

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WESTINGHOUSE AIR BRAKE TECHNOLOGIES CORPORATION,
Petitioner,

v.

SIEMENS INDUSTRY, INC.,
Patent Owner.

Case IPR2017-01270
Patent 7,236,860 B2

Before KRISTEN L. DROESCH, MEREDITH C. PETRAVICK, and
TIMOTHY J. GOODSON, *Administrative Patent Judges*.

GOODSON, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Petitioner filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1, 3, 5, 7, 10, 15, 16, 18, 20, and 25 of U.S. Patent No. 7,236,860 B2 (Ex. 1001, “the ’860 patent”). Patent Owner filed a Preliminary Response to the Petition. Paper 8 (“Prelim. Resp.”). We have authority to determine whether to institute an *inter partes* review. *See* 35

U.S.C. § 314; 37 C.F.R. § 42.4(a). Upon consideration of the Petition and the Preliminary Response, we do not institute an *inter partes* review of any claims of the '860 patent.

A. Related Matters

Patent Owner is asserting the '860 patent against Petitioner in *Siemens Industry, Inc. v. Westinghouse Air Brake Tech. Corp.*, Case No. 1-16-cv-00284 in the U.S. District Court for the District of Delaware. Pet. vi; Paper 5, 1. In co-pending Case IPR2017-01263, Petitioner is challenging U.S. Patent No. 6,996,461, to which the '860 patent claims priority as a continuation. Paper 5, 1; Ex. 1001, at [63].

B. The '860 Patent

The '860 patent is entitled “Method and System for Ensuring that a Train Does Not Pass an Improperly Configured Device.” Ex. 1001, at [54]. Consistent with that title, the Background of the '860 patent indicates that the invention seeks to improve train safety by avoiding accidents due to improperly set switches or malfunctioning grade crossing gates. *Id.* at 1:18–49. To that end, the '860 patent describes

a computerized train control system in which a control module determines a position of a train using a positioning system such as a global positioning system (GPS), consults a database to determine when the train is approaching a configurable device such as a switch or grade crossing gate, continuously interrogates the device to determine its status as the train approaches the device, and forces an engineer/conductor to acknowledge any detected malfunction.

Id. at 1:54–62.

Repeatedly interrogating the device as the train approaches is beneficial because it permits detection of malfunctions or changes in configuration after the initial interrogation. *Id.* at 4:9–15. In addition, “it is

preferable for the device's response to include its identification number as this allows for greater assurance that a response from some other source has not been mistaken as a response from the device.” *Id.* at 4:16–20. The '860 patent also explains that an advantage of interrogating a configurable device as the train approaches is that the device need not transmit information when no trains are in the area, which saves power compared to continuously transmitting wayside devices. *Id.* at 5:34–41.

C. Challenged Claims

Petitioner challenges claims 1, 3, 5, 7, 10, 15, 16, 18, 20, and 25. Of these, claims 1 and 15 are independent claims. Claim 1 is reproduced below, with labels added by Petitioner for ease of reference:

1. A system for controlling a train, the system comprising:
 - [a] a control unit located on the train;
 - [b] a database connected to the control unit, the database including position information for a plurality of configurable devices, the database further including an identifier for each of the configurable devices;
 - [c] a positioning system connected to the control unit, the position system being operable to provide position information pertaining to the train to the control unit; and
 - [c1]¹ a transceiver connected to the control unit;
 - [d] wherein the control unit is configured to perform the steps of:
 - obtaining a position of the train from the positioning system;
 - [e] identifying a configurable device in the database as a next configurable device the train will approach;

¹ Petitioner omitted, and therefore did not label, this limitation in the listing of claims in the Claim Appendix of the Petition. *See* Pet. 68.

[f] determining a proximity of the train to the next configurable device;

[g] comparing the proximity to a threshold;

[h] transmitting an interrogation message to the next configurable device when the proximity is below a threshold;

[i] receiving a response to the interrogation message, the response including an identifier associated with a configurable device and a configuration of the configurable device;

[j] allowing the train to pass the configurable device if the response is received within a first period of time, the identifier included in the response matches the identifier associated with the configurable device of interest, and the configuration included in the response is acceptable; and

[k] taking corrective action otherwise.

Ex. 1001, 5:57–6:24; *see also* Pet. 68–69 (reproducing claim with labels added).

D. Alleged Grounds of Unpatentability

Petitioner asserts the following three grounds of unpatentability:

References	Basis	Claims Challenged
Petit ² and Blesener ³	§ 103	1, 3, 5, 7, 10, 15, 16, 18, 20, and 25
RSAC ⁴ and Blesener	§ 103	1, 3, 5, 7, 10, 15, 16, 18, 20, and 25
RSAC, Blesener, and Petit	§ 103	1, 3, 5, 7, 10, 15, 16, 18, 20, and 25

² U.S. Patent No. 5,092,544, issued Mar. 3, 1992, Ex. 1008.

³ Int’l Pub. No. WO 02/091013 A2, published Nov. 14, 2002, Ex. 1007.

⁴ Railroad Safety Advisory Committee, *Implementation of Positive Train Control Systems*, Ex. 1005.

Pet. 11. In addition to the references listed above, Petitioner relies on the Declaration of Steven R. Ditmeyer. Ex. 1002.

II. ANALYSIS

A. Claim Construction

We interpret the claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Under that standard, a claim term generally is given its ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). “[O]nly those terms need be construed 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)).

1. “configurable device”

The term “configurable device” appears in each of independent claims 1 and 15, as well as many of their dependent claims.

Petitioner proposes that this term should be construed to mean “any device along the wayside of a train track that is capable of being in at least two physical states.” Pet. 8. In support of that construction, Petitioner points to the Specification’s description of a switch or grade crossing gate as exemplary configurable devices in which the switch’s or gate’s position reflects the physical state of the device. *Id.* at 8 (citing Ex. 1001, 2:44–66, 5:4–16).

Patent Owner responds that the term should be construed to mean a “wayside device, such as a switch or crossing gate, that is capable of being

in at least two physical states.” Prelim. Resp. 11. Patent Owner argues that the intrinsic record supports its proposed construction, which is the same construction the parties agreed upon in the parallel District Court litigation. *See id.* (citing Ex. 1001, 1:47–49, 1:57–60, 2:64–66, 4:21–65, Ex. 2003, 28).

The construction the parties agreed upon in their District Court case is consistent with the description in the Specification and does not appear to differ substantively from Petitioner’s proposal in this proceeding. For the purposes of this Decision, we construe “configurable device” to mean “a wayside device, such as a switch or crossing gate, that is capable of being in at least two physical states.”

2. “*transmitting . . . to the next configurable device*”

The phrase “transmitting . . . to the next configurable device” appears in each of independent claims 1 and 15.

Petitioner proposes that this phrase should be construed to mean “sending a message from the controller on a train directly to a configurable device.” Pet. 10. Petitioner argues that although “[t]he claims on their face may not require the interrogation message to originate on the train,” direct communication between the train and the configurable devices is required in view of the prosecution history. *Id.* Specifically, Petitioner argues that during prosecution of the parent application to the ’860 patent, Patent Owner “differentiated the claimed invention from a prior art reference where a message was sent from the train to a WIU and on to a configurable device, as opposed to directly from the train to the configurable device.” *Id.* at 9 (citing Ex. 1006, 116).

Patent Owner responds that the phrase requires no construction, but that if a construction is adopted, the phrase should be construed as “sending

a message to the next configurable device.” Prelim. Resp. 12. Patent Owner disputes that the phrase requires direct transmission and excludes routing through intervening devices. *Id.* at 12–13. Patent Owner argues that the Specification does not limit the train’s interrogation of the device to being direct, and Patent Owner rebuts Petitioner’s characterization of the prosecution history. *Id.* at 13–14.

We agree with Patent Owner that the prosecution history of the parent application does not support Petitioner’s argument that the phrase requires direct transmission. In the Response to Office Action on which Petitioner’s argument is based, Patent Owner (at that time, a patent applicant) contested a rejection that certain pending claims were anticipated by U.S. Patent No. 5,950,966 to Hungate. *See* Ex. 1006, 116. Specifically, Patent Owner asserted that “Hungate discloses a system in which trains communicate with wayside controllers that pass along movement authorities to the train and, in some embodiments, issue incremental movement authorities for the train.” *Id.* Although Hungate disclosed the ability to accommodate switches, Patent Owner disputed the Examiner’s interpretation that the wayside controllers report the configuration of switches in response to an interrogation message. *Id.* Patent Owner argued that “the way in which [Hungate’s] system accommodates such switches is by having the switches communicate with the wayside controllers 20 rather than with any system on the train.” *Id.* Thus, the distinction Patent Owner drew is that in Hungate, “any communication of the status of the switch occurs between the switch and the wayside controllers, not between the train and the switch” *Id.* In other words, Patent Owner did not distinguish Hungate on the basis that it disclosed indirect rather than direct communication from the switch to the

train. What was absent from Hungate, according to Patent Owner's remarks during prosecution, was any communication of the status of the switches being sent to the train.

Accordingly, for purposes of this Decision, we determine that "transmitting . . . to a configurable device" does not require direct transmission.

3. "*interrogation message*"

The term "interrogation message" appears in each of independent claims 1 and 15, and in several dependent claims.

Petitioner did not propose a construction for this term. Patent Owner proposes that the broadest reasonable interpretation of this term is "a targeted request for status information." Prelim. Resp. 15. Patent Owner argues that other claim language and the description in the Specification supports its proposal. *See id.* at 15–16 (citing Ex. 1001, 1:53–62, 3:5–7, 3:34–43, 3:56–4:20, 5:4–23, 5:34–41).

The portions of the intrinsic record that Patent Owner cites support the view that an interrogation message is a request for status information. In particular, the Specification describes that the control module determines when the train is approaching a configurable device and "continuously interrogates the device to determine its status as the train approaches the device." Ex. 1001, 1:59–60. However, based on the current record, we are not persuaded that the interrogation message must be targeted to a specific device. In this regard, we note the following description in the Specification:

In some embodiments, the interrogation includes an identification number associated with the device 180. Since only the device corresponding to the identification number will

respond to the interrogation, this identification number is obtained from the map database 130. This avoids contention between multiple devices attempting to respond to the interrogation on the same frequency.

Id. at 3:56–62. This description indicates that it is not a necessary or inherent feature of an interrogation message that it is targeted to a specific device, and that an interrogation message that would otherwise trigger responses from multiple devices can be avoided in “some embodiments” by including an identification number.

For the purposes of this Decision, we construe “interrogation message” to mean “a request for status information.”

B. Legal Principles

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.” *Id.* at 17–18. “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the Federal Circuit has “repeatedly emphasized that an obviousness inquiry requires examination of all four *Graham* factors and that an obviousness determination can be made only after consideration of each factor.” *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016).

With respect to the fourth *Graham* factor, at this stage of the proceeding, the parties have not presented argument or evidence directed to

secondary considerations of nonobviousness. We now turn to a discussion of the first three *Graham* factors.

C. Level of Ordinary Skill in the Art

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equipment Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner contends that an ordinarily skilled artisan at the time of the invention of the '860 patent “would have had an undergraduate degree or the equivalent thereof and at least five (5) years of experience in train operations or train control systems” and “would have had knowledge of train control systems, train safety systems that include wayside systems, and train communication systems, and would have understood how to search available literature for relevant publications.” Pet. 7 (citing Ex. 1002 ¶¶ 42–44). Patent Owner “does not believe that any issue raised in the Petition turns on the level of ordinary skill in the art but reserves the right to address the requisite level of ordinary skill should *inter partes* review be instituted.” Prelim. Resp. 17. Based on the current record and for purposes of this Decision, we adopt Petitioner’s proposed definition of a person of ordinary skill in the art.

D. Summary of Cited References

1. Summary of Petit

Petit describes a system that controls the operation of crossing protection equipment for a highway crossing on a railroad. Ex. 1008, 1:58–62.

In Petit’s system, a communications link is established between a train approaching the crossing and the crossing equipment. *Id.* at 2:4–6. The first message from the train is initiated when the locomotive passes a beacon transponder located beyond a safe braking distance for trains travelling toward the crossing. *Id.* at 2:32–37. The messages from the approaching train to the crossing equipment include fields for crossing ID, train speed, the train’s distance from the crossing, and other information. *Id.* at 2:10–12, 4:58–67, 5:12–14. The messages from the crossing equipment to the train contain information as to the when the next message from the train is required, as well as minimum time for the train to reach the crossing. *Id.* at 2:12–20, 7:41–57. The approaching train and the crossing equipment can interchange these messages multiple times, with the minimum time being repeatedly updated. *Id.* at [57], 7:64–66.

When the minimum time has expired, the highway crossing gates are activated to drop. *Id.* at 7:67–8:2. Because the gates are activated when the train reaches the crossing, “[t]he time for the gates to be down is then minimized with the advantages of improved vehicular traffic flow over the crossing.” *Id.* at 8:4–8.

Petit employs “vital communications logic which activates the protection equipment to its safe condition or sets alarms or brakes in the train in the event of errors or failures in the messages being handled in the

crossing controller or in the train equipment. . . .” *Id.* at [57]; *see also id.* at 1:62–68, 6:1–5, 6:58–65, 7:16–19.

2. *Summary of Blesener*

Blesener relates to an “inexpensive, low-power vehicle collision/crossing warning system that enables simple and decentralized installation, operation, and maintenance. . . .” Ex. 1007, 1:14–15.

Blesener describes an embodiment in which a locomotive transmits every four seconds a beacon signal that contains the locomotive’s position, speed, direction, and heading. *Id.* at 11:4–7. “Any crossing can listen to any locomotive at all times, if the locomotive is within radio range of the crossing.” *Id.* at 11:8–9. Controller 20 at the crossing decides whether to activate the signal by deciding if the locomotive is approaching the crossing based on the locomotive’s location from the beacon. *Id.* at 11:10–15. “Once activation has occurred master controller 20 can optionally notify the locomotive that the crossing is activated.” *Id.* at 11:15–16. When the locomotive has passed, controller 20 deactivates the crossing. *Id.* at 11:20–21.

Blesener’s system “uses a Smart Self Updating System (SSUS) to poll the crossing and share the latest systems information. In this way, as the locomotive moves down the track it is also updating itself and all crossings along the line with the latest system information.” *Id.* at 10:5–7. “Each locomotive SSUS contains a database of the status of all known crossings and each crossing has a copy of a smaller localized database. Each time a locomotive and crossing interact, the databases are compared and whoever has the latest information, passes this data to the other.” *Id.* at 10:22–25.

Blesener also describes a fail-safe for a broken crossing, which utilizes the GPS systems on board the locomotive and master controller 20. *Id.* at 12:14–19. Because “[t]his data allows the system to know about . . . the location of a crossing and . . . where the locomotive is, the system can cross check if it is approaching a crossing and has not gotten a confirmation that the crossing is activated.” *Id.* at 12:16–18. “Typically the locomotive does not need to know there is a crossing ahead because, if the crossing is working, the locomotive beacon will cause it to activate. When the crossing activates, it sends geo-location data to the locomotive” and data about the newly discovered crossing is placed in the locomotive’s database. *Id.* at 12:20–25.

3. Summary of RSAC

RSAC is a report to the Federal Railroad Administrator describing “the status of efforts to develop, test, demonstrate and deploy Positive Train Control (PTC) systems.” Ex. 1005, vii. RSAC summarizes technological developments relating to PTC functions. *See id.* at 19–34. Of primary relevance to Petitioner’s challenges in this proceeding is RSAC’s description of the Incremental Train Control System (“ITCS”) (*id.* at 25–26, 38, C-4 to C-6).

ITCS includes three major segments, a Wayside Equipment Segment, a Communications Segment, and a Locomotive Segment. *Id.* at 25. The Wayside Equipment Segment includes wayside interface units (WIUs), which monitor switch position and the status of highway rail grade crossings. *Id.* The Communications Segment includes a wide local area network (WLAN), which connects the WIUs to wayside interface unit servers (WIU-Ss) that broadcast digital data messages to trains. *Id.* “The

WIU-S broadcasts (open loop) the status reported by the WIUs once every six seconds.” *Id.* at 26. The Locomotive Segment includes an on-board computer (OBC), which “stores a database of signal indications . . . and the locations of all devices with which it may be required to communicate.” *Id.* As the locomotive travels down the track,

[t]he OBC establishes a session with each WIU-S when it enters its zone of coverage, verifies that it has an updated track database and expects to receive a WIU-S broadcast every six seconds. The OBC can miss two broadcasts without adverse [e]ffects but a missed third broadcast (18 to 20 seconds elapsed time) results in the OBC initiating an automatic brake application, stopping the train.

Id.

RSAC also describes that in ITCS, the OBC is required to determine the “health” of a grade crossing while the train is still miles away from that crossing. *Id.* at 38. Specifically, ITCS verifies, “[t]hrough a self-diagnostic process, is the crossing warning system prepared to operate as intended? If so, the train continues to operate at maximum authorized speed. If not, the train must reduce to a predetermined speed.” *Id.* The OBC continually calculates expected time of arrival at the crossing, and when that time reaches 100 seconds, the OBC transmits its estimated arrival time. *Id.* at C-5.

The server receives the message, arms the crossing to prepare for activation, and sets a delay timer to hold off activation of the crossing until the estimated arrival time has reduced to around 40 seconds. When all this is accomplished, the server then broadcasts the crossing status as armed and ready for hi-speed operation. When the delay time has expired, the server activates the crossing over the WLAN.

Id.

Petitioner argues that RSAC qualifies as prior art to the '860 patent under pre-AIA § 102(b) due to its public accessibility by at least July 2001. Pet. 18–20.

E. Obviousness Ground Based on Petit and Blesener

Petitioner contends that claims 1, 3, 5, 7, 10, 15, 16, 18, 20, and 25 would have been obvious based on the combination of Petit and Blesener. Pet. 24–48. Patent Owner presents several rebuttal arguments. See Prelim. Resp. 26–46.

Looking first at claim 1, our analysis below focuses on limitations [b], [i], and [j]. Limitation [b] recites “a database connected to the control unit, the database including position information for a plurality of configurable devices, the database further including *an identifier for each of the configurable devices*.” Ex. 1001, 5:59–62 (emphasis added). Limitation [i] recites that the response to the interrogation message includes “*an identifier associated with a configurable device* and a configuration of the configurable device.” *Id.* at 6:13–16 (emphasis added). Limitation [j] recites “allowing the train to pass the configurable device if the response is received within a first period of time, *the identifier included in the response matches the identifier associated with the configurable device of interest*, and the configuration included in the response is acceptable.” *Id.* at 6:17–23 (emphasis added).

Regarding limitation [b], Petitioner points to Petit’s disclosure that the locomotive sends a message to the crossing including a crossing ID. Pet. 32 (citing Ex. 1008, 5:12–14). Petitioner asserts that Blesener teaches a database that includes the location of crossings, and that “*Blesener* further teaches that when a plurality of crossings are in close proximity, it is

advantageous to include a unique identifier to distinguish devices from each other.” *Id.* at 32–33 (citing Ex. 1007, 10:22–25, 12:16–18, 26:24–25).

Petitioner argues that the combination “includes the location of the next configurable device as taught by *Blesener* and the unique identity of the device as taught by both *Petit* and *Blesener*.” *Id.* at 33. Thus, Petitioner relies on Blesener’s location information as the claimed “position information” and Petit’s crossing ID or Blesener’s unique ID as the claimed “identifier.”

With respect to limitations [i] and [j], Petitioner argues that “*Petit* teaches a response message indicating a component failure or communications failure, which leads to an application of brakes until the failure is resolved.” Pet. 37 (citing Ex. 1008, 5:63–6:8); *see also id.* at 38–39. Further, according to Petitioner, “*Petit* also suggests that the direct message includes, or is reflective of, an identity of the configurable device,” and that the content of the message is used to perform vital safety checks. *Id.* at 37 (citing Ex. 1008, claim 11; Ex. 1002 ¶¶ 53–54); *see also id.* at 39 (citing Ex. 1008, claim 7, claim 9, 5:58–5:11). Petitioner argues that Blesener teaches that a controller receives messages indicating the status and location of configurable devices, and that unique identifiers can be used to distinguish devices that are in close proximity to one another. *See id.* at 37–38 (citing Ex. 1007, 12:22–23, 15:24–26, 26:24–25). According to Petitioner, “[t]he database of *Blesener* allows the system to compare incoming I.D. data with the I.D. data stored in the database.” *Id.* at 40.

Patent Owner argues that Petitioner has not shown that either of the references disclose that the train receives a response to an interrogation message that includes an identifier as recited in limitation [i]. Prelim. Resp.

34–37. Patent Owner also contests the sufficiency of Petitioner’s showing that the cited combination teaches allowing the train to pass only if the identifier in the response matches that of the configurable device of interest, as recited in limitation [j]. *Id.* at 37–39.

We agree with Patent Owner that Petitioner has not shown that the cited combination teaches an “identifier” that satisfies all of limitations [b], [i], and [j]. The portions of Petit on which Petitioner relies indicate that a crossing ID is included in messages going from the train to the crossing, and that the identity of the train is included in messages going from the crossing to the train. Ex. 1008, claim 7, claim 9, 5:12–14. But Petitioner does not point to any disclosure in Petit that a message from the crossing to the train includes a crossing ID. *See* Prelim. Resp. 34–35. In other words, Petit teaches including the message’s *destination* in the message, but does not teach including the message’s *source* in the message. Because Petit does not teach that the message from the crossing to the train includes the crossing ID, Petitioner has not shown that Petit’s crossing ID satisfies the requirements of an “identifier” as recited in limitation [i].

Petitioner also cites Petit’s disclosure regarding safety checks for vital communications. *See* Pet. 39 (citing Ex. 1008, 4:58–5:11). In the cited excerpt of Petit, Petit teaches that “[t]he CPU message is the digital message containing a number of fields including a check bit or check value field to insure vital communications. Such vital communications checks are performed within the CPU.” Ex. 1008, 4:61–65. *See also id.* at 5:47–48 (“These are vital messages containing check values which enable vital processing.”). Thus, Petit’s disclosure of the safety check performed on vital communications is that it uses a check bit or check value field.

Petitioner does not point to any disclosure relating the check bit or check value field to the crossing ID that Petitioner relies on as the claimed “identifier.” Petitioner does not explain adequately how Petit’s safety check for vital communications that uses a check bit or check value field discloses or suggests the subject matter of limitation [j].

Petitioner’s assertion that “such a check includes insuring that the source of the response message matches the destination to which the interrogation message was sent” (Pet. 39) is unsupported by Petit. Petitioner cites to Mr. Ditmeyer’s declaration to support that assertion, but Mr. Ditmeyer does not cite any evidence for his testimony that Petit’s “vital check ensures that the origin, destination, and content of a message are accurate.” Ex. 1002 ¶ 52. Even accepting that testimony as correct, it still not show why an accuracy check along those lines discloses the process recited in limitation [j]. Mr. Ditmeyer further testifies that an ordinarily skilled artisan

would understand that other messages [besides the message sent to the crossing and the message from the transponder] involved in *Petit*’s communication protocol could or would also contain a crossing I.D., for example, to provide an additional check at the train upon receipt of the crossing’s response. A person of skill in the art would understand that this could prevent a dangerous condition from occurring when, for example, a train believes a crossing is in a “safe” or down position and proceeds as such, but where the information received by the train in fact described a different crossing.

Ex. 1002 ¶ 54. Again, Mr. Ditmeyer does not cite any disclosure in Petit, or any other evidence, in support of this testimony. Further, the testimony appears to use the disclosure of the ’860 patent as a guide. See Ex. 1001, 4:16–20 (“Whether or not the interrogation of step 318 includes the device’s

identification number, it is preferable for the device's response to include its identification as this allows for greater assurance that a response from some other source has not been mistaken as a response from the device.”).

Petitioner's arguments based on Blesener are also unpersuasive. With respect to limitation [i], Petitioner does not point to any evidence that the unique ID described in Blesener, which Petitioner equates to the claimed “identifier,” is included in a message to the train in response to an interrogation message. Blesener's description of unique IDs on which Petitioner relies appears in a discussion of the framework for inter-crossing communications and states as follows:

The concept is for every crossing in range of each other to have a specific time slot. A maximum number of crossing devices per area is first selected. In the preferred protocol, there is a limit of 16 devices in any 300-meter range (see FIG. 13A). Clusters can overlap and will have unique ID's.

Ex. 1007, 26:22–25. This description seems to indicate that clusters have unique IDs, which allows overlapping clusters to be distinguished. The description does not appear to suggest using the unique IDs to distinguish devices within the same cluster, which cuts against Petitioner's argument that Blesener teaches that “it is advantageous to include a unique identifier to distinguish devices from each other.” See Pet. 33. More importantly, Petitioner does not point to any disclosure in Blesener that a unique ID is sent to a train as part of a response to an interrogation request, in the manner recited in limitation [i]. Petitioner also does not present sufficient evidence or explanation that Blesener's unique ID is used in a decision whether to allow the train to pass, as recited in limitation [j].

Independent claim 15 includes limitations substantially similar to limitations [b], [i], and [j] of claim 1. See Ex. 1001, 7:17–20, 7:26–35.

Petitioner's arguments concerning those limitations are the same as for limitations [b], [i], and [j] of claim 1. *See* Pet. 45–46. The remaining claims challenged in this ground depend from one of claims 1 and 15. *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (“[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.”). Accordingly, Petitioner has not shown a reasonable likelihood of prevailing in establishing that any of claims 1, 3, 5, 7, 10, 15, 16, 18, 20, and 25 would have been obvious based on the combination of Petit and Blesener.

F. Obviousness Ground Based on RSAC and Blesener

Petitioner contends that claims 1, 3, 5, 7, 10, 15, 16, 18, 20, and 25 would have been obvious based on the combination of RSAC and Blesener. Pet. 48–64. Patent Owner presents several rebuttal arguments. *See* Prelim. Resp. 46–66.

As in the previous ground, our analysis below focuses on limitations [b], [i], and [j]. In its arguments regarding limitation [b], Petitioner argues that RSAC teaches that the on board computer of ITCS includes a database with locations of upcoming devices, and that the OBC stops or slows the train based on current conditions and upcoming information. Pet. 53 (citing Ex. 1005, 26). Citing to RSAC's description of another system called Corridor Risk Assessment Model, Petitioner argues that location specific information can include signal types, among other things. *Id.* (citing Ex. 1005, 53). According to Petitioner, the “signal type, indicating what type of signal the upcoming configurable device is, is an example of the claimed identifier distinguishing the device from other devices in the vicinity.” *Id.* Petitioner also refers back to its arguments concerning Blesener summarized

in Section II.E. above. *See id.* Thus, Petitioner argues that the combination of RSAC and Blesener “teaches a database that includes location information (as described in *Blesener*) and an identifier (both a signal type of RSAC and an ID of *Blesener*).

In its discussion regarding limitations [i] and [j], Petitioner argues that through a self-diagnostic process, ITCS can determine if a crossing warning system is prepare to operate as intended. Pet. 56 (citing Ex. 1005).

Petitioner further argues that if the crossing WIU indicates that is functioning as intended, the train may continue at speed, but that if the OBC continually misses broadcasts from the WIU, the brakes are applied. *Id.* at 57 (citing Ex. 1005, 26). Petitioner also points to RSAC’s teaching, relating to a system other than ITCS, to verify that the sources of the target information are valid sources. *Id.* at 58 (citing Ex. 1017, C-14 to C-15).

Petitioner also refers back to its arguments concerning Blesener summarized above in Section II.E. *See id.* at 56, 58. Petitioner argues that “[w]hen the content of the response messages from *Blesener* (e.g., the unique identifier) and the self-diagnostic process of RSAC (e.g., indicating if the crossing is in a safe configuration) are included in the response message as disclosed above, the response from the configurable device includes a device identifier. . . .” *Id.* at 56–57 (citing Ex. 1002 ¶ 126; Ex. 1007, 26:24–25).

Patent Owner argues that Petitioner has not made a sufficient showing regarding an identifier as recited in limitations [b], [i], and [j]. Prelim. Resp. 48–49, 53–58. We agree. With respect to Petitioner’s reliance on RSAC’s description of signal type as the claimed “identifier,” Petitioner does not present sufficient argument or evidence that the signal type is sent to a train as part of a response to an interrogation request, as recited in limitation [i].

Petitioner also does not present sufficient evidence or explanation that signal type is used in a decision whether to allow the train to pass, as recited in limitation [j]. Indeed, Petitioner's arguments concerning limitations [i] and [j] do not even reference signal type. *See* Pet. 56–58.

Petitioner's arguments concerning limitations [i] and [j] are premised on combining “the content of the response messages from *Blesener* (*e.g.*, the unique identifier)” with RSAC. *See id.* at 56–57. However, as discussed in Section II.E. above, *Blesener* does not teach including the unique ID, which Petitioner relies on as the claimed “identifier” (Pet. 53), in a message to a train responding to an interrogation. *See* Ex. 1007, 26:23–25. Although *Blesener* discloses sending geo-location data to a train (*see* Ex. 1007, 12:23–25), Petitioner relies on *Blesener*'s geo-location data as the separately recited “location information.” *See* Pet. 53. Thus, Petitioner's reliance on *Blesener* for the “identifier” in this ground is unpersuasive for the same reasons discussed in Section II.E.

For the foregoing reasons, Petitioner has not shown a reasonable likelihood of prevailing in establishing that claim 1 would have been obvious based on RSAC and *Blesener*.

As noted previously, independent claim 15 includes limitations substantially similar to limitations [b], [i], and [j] of claim 1. *See* Ex. 1001, 7:17–20, 7:26–35. Petitioner's arguments concerning those limitations are the same as for limitations [b], [i], and [j] of claim 1. *See* Pet. 61–63. The remaining claims challenged in this ground depend from one of claims 1 and 15. *See Fritch*, 972 F.2d at 1266. Accordingly, Petitioner has not shown a reasonable likelihood of prevailing in establishing that any of claims 1, 3, 5,

7, 10, 15, 16, 18, 20, and 25 would have been obvious based on the combination of RSAC and Blesener.

G. Obviousness Ground Based on RSAC, Blesener, and Petit

Petitioner contends that claims 1, 3, 5, 7, 10, 15, 16, 18, 20, and 25 would have been obvious based on the combination of RSAC, Blesener, and Petit. Pet. 64–66.

This third ground is “an alternative to Ground 2” that Petitioner presents in the event “the Board agrees with Petitioner that the claims require direct communication between the train and the configurable device.” *Id.* at 64. Petitioner states that “[t]he combined system would be identical to the one resulting from the combination of *RSAC* and *Blesener* as described in [the second ground], except the communication between the train and the configurable device would be direct, without the routing functions of a WIU.” *Id.* at 65–66. Modifying the RSAC and Blesener combination to utilize a direct communication path between the train and the configurable device, as Petitioner argues in this ground, does not ameliorate the deficiency in Petitioner’s arguments discussed in Section II.F.

Accordingly, Petitioner has not shown a reasonable likelihood of prevailing in establishing that any of claims 1, 3, 5, 7, 10, 15, 16, 18, 20, and 25 would have been obvious based on the combination of RSAC, Blesener, and Petit.

III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is denied as to all challenged claims of the ’860 patent.

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PETITIONER:

Jason A. Engel
Alan L. Barry
Roberto Capriotti
Benjamin E. Weed
Ragae Ghabrial
Katherine L. Hoffee
Erik Halverson
K&L GATES LLP
Jason.Engel.PTAB@klgates.com
al.barry.ptab@klgates.com
roberto.capriotti@klgates.com
benjamin.weed.PTAB@klgates.com
ragae.ghabrial@klgates.com
katy.hoffee.PTAB@klgates.com
erik.halverson@klgates.com

PATENT OWNER:

Jeffrey D. Sanok
Mark M. Supko
Vincent J. Galluzzo
CROWELL & MORING LLP
jsanok@crowell.com
msupko@crowell.com
vgalluzzo@crowell.com