

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HYUNDAI MOTOR COMPANY,
Petitioner,

v.

MEL NAVIP LLC,
Patent Owner.

IPR2024-00172
Patent 8,244,465 B2

Before BENJAMIN D. M. WOOD, LYNNE H. BROWNE, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

WOOD, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background*

Hyundai Motor Company (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–3 and 5 of U.S. Patent No. 8,244,465 B2 (Ex. 1001, “the ’465 patent”). Mel NavIP LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

We have authority under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon considering the Petition, Preliminary Response, and the present record, we determine that Petitioner has satisfied this threshold requirement, and therefore we institute *inter partes* review of claims 1–3 and 5 of the ’465 patent.

B. *Related Proceedings*

The parties state that the ’465 patent has been asserted in the following district court proceedings: *Mel NavIP LLC v. Hyundai Motor Company et al.*, No. 2:23-cv-00176 (E.D. Tex.) (April 18, 2023); and *Mel NavIP LLC v. General Motors Company et al.*, No. 2:23-cv-00175 (E.D. Tex.) (April 18, 2023). Pet. 87; Paper 5 (Mandatory Notices), 1.

C. *The ’465 Patent*

The ’465 patent, titled “Navigation System and Display Method of Road Network on the Same System,” issued Aug. 14, 2012, from an application filed Dec. 26, 2007. Ex. 1001, codes (21), (22), (45), (54). The ’465 patent notes that in conventional navigation systems, the information displayed on a map depends on the map scale; for example, all roads,

regardless of their size, may be displayed on a large scale map (which depicts a smaller total area), but only the larger roads will be displayed on smaller-scale maps (which depicts a larger total area). *Id.* at 1:12–17. Thus, when the scale of a displayed map is reduced, smaller roads and other elements being displayed “can sometimes disappear from the screen suddenly, thereby confusing a user.” *Id.* at 1:18–20. This is illustrated by comparing Figures 6(d) and 7(e) of the ’475 patent, reproduced below:

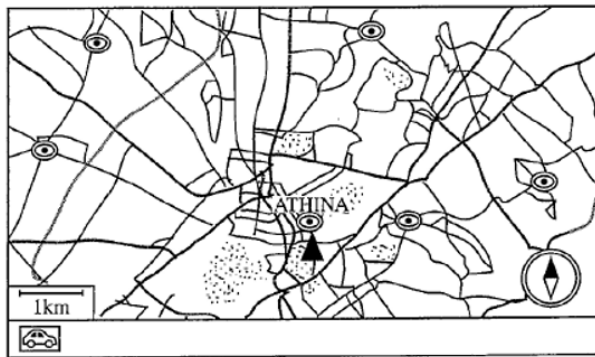


Fig. 6(d)

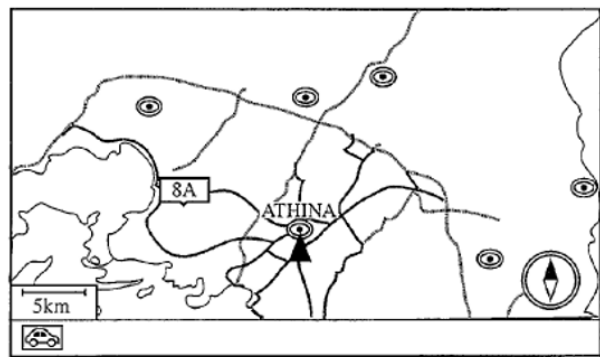
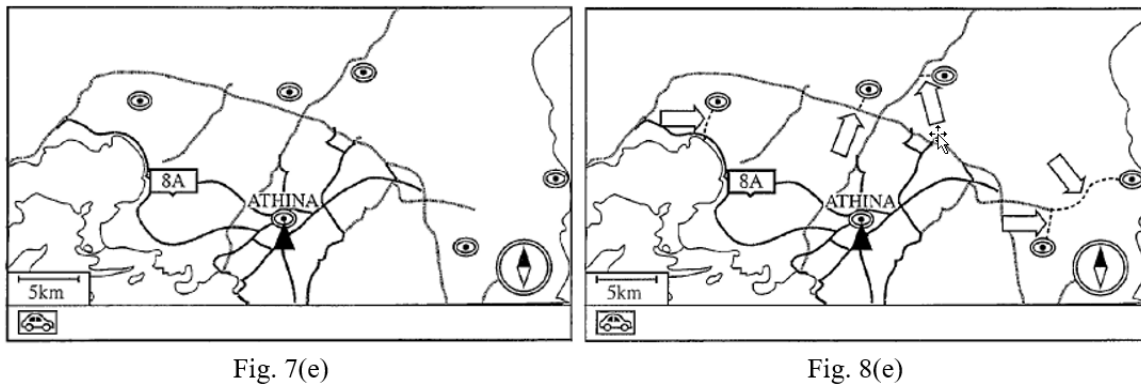


Fig. 7(e)

Figure 6(d) is an example of a map displayed at a scale of 1 km, whereas Figure 7(e) is a display of the same map at a 5 km scale. Ex. 1001, 3:11–14. The ’465 patent explains that “although the road network is displayed appropriately up to the map scale of 1 km of Figure 6(d), the road network has a break on the display on the map scale of 5 km of Figure 7(e).” *Id.* at 3:15-18. If the smaller roads that disappear are part of a calculated route that the user intends to take to reach a destination, the user may believe that “the vehicle cannot pass through.” *Id.* at 8:1–2; *see also id.* at 8:28–33 (“[I]f the road between the own-vehicle position and the city (city center) or facility such as an airport is displayed with a break, the user cannot decide as to whether the road between the break and the destination is connected via a

detour or nearly a straight line, thereby providing the user with a feeling of uneasiness.”).

To address this problem, the '465 patent, while retaining the practice of displaying roads and cities selectively based their sizes and the map scale, also displays a section of a road if it is part of a calculated route even if it would otherwise not be displayed at a particular map scale. Ex. 1001, 4:4–17, 34–38, 8:15–35. This is illustrated by comparing Figures 7(e) and 8(e) of the '465 patent, reproduced below:



Figures 7(e) and 8(e) depict essentially the same map at the same scale, but roads not appearing in the conventional map shown in Figure 7(e) are represented by dotted lines (and indicated by arrows) in Figure 8(e). Thus, “the road networks shown in [Figure 7(e)] become displays of continuous road networks as shown in [Figure 8(e)].” Ex. 1001, 3:38–41; *see also id.* at 8:33–35 (“[S]ince the road with the lower rank is displayed here, the unrest can be dispelled.”).

Figure 1, reproduced below, illustrates a block diagram of one embodiment of the '465 patent's system:

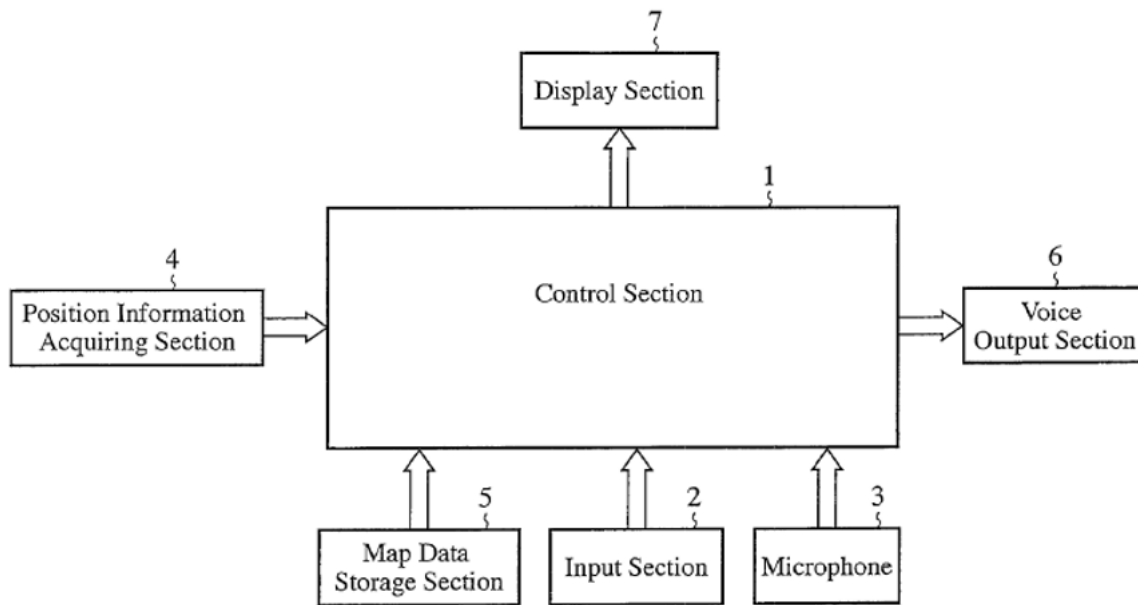


Fig. 1

As shown in Figure 1, the navigation system comprises, *inter alia*, control section 1 (e.g., a microprocessor and memory) for controlling the system's functions; input section 2 to allow a user to enter instructions, such as a desired destination; position information acquiring section 4 (e.g., GPS) for detecting the vehicle's position; map data storage section 5; and display section 7 for displaying a map. Ex. 1005, 3:45–64, 4:26–30. Map data storage section 5 “stores the map data consisting of roads necessary for the navigation and display elements including city centers and facilities, together with road attributes and classes.” *Id.* at 3:65–4:1. Each road is assigned an “attribute” or “class” depending on its size, and the attribute is used to determine whether a road will be displayed for a given map scale (unless it is part of a calculated route, in which case it will be displayed regardless of its attribute). *Id.* at 4:4–17, Fig. 2.

D. The Challenged Claims

Petitioner challenges claims 1–3 and 5 of the '465 patent. Pet. 1. Claims 1 and 5 are independent. Claim 1 is reproduced below (with Petitioner's limitation designations in brackets):

1. [1-PRE] A navigation system comprising:

[1a] a map data storage section for storing map data together with attributes and classes of the map data, the map data being composed of roads necessary for a route search and display elements including city centers and facilities, and the city centers being a display element each representing a city and indicating a representative position of the city, wherein the attributes are indicative of whether or not each of the roads should be displayed for each of a plurality of map scales;

[1b] a display section for displaying the map data;

[1c] an input section for inputting an instruction from a user;
and

[1d] a control section for carrying out:

[1e] a procedure of calculating a route between an own-vehicle position and a destination represented by one of the display elements, the destination being instructed via the input section,

[1f] in accordance with one of the plurality of map scales instructed via the input section, a procedure of displaying a map on the display section by:

[1g] selecting the roads indicated by the attributes as being displayable according to the instructed map scale, and by selecting the display elements based on ranks,

[1h] further selecting each of the roads that is part of the calculated route but not indicated by the attributes as being displayable according to the instructed map scale,
and

[1i] displaying the selected roads and the selected display elements on the display selection^[1] as part of the map.

Ex. 1001, 9:47–10:10 (Claim 1).

E. Asserted Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable based on the following specific grounds (Pet. 1):

No.	Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1	1–3, 5	§ 103 ²	Yokota ³
2	1–3, 5	§ 103	McDonough, ⁴ Huber, ⁵ Tanizaki ⁶

Petitioner also relies on the Declaration of Dr. Samuel P. Pullen to support its proposed grounds. Ex. 1003. Patent Owner relies on the Declaration of Dr. Fang Qui to support the patentability of the '465 patent. Ex. 2001.

¹ In light of similar language in claim 5, and read in the context of the rest of the claim, it is likely that “display selection” should read “display section.”

² Because the '465 patent issued from an application filed before March 16, 2013, the effective date of the amendment to 35 U.S.C. § 103 enacted by the Leahy-Smith America Invents Act (AIA), we apply the pre-AIA version of this section. *See* AIA, Pub. L. No. 112–29, § 3(n)(1), 125 Stat. 284, 293 (2011).

³ US 6,587,787 B1 (July 1, 2003) (Ex. 1005).

⁴ US 6,163,749 (Dec. 19, 2000) (Ex. 1007).

⁵ US 7,023,456 B2 (Apr. 4, 2006) (Ex. 1008).

⁶ US 2006/0220923 A1 (Oct. 5, 2006) (Ex. 1009).

II. ANALYSIS

A. *Legal Standards Used in the Merits Analysis*

“In an IPR, the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic*, 815 F.3d at 1363 (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)); *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review). Although we may indicate in this Decision that certain Patent Owner arguments are not persuasive, in doing so we do not shift the ultimate burden from Petitioner.

A claim is unpatentable under 35 U.S.C. § 103 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 . . . to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective evidence of nonobviousness, i.e., secondary considerations.⁷ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

⁷ The current record does not present or address any evidence of nonobviousness.

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art “would have had an undergraduate degree in electrical engineering, computer engineering, computer science, or an equivalent degree, as well as at least three years of experience in the design and implementation of navigation systems.” Pet. 5 (citing Ex. 1003 ¶ 6).

Patent Owner, on the other hand, contends that a person of ordinary skill in the art:

would have (a) a Bachelor’s of Science degree in a technical field and at least four years of experience in the field of geospatial information sciences; (b) a Master's of Science degree in a technical field and at least two years of experience in the field of geospatial information sciences; or (c) a PhD in a technical field relating to the geospatial information sciences.

Prelim. Resp. 5–6. Patent Owner also asserts that “[a]dditional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education” and that the ordinary artisan “is presumed to have knowledge of all relevant prior art, and therefore would have been familiar with each of the references cited in this declaration and the full range of teachings they contain.” *Id.* at 6 (citing Ex. 2001 ¶¶ 29–31).

At this stage of the proceeding, we adopt Petitioner’s definition for purposes of this Decision. We note, however, that our decision would be the same if we applied Patent Owner’s definition. We also look to the cited prior art references as evidence of the level of ordinary skill at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining the level of ordinary skill in the art may be evidenced by the cited references themselves).

C. Claim Construction

We construe each claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R. § 42.100(b). Under this standard, claim terms are generally given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc) (“We have frequently stated that the words of a claim ‘are generally given their ordinary and customary meaning.’”). Any special definitions for claim terms must be set forth in the Specification with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). We need only construe terms “that are in controversy, and only to the extent necessary to resolve the controversy.” *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017), *cert. denied* 138 S. Ct. 1695, 200 L. Ed. 2d 951 (2018).

In the Petition and Preliminary Response, neither party expressly proposes a construction of any claim term. Accordingly, at this stage of the proceeding, we do not construe any term.

D. Ground 2: Obviousness of claim 1–3 and 5 based on McDonough, Huber, and Tanizaki

Petitioner contends that the combination of McDonough, Huber, and Tanizaki would have rendered the subject matter of claims 1–3 and 5 obvious. Pet. 43–75. Patent Owner opposes. Prelim. Resp. 24–30.

1. *McDonough (Ex. 1007)*

McDonough is titled “Method and System for Scrolling a Map Display in a Navigation Application,” and relates to a navigation system installed in a vehicle, such as a car or truck. Ex. 1007, code (54), 3:20–21. Navigation system 10 is depicted in Figure 1, reproduced below.

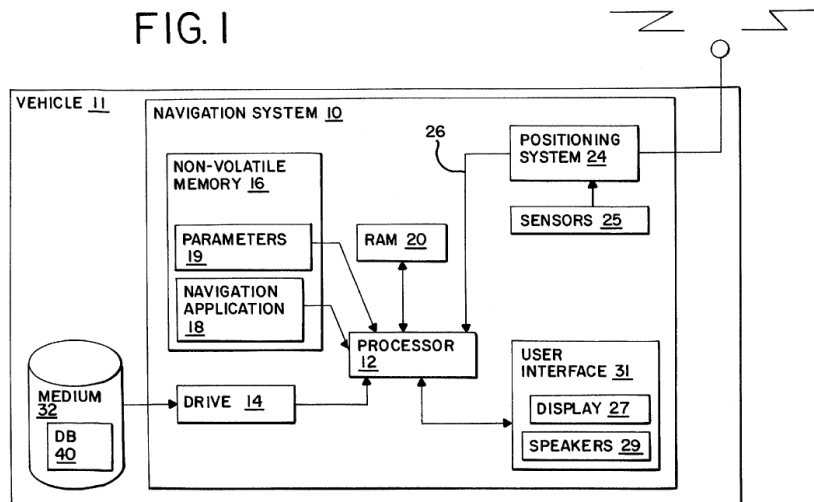


Figure 1 depicts navigation system 10, which comprises processor 12 and non-volatile memory storage device 16 for storing navigation software program 18. *Id.* at 3:33–36. Map database 30, stored on storage medium 32, contains information about geographic features, the roadway network, and points of interest in a geographic region. *Id.* at 4:5–7, 25–27. This information is displayed on display 27 using map display tool 40, which uses data at different levels of detail. *Id.* at 5:54–57. In particular, each road-segment-data record in map database 30 identifies the rank of the corresponding portion of the roadway that it represents, so that zooming can be done more efficiently using greater detail at lower layers and less detail at higher layers. *Id.* at 5:57–65. McDonough’s navigation software program 18 may include separate applications that provide various navigation

functions, including “route calculation, map display, vehicle positioning (e.g., map matching), route guidance (wherein detailed directions are provided for reaching a desired destination), destination resolution capabilities, and other functions.” *Id.* at 6:48–55.

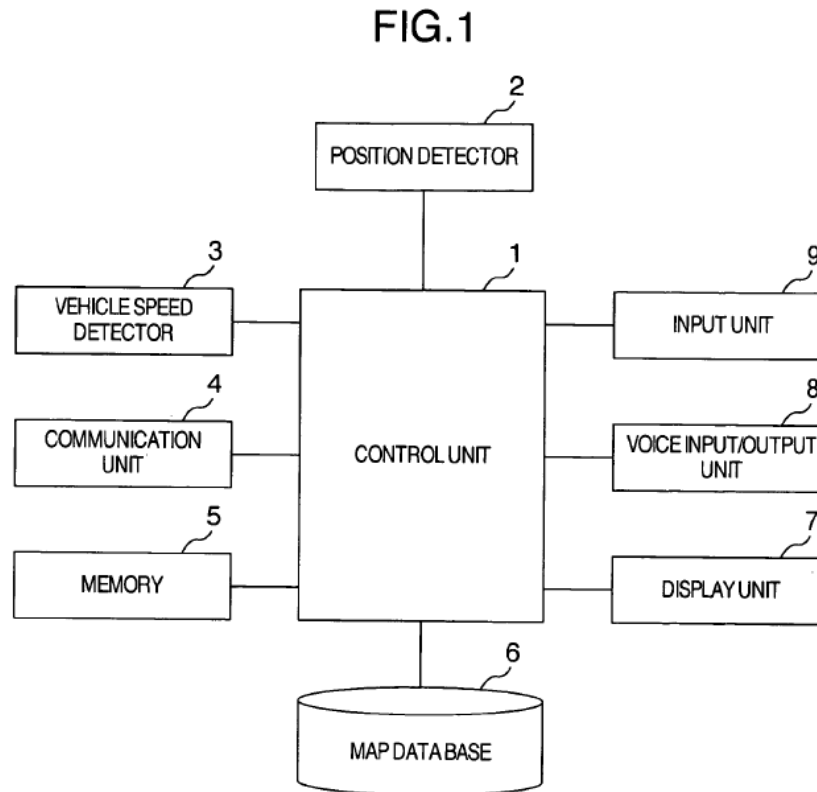
2. *Huber (Ex. 1008)*

Huber is titled “Method of Handling Context During Scaling with a Display,” and relates to presenting map information on a display screen of a computing device when a user zooms in or out. Ex. 1008, code (54), 1:14–15. Huber incorporates McDonough by reference: “There are various ways to implement a program that uses data from a geographic database to render maps graphically. For example, ways to display maps using data from a geographic database are disclosed in U.S. Pat. Nos. 6,092,076 and 6,163,749 [McDonough].” *Id.* at 3:39–44.

Huber’s navigation system includes display screen 12 that displays maps at different scales, with different levels of detail. *Id.* at 3:46–48. To do this, data that represents geographic features is organized into layers based on a rank associated with the represented features, with the lowest rank (e.g., 0) features—e.g., side streets and alleys—displayed only when the finest level of detail is desired, and the highest rank (e.g., 4) features—e.g., expressways and major arterial roads—displayed even at the coarsest level of detail. *Id.* at 3:52–62.

3. *Tanizaki (Ex. 1009)*

Tanizaki is titled “Map Display Method,” and relates to a map display and navigation system and method for vehicles. Ex. 1009, code (54), ¶ 1, Fig. 1. Tanizaki’s navigation system is depicted in Figure 1, reproduced below:

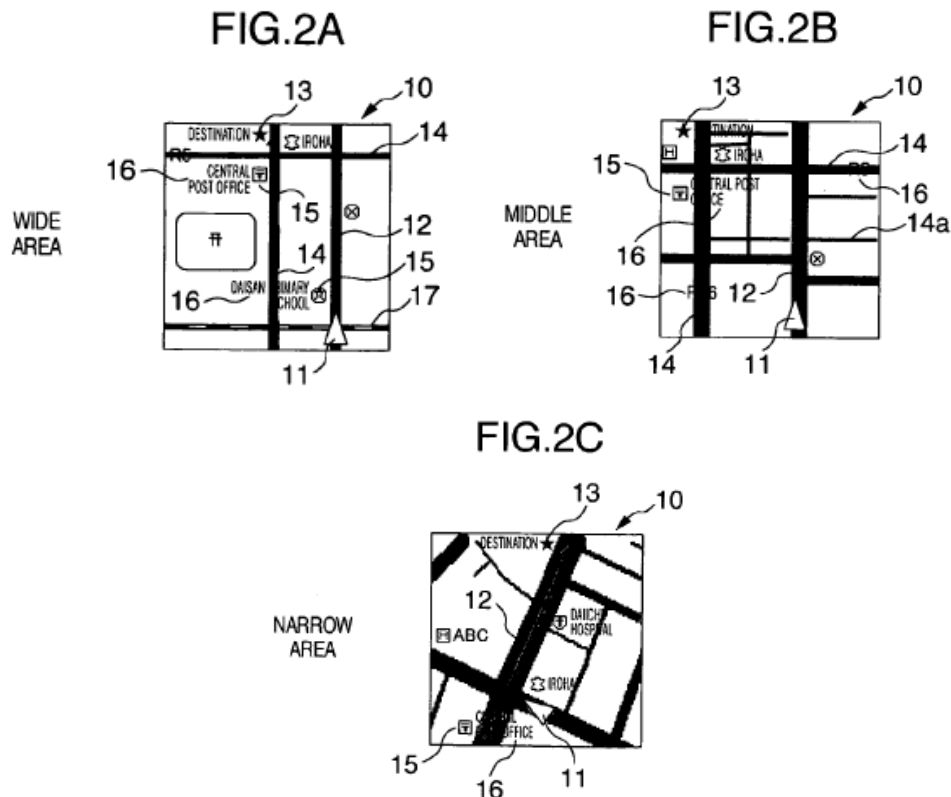


As shown in Figure 1, Tanizaki's car navigation system comprises, *inter alia*, control unit 1, position detector 2 (e.g., GPS) to periodically determine the vehicle's position, map data base 6, display unit 7, and input unit 9. Ex. 1009 ¶¶ 14, 17. Map data base 6 stores "the road data and the display element data as the component elements of the map data." *Id.* ¶ 16. "[B]y reading and combining the data of the component elements from the map data base 6, the road map data is obtained, whereby a road map is displayed on the display screen of display unit 7." *Id.*

Tanizaki's map-display method displays a "summarized map" that includes the vehicle's position, a desired destination for the vehicle, and a "guide route" calculated by the system to guide the vehicle to the destination. Ex. 1009 ¶¶ 7, 44, Fig. 5. The displayed route is a "running

route,” meaning that the map scale progressively increases in size as the vehicle nears its destination. *Id.* ¶¶ 11, 28, 33.

Tanizaki also limits the number of roads and other objects/display elements actually displayed based on screen size and map scale (“summarization degree” or “contraction scale”). Ex. 1009 ¶¶ 45–46, 51–53. This is done by assigning a priority to each type of object. *Id.* ¶ 54. Roads forming the guide route are given the highest priority, main roads are given second priority, branch roads are given third priority, etc. *Id.* ¶ 56, Fig. 8. As a result, the guide route will be displayed regardless of the map scale, as illustrated in Figures 2A to 2C, reproduced below:



Figures 2A to 2C depict “summarized maps corresponding to the distance from the vehicle position to the destination.” *Id.* ¶ 22. Tanizaki’s guide route 12 extends from the vehicle position to its destination, and “the

contraction scale of the summarized map and the area displayed are changed in accordance with the distance from the present vehicle position to the destination.” *Id.* ¶ 28. Each displayed road map, regardless of scale, includes vehicle guide route 12, destination 13, and roads 14 other than the guide route. *Id.* ¶ 22. As the scale increases, smaller roads are displayed, such as road 14a in Figure 2B.

4. *Claim 1*

a. *Undisputed Limitations*
[1b], [1c], [1d], [1e], and [1f]

Petitioner contends, *inter alia*, that: (1) McDonough discloses the preamble of claim 1 (“a navigation system comprising”) and limitations [1b] (display section), [1c] (input section), and [1d] (control section); (2) McDonough in combination with Tanizaki discloses limitation [1e] (calculating a route between own-vehicle position and destination); and (3) McDonough in combination with Huber discloses limitation [1f] (displaying a map on a display section). Pet. 64–72 (citing Ex. 1007, 1:10–28, 2:3–9, 2:17–19, 3:33–44, 3:55–4:1, 5:53–62, 6:9–33, 6:40–55, 6:59–66, 7:1–9, 7:14–24, 7:46–59, 8:2–9, 8:17–27, 10:7–18, 13:33–38, 15:25–32; Ex. 1008, 1:24–45, 1:57–60, 4:24–33, 4:55–57, 5:51–64, 6:32–35, 7:29–35; Ex. 1009 ¶¶ 7, 28, 36, 42, 44, Abstr.). Petitioner supports these contentions with citations to the record and to the testimony of its declarant, Mr. Williams. At this stage of the proceeding, Patent Owner does not dispute these contentions.

On this preliminary record, we determine that Petitioner is reasonably likely to prevail in showing that McDonough alone or in combination with

Huber or Tanizaki teaches the preamble of claim 1 and limitations [1b], [1c], [1d], [1e], and [1f].

b. Limitation [1a]

Limitation [1a] recites:

a map data storage section for storing map data together with attributes and classes of the map data, the map data being composed of roads necessary for a route search and display elements including city centers and facilities, and the city centers being a display element each representing a city and indicating a representative position of the city, wherein the attributes are indicative of whether or not each of the roads should be displayed for each of a plurality of map scales.

Ex. 1001, claim 1. Petitioner contends that McDonough teaches limitation [1a]. Pet. 59–63. Petitioner specifically relies on McDonough’s map database 30 to correspond to the map data storage section; Petitioner asserts that McDonough’s map data is composed of data that represents roads necessary for a route search and display elements including the claimed city centers and facilities. *Id.* at 60–61. Petitioner also contends that McDonough teaches the claimed attributes and classes of the map data, the attributes indicative of whether each of the roads should be displayed for each of a plurality of map scales. *Id.* at 62–64. Petitioner supports its contentions with citations to the record and to Mr. Williams’ testimony. *Id.*

Patent Owner responds that McDonough “fails to teach ‘attributes and classes’ for ‘display elements including city centers and facilities.’” Prelim. Resp. 25. (Patent Owner does not, at this preliminary stage, dispute that McDonough teaches attributes and classes for roads.) On this record, we disagree. Petitioner asserts that McDonough’s point data items 428, which are displayed as icons, correspond to the claimed data elements. Pet. 61

(citing Ex. 1007, 5:45–52). According to Petitioner, “McDonough’s point data items 428 represent points of interest including cities (*i.e.*, city centers), as well as museums, restaurants, and the like (*i.e.*, facilities).” *Id.* (citing Ex. 1007, 1:39–41, 4:30–33, 8:31–40, 9:15–23). As Petitioner points out (*id.* at 64), each point data item is associated with a “feature type” identifier. Ex. 1007, 5:45–52, Fig. 5. Petitioner considers the feature type of the point data items to correspond to the item’s “class.” Pet. 64. At this stage of the proceeding, Patent Owner does not address this contention in its Preliminary Reply.

We agree with Patent Owner, however, that Petitioner does not contend that McDonough also teaches attributes for display elements (as opposed to roads). *See* Pet. 63 (arguing that a “A POSITA would have understood that McDonough’s ranks are ‘attributes’ indicative of whether or not each of the roads in the map database 30 should be displayed,” without mentioning display elements in this context). It is unclear, however, whether claim 1 requires attributes for display elements, since claim 1 defines attributes only in the context of roads, *i.e.*, “wherein the attributes are indicative of whether or not each of the *roads* should be displayed for each of a plurality of map scales.” Ex. 1001, claim 1 (emphasis added). Claim 1 also recites that while roads are selected for display based on attributes, display elements are selected for display based on “ranks.” *Id.* This further suggests that attributes are specific to roads rather than display elements. The parties are encouraged to address this issue in subsequent briefing.

On this record, we determine that Petitioner is reasonably likely to prevail in showing that McDonough teaches limitation [1a].

c. Limitation [1g]

Limitation [1g] recites that claim 1’s map-display procedure comprises “selecting the roads indicated by the attributes as being displayable according to the instructed map scale, and by selecting the display elements based on ranks.” Ex. 1001, claim 1. Petitioner contends that McDonough teaches this limitation. Pet. 72–74. According to Petitioner:

[M]ap processing layer 42 of map display tool 40, which runs on processor 12, retrieves (*i.e.*, selects) roads from map database 30. Roads are selected [for display] based on whether the stored road ranks (*i.e.*, attributes) indicate that the roads are displayable according to the instructed map layer (*i.e.*, map scale).”

Id. at 72–73 (citing Ex. 1007, 8:17–27, 8:40–43, 8:66–9:3, 13:53–65, Figs. 3, 8; Ex. 1003 ¶¶ 236–37) (citations omitted).

Petitioner further contends that McDonough teaches “that the map processing layer 42 selects points of interest (*i.e.*, city centers and facilities) for display based on their priorities (*i.e.*, ranks).” *Id.* at 73 (citing Ex. 1003 ¶ 243). Petitioner relies on McDonough’s teaching that points of interest in a map area to be rendered are placed into a point-of-interest list 66, which “may be presorted ‘according to point of interest priority information contained in the point of interest data retrieved from the map database.’” *Id.* at 74 (quoting Ex. 1007, 16:60–64; citing Ex. 1003 ¶ 240). Map processing layer 42 then “selects for display names and icons (*i.e.*, display elements) in the point of interest list 66 according to their presorted priority order (or according to their priority order in the priority list 76).” *Id.* (citing Ex. 1007, 9:5–9, 16:57–60, 16:65–17:11, 18:14–24; Ex. 1003 ¶ 241). According to

Petitioner, “[e]ach name/icon is processed in priority order and is selected for display as long as it will not overlap with a selected higher-priority name or icon.” *Id.* (citing Ex. 1007, 17:12–33, 18:4–13; Ex. 1003 ¶ 242). Thus, according to Petitioner, “map processing layer 42 selects display elements for display based on their priorities (i.e., ranks).” *Id.* (citing Ex. 1003 ¶ 243).

Patent Owner responds that nowhere “in its discussion of limitation [claim 1a] [or] [claim 1g] does Petitioner argue that McDonough discloses ranks of the display elements and thereby ‘selecting the display elements based on ranks.’” Prelim. Resp. 27 (citing Ex. 2007 ¶ 73). We disagree. Limitation [1a] does not recite the term “ranks” associated with display elements (or otherwise). Instead, it recites “attributes and classes of the map data.” Ex. 1001, claim 1. For limitation [1g], as set forth above, Petitioner does contend that McDonough teaches “selecting the display elements based on ranks,” and supports that contention with citations to the record and testimony from its declarant, Mr. Williams. Patent Owner does not specifically address this analysis.

On this record and at this stage of the proceeding, we determine that Patent Owner is reasonably likely to show that McDonough teaches limitation [1g].

d. Limitation [1h]

Limitation [1h] recites “further selecting each of the roads that is part of the calculated route but not indicated by the attributes as being displayable according to the instructed map scale.” Ex. 1001, claim 1. Petitioner relies on the combination of McDonough and Tanizaki to teach this limitation. Pet. 53–58, 74. Petitioner specifically relies on Tanizaki’s

teaching that roads that are part of a guide route are given the highest display priority so that they would be displayed regardless of the map scale. *Id.* at 55–56 (citing Ex. 1009 ¶¶ 28–31, 54–56, 58–59, 72, 77, Figs. 2A–C, 3A–C, 7, 8; Ex. 1003 ¶ 193). Petitioner contends that one of ordinary skill in the art would have modified McDonough’s map display system in accordance with this teaching to avoid discontinuities in the displayed guide route, which discontinuities “would undesirably confuse the driver who is expecting to see a continuous route.” *Id.* at 56–57 (citing Ex. 1003 ¶ 195). According to Petitioner,

Tanizaki’s teachings beneficially increase driver safety in the use of the navigation system by avoiding distraction where the driver, due to route discontinuities, is uncertain regarding his or her current whereabouts, where he or she is relative to the guide route, and/or where he or she is relative to the destination.

Id. at 57.

Petitioner also asserts that before the invention, “it was common for navigation system users to ‘zoom out’ before starting a journey to see the entire guide route,” which “allowed the driver to visualize the entire route and plan potential stops along the way,” or to instruct the system to calculate a new route if the original proposed route was not acceptable. Pet. 57 (citing Ex. 1003 ¶ 196). Petitioner submits that “a POSITA would have recognized that, by preventing discontinuities in the displayed guide route even when the driver zooms out to see the entire guide route, the proposed modification would have made it easier for drivers to plan their trip and decide whether to request a new route.” *Id.*

Patent Owner first responds that Petitioner’s reason to combine Tanizaki with McDonough is based on Petitioner’s assertion that “Tanizaki

is “[i]n the same field of endeavor,”” but that alone “is not a proper motivation to combine.” Prelim. Resp. 27 (citing Pet. 56). As described above, however, Petitioner’s reason-to-combine analysis is not so limited.

Patent Owner next argues that “a POSITA would not have been motivated to combine the ‘summarized map’ and route guidance of Tanizaki with the first and second buffering system of McDonough.” Prelim. Resp. 27 (citing Ex. 2001 ¶ 73). According to Patent Owner, one of ordinary skill in the art would not have incorporated Tanizaki’s teaching to “display the entire route guidance on the screen” with McDonough because “McDonough is directed to smooth scrolling by holding present map location in the first buffer and predicted future location in a second buffer.” *Id.* at 27–28 (citing Ex. 2001 ¶ 76). Patent Owner asserts that displaying the entire “route guidance” (by which we understand Patent Owner to mean the entire guide route calculated by the navigation system) is “incompatible” with McDonough’s system, and “since McDonough is intended to scroll from one location to a look-ahead location smoothly, it would not need or want to display the entire route guidance on the display.” *Id.* at 28 (citing Ex. 2001 ¶ 76).

On the present record, we do not find this argument persuasive. Neither Patent Owner nor its declarant, Dr. Qui, points to any portion of McDonough that supports the notion that McDonough’s system, and particularly its smooth-scrolling feature and use of first and second buffers, is “incompatible” with displaying an entire guide route. It is also unclear what Patent Owner means by McDonough not “need[ing] or want[ing]” to display the entire guide route. To the extent Patent Owner is arguing that McDonough’s smooth scrolling would render superfluous the ability to

zoom out to see an entire guide route, Patent Owner has not explained why this would be the case. Patent Owner's only supporting evidence is the testimony of its declarant, Dr. Qui, which merely repeats *verbatim* the assertion which it is supposed to support, without any additional evidence or reasoning. Ex. 2001 ¶ 76. We give such testimony little weight where, as here, we find the language in the filing that the declaration intends to support unpersuasive on its own. *See Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB Aug. 24, 2022) (precedential) (according little weight to declarant testimony that is "conclusory and unsupported," and "that merely repeats, *verbatim*, the conclusory assertion for which it is offered to support"). Conversely, Petitioner has provided evidence that the ability to zoom out to see an entire proposed route was a known functionality in navigation systems at the time of the invention, and that one of ordinary skill in the art would have understood that doing so was advantageous for drivers. Pet. 57 (citing Ex. 1003 ¶ 196). Patent Owner does not dispute this evidence at this preliminary stage of the proceeding, or explain why the ability to smooth-scroll would render such functionality undesirable.

Patent Owner further argues that modifying McDonough with Tanizaki "would obviate the need for [McDonough's] map scale feature" and "would result in an overly complicated system that would not be an improvement over either invention individually." Prelim. Resp. 28. In support of this argument Patent Owner asserts, *inter alia*, that "[t]he zooming and map scale feature described in McDonough requires a road to be stored in the database according to separate layers," such that "the road data for each rank will be distinct and held separately in the database." *Id.* at

29 (citing Ex. 2001 ¶ 77). Patent Owner submits that “[a] POSITA would have to change the way the road data would be stored and retrieved; accordingly, they would not incorporate data layering hierarchy described by McDonough as it would be wasteful and overly complicated.” *Id.* (citing Ex. 2001 ¶ 77).

At this stage of the proceeding, and on the current record, this argument is unpersuasive. First, it relies solely on testimony from Dr. Qui, which, as above, merely repeats *verbatim* the assertions for which it is offered as support, with no additional evidence or reasoning. *See* Ex. 2001 ¶ 77 (not citing to, much less discussing, any portion of McDonough). Second, it is unclear from the record that one of the premises underlying this argument—that each layer of road data contains road data for only a single rank of roads—is correct. McDonough teaches, for example, that the lowest layer of data (e.g., layer “C0”) includes data for *all* roads, i.e., all roads “having a rank of ‘0’ or higher.” Ex. 1007, 6:9–18. The next layer would include all the roads except roads with a 0 rank. *Id.* at 6:19–22. Only the last layer contains data for roads having a single rank: the highest-ranked roads. *Id.* at 6:26–27.

In sum, considering Petitioner’s contentions, Patent Owner’s arguments and the current record, we determine that Petitioner is reasonably likely to prevail in showing that the combination of McDonough and Tanizaki teach limitation [1h], and that one of ordinary skill in the art would have had reason to combine the references.

e. Limitation [1i]

Limitation [1i] recites “displaying the selected roads and the selected display elements on the display selection as part of the map.” Ex. 1001,

claim 1. Petitioner asserts that “McDonough discloses that map display tool 40 running on processor 12 displays the selected roads and display elements on display 27 (i.e., the display selection) as part of a map.” Pet. 75 (citing Ex. 1007, 6:59–66, 7:6–9, 7:51–59, 14:30–36, 14:53–56, 15:25–38, 19:31–32; Ex. 1003 ¶ 247).

Patent Owner relies on arguments made in connection with limitation [1h] to support its position that McDonough does not teach this limitation. Prelim. Resp. 30. Because we found those arguments unpersuasive on the current record, and having reviewed Petitioner’s contentions and the current record, we determine that Petitioner is reasonably likely to prevail in showing that McDonough teaches limitation [1i].

f. Summary as to Claim 1

Having considered Petitioner’s contentions, Patent Owner’s arguments, and the evidence currently of record, we determine that Petitioner is reasonably likely to prevail in showing that claim 1 would have been obvious over the combination of McDonough, Huber, and Tanizaki. Thus, Petitioner satisfies the threshold requirement for institution of *inter partes* review on the basis of Ground 1.

5. Claims 2, 3, and 5

“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.” 37 C.F.R. § 42.108(a). We must “either (1) institute as to all claims challenged in the petition and on all grounds in the petition, or (2) institute on no claims and deny institution.” Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov.

2019),⁸ 5–6, 64; *see also* *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1359–60 (Fed. Cir. 2018) (stating a decision to institute is “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”). Thus, because we have decided to grant institution on Ground 2 with respect to claim 1, we must do the same for claims 2, 3, and 5.⁹

E. Ground 1: Obviousness of Claims 1–3 and 5 based on Yokota

Petitioner contends that claims 1–3 and 5 would have been obvious over Yokota in combination with the knowledge of one of ordinary skill in the art. Pet. 5–42. Patent Owner opposes. Prelim. Resp. 12–24.

As noted above, because we have decided to institute *inter partes* review based on Ground 2, we must do the same for Ground 1. Nonetheless, we discuss Ground 1 to address Patent Owner’s challenges to Petitioner’s contentions based on Yokota to provide guidance to the parties during trial.

1. Yokota (Ex. 1005)

Yokota is titled “Vehicle Navigation System Apparatus and Method Providing Enhanced Information Regarding Geographic Entities,” and relates to “a vehicle navigation apparatus displaying enhanced information regarding geographic entities, such as the names, sizes, and boundaries of municipalities, counties, and states.” Ex. 1005, code (54), 1:10–14. Figures

⁸ Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf?MURL=TrialPracticeGuideConsolidated>

⁹ Patent Owner does not argue the patentability of these claims beyond referring to arguments made in support of the patentability of claim 1, which we addressed above. Prelim. Resp. 30–32.

7A–7D of Yokota, reproduced below, illustrate various map displays according to an exemplary embodiment.

FIG. 7A

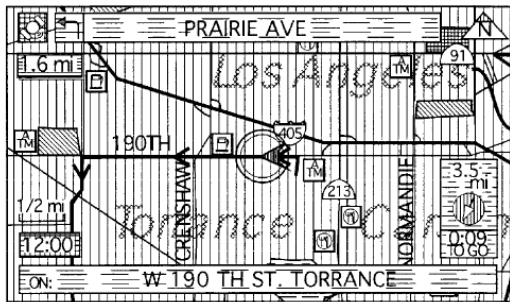


FIG. 7B

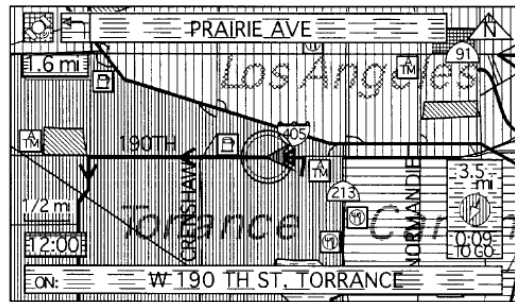


FIG. 7C

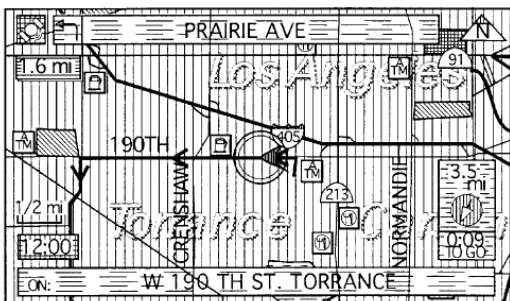
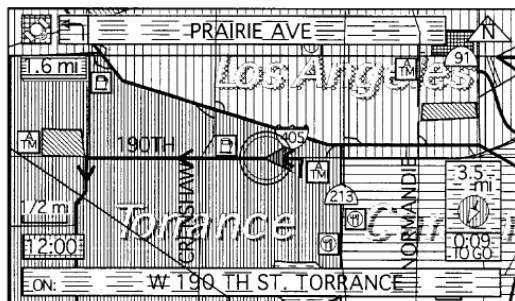


FIG. 7D



Figures 7A–7D depict four views of map displays with layers overlaid on each other. *Id.* at 4:1–3. Yokota discloses that “[t]he various layers contain at least geographic features, such as lakes and parks, geographic areas, such as states and cities, roads, such as interstate highways and city streets, and names, such as California and Main Street.” *Id.* at 11:5–8. The layers also include street names, points of interest, such as restaurants, a guidance route, and route numbers. *Id.* at 11:13–15. Yokota explains that guidance routes “are directions to a driver to show the driver a pathway to a particular destination.” *Id.* at 11:18–19. According to Yokota, as the vehicle moves, a display controller constantly receives new location data and

then pulls map data corresponding to the new location as part of a continuous cycle. *Id.* at 11:23–27.

Yokota explains that the display controller “uses the road priority levels to determine the appropriate set of roads to display on a given map display.” *Id.* at 9:8–10. A default road priority level might be to display only interstate highways and roads at exits from interstate highways on very small-scale map displays. *Id.* at 9:10–12. An exemplary set of road priority levels is depicted in Table 3, reproduced below.

TABLE 3					
	Scale				
	Smallest	Small	Medium	Large	Largest
Inter-state	Shown	Shown	Shown	Shown	Shown
Major Hwys	Upgradable	Shown	Shown	Shown	Shown
Minor Hwys	Omitted	Upgradable	Shown	Shown	Shown
Major Roads	Omitted	Omitted	Upgradable	Shown	Shown
Minor Roads	Omitted	Omitted	Omitted	Upgradable	Shown

Table 3 depicts a table having a map scale labeled “Smallest, Small, Medium, Large, and Largest” from left to right across the table; and road types listed from top to bottom on the left side of the table, including Interstate, Major Highways, Minor Highways, Major Roads, and Minor Roads. *Id.* at 9:17–32. Depending on the map scale, Table 3 indicates whether certain roads are “Shown,” “Omitted,” or “Upgradable.” *Id.* According to Yokota, upgrades include situations where: “Lower-level roads may be displayed in a rural map at smaller scales than would be allowed in a city area, because of the lower density of roads in rural areas, although local variances are allowed in both rural and urban areas.” *Id.* at 9:33–37.

2. *Claim 1*

Petitioner contends that Yokota alone or in combination with the knowledge of a POSITA discloses the preamble and all of the limitations of claim 1. At this stage of the proceeding, Patent Owner only disputes that Yokota teaches limitations [1a], [1g], and [1h]. Prelim. Resp. 14–21. We address these limitations below.

a. Limitation [1a]

Petitioner contends that Yokota’s map data 24 stored on CD-ROM 22 (or other storage media) corresponds to the claimed map data storage section; that road data table 150 included in map data 24 comprises “the ‘road data’ ‘used in displaying roads in the vehicle navigation system’ (i.e., the roads necessary for a route search)”; and that map data 24 also includes data relating to the claimed display elements including city centers and facilities. Pet. 11–13. Petitioner further contends that Yokota’s road “priority levels” correspond to attributes indicative of whether each of the roads should be displayed for each of a plurality of map scales. *Id.* at 13–15. Petitioner points to Table 3 of Yokota as illustrating a sample set of priority levels and identifying the map scales at which a particular road level would be displayed. *Id.* Petitioner asserts that Yokota’s map data storage section also stores data relating to the “type” of city centers and facilities, which corresponds to the claimed “classes.” *Id.* at 15.

Patent Owner responds that Table 3 of Yokota does not teach the claimed attributes because it is “ambiguous with respect to certain roads being referred to as ‘upgradable’ rather than ‘whether or not *each of the roads* should be displayed for *each* of a plurality of map scales.’” Prelim. Resp. 15–16. On this record, we disagree. Yokota isn’t ambiguous about

“upgradable” roads; instead, Yokota teaches that they may be displayed at a given map scale depending on certain conditions:

Lower-level roads may be displayed in a rural map at smaller scales than would be allowed in a city area, because of the lower density of roads in rural areas, although local variances are allowed in both rural and urban areas. This flexibility permits more details in sparsely-covered areas while avoiding excessive rendition of streets in city areas at the same map scale.

Ex. 1005, 9:33–39; *see also* Pet. 14 n.1 (citing Ex. 1005, 9:33–10:5, Fig. 5) (addressing upgradable aspect of Yokota’s teachings). Because the conditions determining whether upgradable roads would be displayed at a particular map scale are reasonably clear, we disagree with Patent Owner that Yokota is ambiguous regarding these roads.

Patent Owner next argues that “Yokota fails to teach ‘attributes and classes’ for ‘display elements including city centers and facilities,’” and, in particular, Petitioner “ignores any discussions of attributes for display elements including city centers and facilities.” Prelim. Resp. 16.

Petitioner asserts that Yokota teaches “classes” of the display elements, such as “population and type” for city centers, and “service type” for facilities. Pet. 15 (citing Ex. 1005, 5:1–7, 5:23–27, 5:33–39, 7:15–25, 8:10–22, 8:26–34, 8:38–57, 12:44–53; Ex. 1003 ¶¶ 110–111). But, as Patent Owner notes, Petitioner does not allege that Yokota teaches “attributes” for display elements. As discussed above in connection with Ground 2, however, it is unclear whether claim 1 requires “attributes” for display elements. The parties are encouraged to address this issue in subsequent briefing.

b. Limitation [1g]

Petitioner contends that Yokota alone or in combination with the knowledge of one of ordinary skill in the art “renders obvious . . . limitation [1g].” Pet. 25. Petitioner contends that Yokota selects roads for display based on attributes because they are selected for display based on the map scale and the road’s priority. *Id.* (citing Ex. 1005, 9:8–30, 11:1–17, Abstr.). Petitioner further contends that Yokota “selects city center and facility display elements based on their priorities (i.e., ranks) and draws them as layers.” *Id.* at 28–29 (footnote omitted).

Further, according to Petitioner, “[a] POSITA also would have found it obvious to select Yokota’s city center and facility display elements based on ranks. *Id.* at 29 (citing Ex. 1003 ¶ 139). Petitioner submits that “[p]rior to the alleged invention of the ’465 patent, it was well-known in the art for navigation systems to use ranks to determine which display elements to display on a map,” and “[r]anks were commonly used to minimize the amount of information displayed on the map (thus reducing clutter and making the map easier to read) while ensuring that the most relevant display elements are shown for the selected map scale.” *Id.* at 29–30 (citing Ex. 1003 ¶ 139). Therefore, Petitioner asserts, one of ordinary skill in the art would have been motivated to modify Yokota to select city center and facility display elements based on ranks to reduce map clutter, prevent display elements from overlapping with each other and with displayed roads, and ensure that the most relevant display elements are shown for a selected map scale. *Id.* at 30 (citing Ex. 1003 ¶ 140).

Patent Owner responds that “Yokota does not include ranks for facility information based on map scale.” Prelim. Resp. 17. Patent Owner

also disputes that one of ordinary skill in the art would have modified Yokota to do so because:

Yokota was primarily concerned about generating a “set of layers and an order in which the display controller 16 may synthesize them to create a display, is: [*sic*] base polygons, e.g., city boundaries; then geo-feature polygons, e.g. shopping malls and rivers; then city name labels; then local roads; then highways; then freeways; then street names; then points of interest, such as restaurants; then a guidance route, if present; then route numbers.”

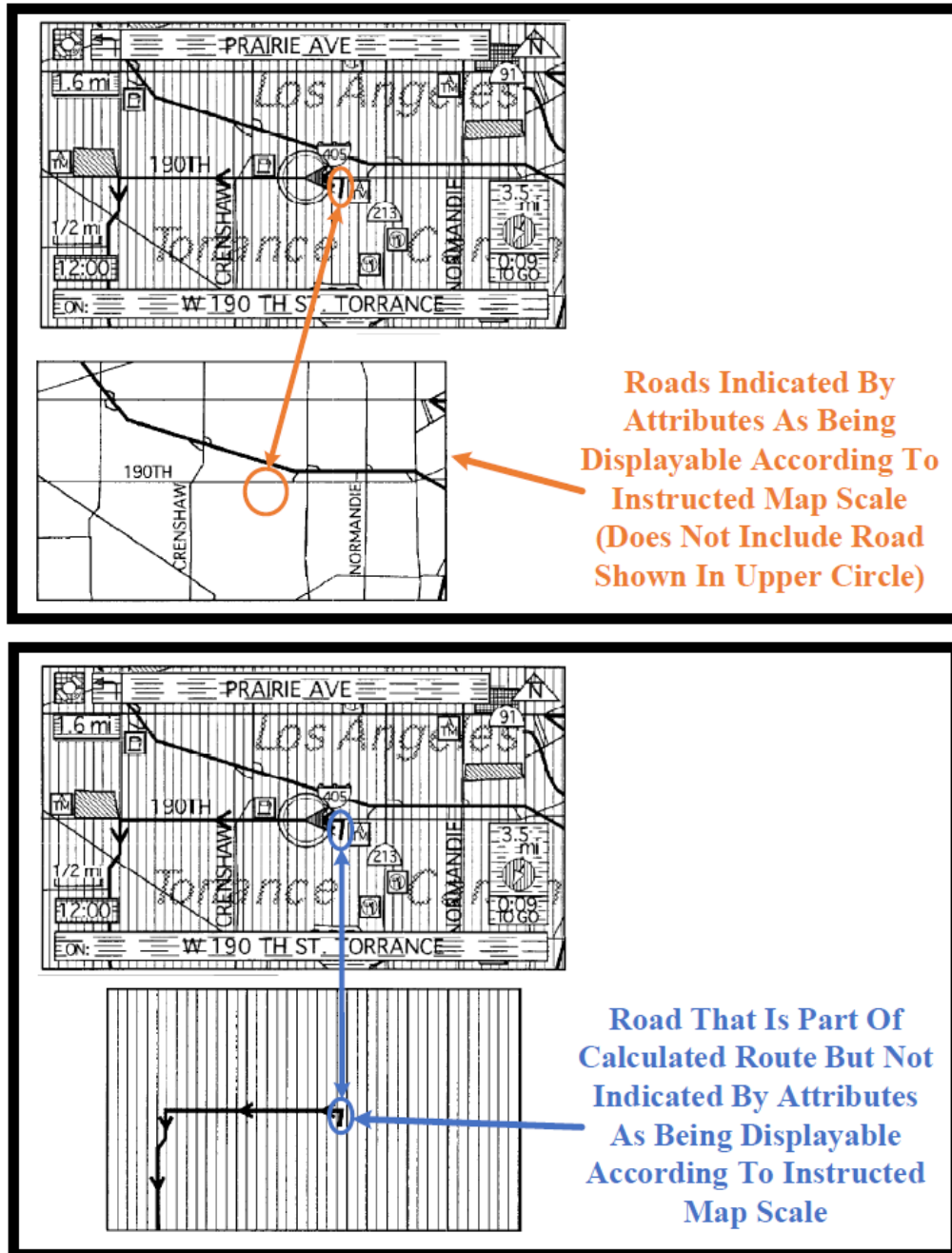
Id. at 18 (quoting Ex. 1005, 11:8–15; citing Ex. 2001 ¶¶ 63-64).

Patent Owner’s argument that “Yokota does not include ranks for facility information based on map scale” presumes that claim 1 requires ranks to be based on map scale. It is not clear that this is the case, however. Claim 1 requires “selecting *roads* indicated by the attributes as being displayable according the instructed map scale.” Ex. 1001, claim 1 (emphasis added). Display elements, however, are selected for display “based on ranks,” without expressly requiring the instructed map scale to be a factor. The parties may wish to address this claim construction issue in subsequent briefing. As for Patent Owner’s argument that one of ordinary skill in the art would not have modified Yokota as Petitioner proposes, Patent Owner has not explained why Yokota’s generation and use of layers to create a map display would discourage one of ordinary skill in the art from prioritizing the display of facilities to avoid clutter and overlap.

c. Limitation [1h]

Petitioner contends that “Yokota discloses and suggests limitation [1h].” Pet. 31. Petitioner asserts that “Yokota discloses that after the layers containing the displayable roads and the selected elements have been drawn,

the display controller 16 draws a layer containing the calculated ‘guidance route.’” *Id.* (citing Ex. 1005, 11:8–17). Petitioner provides images in the Petition, reproduced below, combining various drawings of Yokota to depict what it contends to be the display of a road that is part of a guide route that otherwise would not have been displayed based on its attribute:



In the first image reproduced above, Petitioner combines Figures 6D and 7C of Yokota; in the second image, Petitioner combines Figures 6F and 7C of Yokota. Pet. 31–32. According to Petitioner, these images show a portion of a guide route displayed (circled) that was not indicated by attributes as displayable according to an instructed map scale. Pet. 31. Petitioner submits that “A POSITA would also have understood that, to draw a layer containing the roads that are part of the calculated route but not indicated by the attributes as being displayable according to the instructed map scale, the display controller 16 must first select the roads to be drawn.” *Id.* at 32–33 (citing Ex. 1003 ¶ 146; Ex. 1005, Abstr., 9:8–30, 11:1–17, Fig. 5).

Petitioner further contends that:

Yokota’s teaching that “a guidance route” is displayed (as opposed to “a portion of a guidance route,” the displayable portions of a guidance route,” etc.), along with Yokota’s figures [6D, 6F, and 7C] . . . also at least suggests that the layer containing the calculated guidance route includes *all* roads that are part of the calculated guidance route—including any roads that are part of the calculated guidance route but not indicated by the attributes as being displayable according to the instructed map scale.

Pet. 32 (citing Ex. 1003 ¶ 145; Ex. 1005, 11:8–17, Figs. 6F and 7A–D).

Patent Owner responds that “[t]he guidance route of FIG. 6F does not show any roads that were not displayed in FIG. 6F [sic, 6D] and also fails to show the entire calculated route.” Prelim. Resp. 20. Patent Owner asserts that “Petitioner attempts to conflate the vertical hash at the end [of the calculated route] as a road,” which “is objectively false,” because it “is not labeled as a road and not discussed as a road anywhere in Yokota,” but “is just hanging in space.” *Id.* Patent Owner further argues that Petitioner’s

contention that Yokota “*at least suggests* that the layer containing the calculated guidance route includes *all* roads that are part of the calculated guidance route” is “patently false.” *Id.*

We will decide whether Yokota teaches limitation [1h] on a complete record. The parties are encouraged to address in subsequent briefing whether claim 1 requires the *entire* guide route to be displayed, as well as the import of the “vertical hash” in Yokota.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has shown that there is a reasonable likelihood that it would prevail with regard to at least one of the claims challenged in the Petition. Accordingly, we institute *inter partes* review of claims 1–3 and 5 of the ’465 patent on all asserted grounds.

IV. ORDER

For the reasons given, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–3 and 5 of the ’465 patent on all asserted grounds is *instituted*; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of trial, which will commence on the entry date of this Decision.

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