “inquiry [looks] at the ‘focus’ of the claims, their ‘character as a whole.’” *Electric Power* 830 F.3d at 1353; *see also Am. Axle & Mfg. v. Neapco Holdings*, 967 F.3d 1285, 1293 (Fed. Cir. 2020) (“The Supreme Court's cases focus on the claims, not the specification, to determine section 101 eligibility.”). “In a similar vein, we have treated analyzing information by steps people go through in their minds, or by **mathematical algorithms**, without more, as essentially mental processes within the abstract-idea category.” *Electric Power*, 830 F.3d at 1354 (emphasis added).

Just like the claims in *Electric Power*, the focus of the '349 Patent claims "is on collecting information, analyzing it, and displaying certain results of the collection and analysis." 830 F.3d at 1353. In fact, while claim 1 merges the collected data into a merged data set, claim 1 does not limit the manner in which the data is merged nor does Patent Owner offer or assert a construction of "merging" of data that requires anything beyond combining the data in some undetermined manner. That the specification provides an example of merging data using pose detection algorithms, 3D models, and point clouds (*see* POR, 30; *see also* EX1045, 173:9-24 (6D pose estimation is "pretty standard" and understandable to a POSITA)) is irrelevant to this analysis because the inquiry looks at the focus of the claims, not the specification, and the claims do not recite any of these details from the specification.

It is also notable that claim 1's recitation of the data types within the merged data merely recites each type is "data *for determining*" or "data *for forming*," not the actual generation of "determined data" or "formed data." This distinction is consequential because "data for determining," such as for the "direction of the aircraft," means the "merged data" includes data that *can be used* to determine aircraft direction, but not that the "merged data" actually includes the determined aircraft direction. *See also* EX1045, 116:20-117-13. Accordingly, beyond the

undetermined manner of combining data, claim 1's "merging" does not even require any type of analysis or processing of the data to generate determined or formed data.

Claim 1's displaying guidance with the merged data does not save it from being abstract. Patent Owner's construction requires nothing more than displaying both the guidance and the merged data. But "merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis." *Electric Power*, 830 F.3d at 1354.

Moreover, claim 1 remains abstract under the alternative construction that "displaying ... with the merged data set" means the guidance is determined from "the merged data set." In *Electric Power*, the claim found to be abstract recited:

deriving a composite indicator of reliability that is an indicator of power grid vulnerability and is ***derived from a combination of one or more real time measurements or computations of measurements from the data streams*** and the dynamic stability metrics covering the wide area as well as non-power grid data received from the non-grid data source.

Id. at 1352 (emphasis added). Deriving a composite reliability indication from a combination of measurements or computation of measurements in *Electric Power* closely parallels deriving directional and speed guidance from the merger of the camera and LIDAR/RADAR data. Since such a derivation was insufficient to make the claim non-abstract in *Electric Power*, the same insufficiency applies to claim 1.

Accordingly, claim 1 along with claims 2-20 are all directed to an abstract idea.

3. The claims do not focus on an advance over the prior art

Despite all the improvements purportedly provided by the '349 Patent, the claims do not focus on those improvements nor recite limitations to implement them. “[F]eatures that are not claimed are irrelevant as to step 1 or step 2 of the *Mayo/Alice* analysis.” *Am. Axle*, 967 F.3d at 1293; *see also ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 769 (Fed. Cir. 2019) (“any reliance on the specification in the § 101 analysis must always yield to the claim language ... and the specification cannot be used to import details from the specification if those details are not claimed.”) Such features and details in the specification are absent from the claims.

Patent Owner asserts that “[t]he '349 Patent claims address those problems [of the prior art] by utilizing both image sensors and LIDAR or Radar sensors, merging the data from the received signals to determine accurate, relevant information of the aircraft path, and providing directional and speed guidance to the pilot using the resulting merged data.” POR, 36. While the claims merge data from the received signals, nothing in the claims recites that the merged data determines “accurate, relevant information of aircraft path.” Rather, the claims merely recite merging the data in some undetermined way resulting in merged data capable of

making determinations about an aircraft but without actually making such determinations. *See* EX1045, 116:20-117:13. And nothing in the claims recites *using* the merged data to provide directional and speed guidance; instead, consistent with Patent Owner's own construction, the guidance is simply *displayed with* the merged data, not provided using it. *See also* EX1045, 130:2-19 (the claim "displaying messages to provide directional and speed information ... does not require that those messages be based on the merged data set."), 134:3-14. Even under the alternative construction, nothing in the claims provides any language or details of how the merged data could be used to provide the guidance.

Patent Owner's other assertions of inventiveness from the specification similarly fail to find connections to the claims. For example, the POR asserts:

The inventive solution can provide for, inter alia, early detection of aircraft via the docking system long range capabilities, precise and/or accurate docking, obstacle detection prior to docking, and aircraft detection at all times during the day and night, in all weather conditions, in all lighting conditions, and for all aircraft types and subtypes with all colors unlike prior systems.

Id., 36-37. The claims recite the receiving, merging, and displaying functions at such a high level that there is a complete disconnect to the above features of Patent Owner's alleged "inventive solution." Notably, the claims recite nothing about early aircraft detection, long range capabilities, accurate docking, obstacle detection, and

detecting all aircraft types in all weather and lighting conditions. While admirable aspirations, such features are entirely absent from the claims. Accordingly, in contrast to Patent Owner's assertions, the claims do not focus on advances over the prior art and are instead directed to a patent ineligible abstract idea.

4. The claims can be performed by human mind or mathematical algorithms

Given the high level at which the claims recite the receiving, merging, and displaying functions, the claims encompass a scope consistent with mental processes done by human minds or mathematical algorithms. “[A]nalyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.” *Electric Power*, 830 F.3d at 1354. Moreover, “the fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter.” *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada*, 687 F.3d 1266, 1278 (Fed. Cir. 2012).

Patent Owner incorrectly asserts that the “human mind is not capable of receiving information from the specified sensors, such as LIDAR/RADAR sensor data and/or camera image data.” POR, 38. In fact, the sensor data generated data as numbers in a predetermined format with each value having a particular meaning, all of which are receivable and understandable to a human. EX1044, ¶¶56-59. For example, cameras provide an array of RGB values in a well-understood format,

while LIDAR and radar likewise produce data values in a format that can be received and understood. *Id.*

Patent Owner also erroneously asserts that a human “is not capable of merging those two different types of data together; nor is it capable of determining how to precisely navigate an aircraft in view of that merged data so that it can display messages with directional and speed guidance to a pilot.” POR, 39. Determining aircraft navigation based on the merged data is not required by the claims according to Patent Owner’s own construction. *See* Section II.C. While the claims recite merging camera image data with LIDAR/RADAR data, such merging can be done by a human using mathematical algorithms, and a POSITA understands how to combine such data. *See* EX1044, ¶¶56-59; EX1045, 16:23-17:3, 21:7-22. Dr. Campbell provides multiple examples and explanations for how a human, without a computer, can perform such merging. EX1044, ¶¶47-51, 56-59.

5. The claims do not recite an “inventive concept”

The ’349 Patent claims do not recite an inventive concept because they recite well-understood, routine, and conventional functions at a high level of generality. In step two, it is necessary to “consider the elements of each claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent eligible application.” *Alice Corp. v. CLS Bank International*, 573 U.S. 208, 217 (2014). Step two is satisfied when the

claim limitations “involve more than performance of ‘well-understood, routine, [and] conventional activities previously known to the industry.’” *Content Extraction & Transmission LLC v. Wells Fargo Bank*, 776 F.3d 1343, 1347-48 (Fed. Cir. 2014). While “improvements in the specification, to the extent they are captured in the claims, create a factual dispute regarding whether the invention describes well-understood, routine, and conventional activities, ... we must analyze the asserted claims and determine whether they capture these improvements.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018) (internal citations omitted). The ’349 Patent claims do **not** capture the alleged improvements.

Patent Owner asserts that “reliance on this merged data from a camera and LIDAR/RADAR sensor is itself an inventive concept because it was not conventional and improves the technology of aircraft tracking and guidance.” POR, 49-50.² This assertion fails both because merging data from a camera and LIDAR/RADAR sensor is conventional, and the claims do not recite any “reliance on this merged data” and therefore do not capture any improvement.

Dr. Campbell’s original declaration provided substantial evidence that merging data from camera, LIDAR, and radar was indeed well-understood, routine,

² Patent Owner’s subsequent assertion that “[t]he ’349 Patent thus introduced the unconventional concept of merging data from both the camera and LIDAR/RADAR into a merged data set, and then using that merged data for tracking and guiding the aircraft” (POR, 51) simply mirrors the above quote and is addressed in the same manner.

and conventional. *See* EX1003, ¶¶54-65. That evidence goes beyond just Berkmo, but instead relies on multiple disparate papers demonstrating that such data merging was known to improve accuracy, provide complementary benefits, overcome blocked fields of view, and provide detection and classification for safe navigation. *See id.* Indeed, Dr. Campbell has been teaching merging of camera, LIDAR, and radar data in the context of navigation and tracking to undergraduate and graduate students stretching back to 2008. EX1044, ¶57.

Patent Owner's assertion that merging camera image data with LIDAR/RADAR data is unconventional relies on the specification's description of a data fusion process that "results in enhanced accuracy for aircraft tracking and navigation." POR, 50. While Patent Owner cites the *specification* for this description, the *claims* merely recite "merging" the data, not "data fusion." Indeed, since the claimed "merging" results in data *capable of* determining or forming various information about the aircraft, the claimed "merging" is nothing more than an undetermined, general, and high-level method for combining the data completely disconnected from "data fusion" or any other purportedly unconventional process. The claimed "merging" is therefore not only conventional, but also fails to capture the purported improvement provided by "data fusion." *See* EX1045, 163:2-8 (claims do not require data to be fused).

The claims also fail to recite any “reliance on this merged data” or “using that merged data for tracking and guiding the aircraft.” The claims do not rely on or use the merged data to determine the guidance nor recite any other use of the merged data besides simply displaying it with the guidance. Beyond its assertion otherwise, Patent Owner does not point to any claim language demonstrating such reliance or use. Rather, as asserted by Patent Owner and agreed to by its expert, the merged data is just displayed with the guidance, not used to determine the guidance. *See* POR, 59; EX1045, 112:8-15. And even if the “displaying” could be construed as determining the guidance from the merged data, the claims recite nothing about *how* the guidance is determined from the merged data. Instead, the claims at best recite an undetermined, general, and high-level method of doing so without connecting or capturing the alleged improvement. By failing to capture the alleged improvement and reciting claims at a high generality (i.e., no limitations on manner of “merging” or “displaying”), these claims impose the risk of pre-emption of the abstract idea “that undergirds our § 101 jurisprudence.” *Alice*, 573 U.S. at 223.

In summary, since the claims recite well-understood, routine, and conventional functions at a high level of generality that fails to capture any alleged improvements, the claims should be found invalid under § 101.

6. Claims 7 and 19

Neither claim 7 nor claim 19 include limitations that go beyond an abstract idea or recite an inventive concept. Patent Owner does not dispute claim 7 is abstract but only that it improves computer function. But while claim 7 recites comparing data to identify aircraft presence, that comparison is neither used nor a condition for any other functionality. Rather, claim 7 simply requires that the comparison is done before the merging, but does not recite any use of the comparison or that the merging is conditioned on the comparison result. By failing to condition the merging to the comparison result, claim 7 necessarily fails to capture the alleged improvement and is therefore invalid under § 101.

For claim 19, Patent Owner's reliance on *Research Corp.* is misplaced. The claims addressed in *Research Corp.* not only provide specific details about the blue noise mask, but also ties the result of the "pixel-by-pixel comparison" to the rendering of a "halftone image." In contrast, claim 19 recites at a high, general level analyzing data using a point cloud process to correlate points between camera image and LIDAR/RADAR sensor data. As admitted by Patent owner, the point cloud process just performs a coordinate system transformation while failing to recite any detail about the point cloud process. More important, unlike the claims in *Research Corp.*, once performed, the result of this coordinate system transformation is not tied to generating guidance or anything at all in claim 18. Rather, claim 19 essentially

recites a step to nowhere that does nothing more than transform a coordinate system of received data without any connection to anything else in the claims. Accordingly, claim 19 is likewise invalid under § 101.

B. Ground #2: Claims 1, 6-10, and 13-20 are anticipated by or rendered obvious by Berkmo

1. Claims 1, 10, and 18

In contrast to Patent Owner's assertions, Berkmo discloses or suggests displaying "directional guidance," "speed guidance," and "the merged data set" as well as merging camera image data with LIDAR/RADAR sensor data. Patent Owner's argument for "directional guidance" and "speed guidance" primarily relies on its erroneous construction of those terms. *See* Sections II.A, II.B, *infra*. And regardless of the construction for "the merged data set," this limitation is also met by Berkmo.

(a) "Directional guidance" and "speed guidance"

As explained in Sections II.A and II.B, Patent Owner offers an improperly narrow construction for these terms. Instead, they should be given their plain and ordinary meaning by which Berkmo meets these terms for at least the reasons set forth in the Petition.

Patent Owner erroneously asserts that an instruction to "continue approaching the stand" is not "directional guidance." *See* POR, 56. Logically, in response to this instruction, a pilot understands to continue moving the aircraft in the *direction* of the

stand (i.e., “directional guidance”) as opposed to any other direction (e.g., left or right). If instructed to “turn left at the end of the runway, continue approaching gate A1, then turn right at gate A1,” it is non-sensical to assert that the left/right turns are directional guidance but the continuing approaching gate A1 is not. Patent Owner’s assertion otherwise is an indication of an overly narrow interpretation of “directional guidance” inconsistent with the plain and ordinary meaning to a POSITA. *See* EX1044, ¶¶52-54; EX1045:73:9-74:1 (pilot will continue in the direction of the gate in response to instruction to “continue to approach the stand”).

Patent Owner’s assertion that “stop the aircraft” is not “speed guidance” similarly requires an overly narrow interpretation inconsistent with the plain and ordinary meaning to a POSITA. Notably, the ’349 Patent explicitly proposes “slow down” as an example of “speed guidance.” EX1001, 10:16-20. “Stop the aircraft” is no different than “slow down” as both indicate to the pilot to change speed, either from current speed to 0 (“stop”) or current speed to a lower speed (“slow down”). *See* EX1044, ¶52-54.

Finally, Berkmo explicitly teaches providing “pilot maneuvering guidance information ... for aiding a pilot of the approaching aircraft towards [a] parking position.” EX1004, Abstract, claim 31. In addition to instructing pilots to “continue approaching the stand” (as “directional guidance”) and “stop the aircraft” (as “speed guidance”), a POSITA would have understood these instructions as merely

exemplary of “maneuvering guidance” and not limited to them. *See* EX1044, ¶¶54; EX1045, 70:17-22 (“Berkmo is fairly open in terms of what it would consider maneuvering guidance information.”). Indeed, it would have been understood and obvious to a POSITA that providing “maneuvering guidance” to a destination (e.g., stand) would include directional and speed guidance to ensure the aircraft arrived safely and to the correct destination. *See* EX1044, ¶¶52-54.

(b) “Merged data set”

Even under Patent Owner’s construction of “displaying ... with the merged data set,” a POSITA would have understood the “maneuvering guidance” in Berkmo as displaying guidance with the merged data or, in the alternative, would have been obvious to do so.³ For example, Berkmo discloses determining the speed and direction of the aircraft (i.e., examples of merged data) and nearby objects from the combined sensor data. EX1004, ¶¶0080, 0136. To ensure the safe arrival of the aircraft to the stand and adjust its path accordingly, a POSITA would have also understood the displayed “maneuvering guidance” to include the aircraft and objects’ speed and direction. *See* EX1044, ¶55. A POSITA also would have been motivated to include the aircraft and objects’ speed and direction in the displayed

³ Displaying “with the merged data set” is met by displaying a single piece of data from the merged data. *See* EX1045, 113:3-24.

“maneuvering guidance” for the same reason of ensuring safe arrival and proper path adjustments. *See id.*

(c) Merging camera image data with LIDAR/RADAR data

In contrast to Patent Owner’s assertion, Berkmo expressly teaches combining camera image data with LIDAR or radar data. For example, Berkmo discloses “the airport stand arrangement may be configured to detect and track the approaching aircraft based on *combined output data from a laser-based system and an imaging system.*” EX1004, ¶0032 (emphasis added). Berkmo also discloses the arrangement “configured to detect and track the approaching aircraft based on combined output data from said radar based system ... and from said one or more additional systems” where, far from misleadingly, Berkmo explicitly teaches the *one or more additional systems includes the imaging system.* *Id.*, ¶0017-0021; *see also id.*, ¶0023 (determining weighted average from radar and “one or more additional systems”).

In the absence of any construction requiring a specific manner of “merging,” Berkmo’s explicit teaching of combining image with LIDAR/RADAR data plainly meets the claimed “merging.” *See also* EX1045, 158:12-18 (“weighted average” is within “the potential scope of merging that a POSITA would understand”), 163:2-8 (merging does not require fusing). In addition to the weighted average for combining data, and despite Patent Owner’s protestations otherwise, there are a

multitude of ways well within the skill and understanding of a POSITA to combine Berkmo's image data with LIDAR/RADAR data. EX1044, ¶¶40-51.

(d) Obviousness

Petitioners provided clear explanations and motivations for obviousness. *See* Petition, 48-50. Patent Owner's unsupported assertion of any insufficiency cannot stand.

2. Claim 7

Far from a conclusory assertion, Petitioners provided a detailed and clear obviousness analysis in support of claim 7's invalidity. *See* Petition, 56-58.

3. Claim 19

As explained in Section III.B.1.(c), Patent Owner ignores Berkmo's explicit teaching that the "one or more additional systems" includes the imaging system. The Petition's citation at 66-67 applies equally to the imaging system. *See also* EX1044, ¶¶40-51 (explaining the combining of image data with LIDAR/RADAR data).

C. Ground #3: Claims 1-20 Are Invalid as Obvious Over Berkmo in View of Richman

Again, Petitioners provided clear explanations and motivations for obviousness as well as how to combine the teachings between Berkmo and Richman. *See* Petition, 48-50.

IV. CONCLUSION

In view of the foregoing, Patent Owner respectfully submits that the Board should maintain all Grounds of invalidity in the Petition.

Dated: August 28, 2024

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CERTIFICATE OF LENGTH (37 C.F.R. §§ 42.24(D))

The undersigned hereby certifies that, according to the word-processing system used to prepare the foregoing document, this document has 5482 words and thus complies with the applicable word limit.

Dated: August 28, 2024

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CERTIFICATE OF SERVICE (37 C.F.R. §§ 42.6(E), 42.105(A))

The undersigned hereby certifies that the foregoing document was served in its entirety on August 28, 2024, upon the following parties via Electronic Mail addresses: sbittman@crowell.com, joshsmith@crowell.com, HoneywellPGRservice@crowell.com:

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