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Paper No. 8
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NATIONAL RAILROAD PASSENGER CORPORATION D/B/A AMTRAK,
Petitioner,

v.

RAILWARE, INC.,
Patent Owner.

IPR2023-01179
Patent 9,517,782 B2

Before JAMES A. TARTAL, CYNTHIA L. MURPHY, and BRENT M. DOUGAL, *Administrative Patent Judges*.

TARTAL, *Administrative Patent Judge*.

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

I. INTRODUCTION

National Railroad Passenger Corporation d/b/a Amtrak ("Petitioner")[1] filed a Petition pursuant to 35 U.S.C. §§ 311–319 requesting an *inter partes* review of claims 1–8 ("the Challenged Claims") of U.S. Patent No. 9,517,782 B2 (Ex. 1001, "the '782 patent"). Paper 2 ("Pet."). Railware, Inc. ("Patent Owner")[2] filed a Patent Owner Preliminary Response. Paper 7 ("Prelim. Resp.").

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b) (2018); 37 C.F.R. § 42.4(a) (2023). An *inter partes* review may not be instituted "unless . . . the information presented in the petition . . . shows that 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 consideration of the Petition, the Preliminary Response, and the evidence of record, we conclude that the information does not demonstrate a reasonable likelihood that Petitioner would prevail in showing the unpatentability of at least one of the Challenged Claims. Accordingly, we do not institute an *inter partes* review.

II. BACKGROUND

A. The '782 Patent

The '782 patent, titled "Tools for Railway Traffic Control," issued on December 13, 2016, from U.S. Patent Application No. 15/177,506, filed June 9, 2016. Ex. 1001, codes (21), (22), (45), (54). The '782 patent is directed to "to railway traffic control, and more specifically, a system, apparatus, and method for railway traffic control to address concerns for

[1] Petitioner identifies no additional real parties in interest. Pet. 2.
[2] Patent Owner identifies no additional real parties in interest. Paper 5, 1.

safety of railway workers working on or near railroad tracks." *Id.* at 1:14–17. The '782 patent describes prior safety features present in a railway system and notes that despite these preexisting safety features, numerous "roadway worker accidents" resulted in the death of workers "while attending to tasks . . . on or near track." *Id.* at 2:27–37. The '782 patent identifies "a need for further safety measures to protect the lives of railway workers." *Id.* at 2:38–39.

As further background, according to the '782 patent, in a standard railway system, "[i]nterlocking signals govern movement within a sector controlled by an interlock." Ex. 1001 1:27–28. "[A] track may be divided into sections," and an "interlocking signal" is exhibited at the entrance to each track section. *Id.* 1:28–32. "[T]he interlocking signal displays a color system which instructs the conductor of the train, or the train operating by automated response, how to move through the upcoming section of track." *Id.* at 1:32–35.

The '782 patent further explains that a centralized traffic control system may be used "to place a block on one or more specified track sections to permit a railway field worker to enter the track sections while blocking railway traffic." *Id.* at 2:47–57. "[O]nce a block is placed, no train can traverse the blocked section of rail," and "maintenance workers and railway personnel can travel, inspect and work on the rails without the danger of oncoming train traffic." *Id.* at 5:43–44, 5:48–50; *see also id.* at 5:44–48 (stating that an interlock can "output a STOP signal, therefore, stopping any train traffic within the rails controlled by that interlock"), 5:50–54 (stating that "[t]rains that are scheduled to traverse said blocked tracks either come to a complete stop, electronically or mechanically, before passing the interlock or are rerouted using tracks that

are not in a blocked state"). When "the block is removed," the result is that train "traffic to that section of rail is then allowed." *Id.* 7:19–20. Thus, an errant (e.g., premature) removal or release of the block could endanger a railway field worker still present in the specified track section. *See id.* at 2:27–37.

"[A]ll of the interlocks" within a railway system may be controlled electronically through "a centralized traffic control (CTC)." *Id.* at 1:40–44. "The CTC is controlled by a single person known as a train dispatcher." *Id.* at 1:46–47. "In order for the train dispatcher to make appropriate train control decisions regarding how the train should be operated," information is displayed to the train dispatcher "on a control console," and "[t]hrough the control console, the dispatcher has control of each interlock signal." *Id.* at 1:48–59. Thus, the train dispatcher (i.e., a single person) is responsible for both blocking a specified rail section (e.g., so that railway field workers can safely attend to tasks on this track section) and for removing/releasing this block (e.g., once railway field workers have presumably completed tasks and vacated this track section). *See id.* at 1:40–47, 2:47–57, 5:44–50, 7:19–20. And, as indicated above, an errant removal/release of the block would endanger a railway field worker still present in the specified section of track. *See id.* at 2:27–37.

The '782 patent identifies as an essential purpose the provision of a system and method that assures "the railway worker has more control over the traffic through the rail block in which the worker is working, and fatal on-track accidents can be reduced." *Id.* at 11:12–14. To accomplish this purpose, the '782 patent requires "generating a removal code and transmitting the removal code to the electronic contact address of the railway field worker, and permitting the block to the track sections to be removed

only upon entry of the removal code in the centralized railway control system."[3] *Id.* at 2:47–57.

The '782 patent describes the process in further detail, explaining that, first, the dispatcher places a block on a specified rail section by inputting corresponding information into the control console. *See id.* at 7:39–47. "Once the block is put into place," the railway traffic control terminal (i.e., a computer) generates a release code, saves this code to an internal storage, and "sends the code to the maintenance worker designated for track work." *Id.* 7:50–55, *see also id.* at 7:1–3 (stating "the railway traffic control apparatus . . . may then generate a release code and save it to an internal storage"). Information corresponding to the now-blocked rail section is displayed to the dispatcher on the user interface, but this displayed information does not include the computer-generated code. *See* Ex. 1001, Fig. 6. The '782 patent states that "where there are multiple maintenance workers assigned to a certain track section, there may be provided one release code to one, multiple or all of maintenance workers assigned." *Id.* at 8:32–35; *see also id.* at 8:35–39 (stating that the "train traffic controller may input that the release code be specified to one maintenance worker, preferably a supervisor or foreman, to multiple maintenance workers or to all of the maintenance workers assigned to work on a given track section"), 8:39–45 (stating "where there are multiple workers assigned for a

[3] The '782 patent refers to "the code" as the "removal code" (*see*, *e.g.*, Ex. 1001, 2:47–57), the "release code" (*see*, *e.g.*, *id.* at 7:1–3), the "random secret code" (*see*, *e.g.*, *id.* at 9:32–34), the "secret code" (*see*, *e.g.*, *id.* at 9:65–10:1), and the "secret removal code" (*see*, *e.g.*, *id.* at 10:1–5). In each instance, the '782 patent is referring to the code used to remove the block and the Parties direct us to no material difference between these terms in regard to any matter at issue in this Decision.

certain track section, there may be provided multiple unique release codes which would then all be required to be input into the train traffic control terminal . . . by the train traffic controller in order to be able to remove blocks on certain track sections"). Thus, the '782 patent only describes circumstance where the release code is transmitted to workers performing work on the track in the field.

The dispatcher "may not remove" the block on the specified track section "without the input of the release code." Ex. 1001, 7:55–59; *see also id.* at 11:1–5 ("Once a block has been placed, the interlock remains in a blocked s[t]ate, until the maintenance worker supplies the release code" to the dispatcher). Thus, "[s]o long as the block is in place, [the] maintenance worker can perform on-track work, without interference of oncoming train traffic." *Id.* at 11:5–7. Then, "[a]fter the maintenance worker finishes the assigned work and is clear of the train tracks, he/she may then supply the interlock control system with the release code, and the interlock control system in turn can release the interlock over the block." *Id.* at 7:7–11. In short, the '782 patent makes clear that the train dispatcher typically does not have the release code to lift the block until the release code is provided by a maintenance worker.

The '782 patent also describes instances where the code may be *obtained* by the dispatcher from the internal storage of the railway traffic control apparatus rather than from the maintenance worker. *Id.* at 10:6–22. The '782 patent explains in this regard that a block placed on a section of track may be removed by the dispatcher if an eligible maintenance worker transmits the code to the railway traffic control center, but that "[i]f there is no maintenance worker available to transmit the random secret code, the code can be retrieved from the train traffic control terminal . . . by the train

traffic controller [i.e., the dispatcher]." *Id.* at 10:6–22. The '782 patent does not describe any circumstance where the code is provided to the dispatcher when a maintenance worker is available to transmit the code. Similarly, concerning circumstances where the maintenance worker is unavailable, the '782 patent does not describe any circumstance where the code is transmitted to the dispatcher without the dispatcher proactively retrieving the code from storage in the control system. Thus, the operation of the system, even in the absence of an available maintenance worker, is consistent with the '782 patent's description of a system and method, as noted above, that assures "the railway worker has more control over the traffic through the rail block in which the worker is working, and fatal on-track accidents can be reduced." *Id.* at 11:12–14.

B. Illustrative Claim

Petitioner challenges claims 1–8 of the '782 patent. Pet. 1. Claims 1 and 5 are independent. Claims 2–4 depend from claim 1 and claims 6–8 depend from claim 5 (*see* Ex. 1001, Certificate of Correction). Claim 1 is illustrative of the claimed subject matter and is reproduced below:

> 1. A system to enhance railway control, to protect safety of railway workers on or near railway tracks, the system comprising:
>
> a railway control apparatus comprising a processor, a non-transitory medium storing one or more programs of executable instructions, and a network interface through which the railway control apparatus communicates via a network; and
>
> a user terminal provided to a railway field worker and configured to communicate via the network with the railway control apparatus and to provide a user interface to display information received from the railway control apparatus and to permit the railway field worker to respond to prompts displayed thereon,

> wherein the railway control apparatus, by execution of said one or more programs of executable instructions by the processor, includes:
>
> a block placing part to place a block on one or more specified track sections to permit the railway field worker to enter the track sections while blocking railway traffic to said track sections;
>
> a code generation part to generate a release code and transmit the release code to an electronic contact address accessible by the railway field worker via operation of the user interface of the user terminal; and
>
> a block removal part to remove only upon receiving the release code from the user terminal in return, the block placed by the block placing part on said one or more track sections.

Ex. 1001, 11:22–51. Independent claim 5 is directed to a "method to enhance railway control" and, similar to claim 1, recites "generating by the railway control apparatus a release code and transmitting the release code to an electronic contact address accessible by the railway field worker via operation of the user interface of the user terminal." *Id.* at 12:13–35.

C. Asserted Grounds of Unpatentability

In the Petition, Petitioner lists seven grounds under which it contends the Challenged Claims are unpatentable, as set forth in the following table:

Claims Challenged	35 U.S.C. §[4]	Reference(s)/Basis
1–8	103(a)	Oriol[5]
1–8	103(a)	Oriol, Masquelier[6]
1–8	103(a)	Oriol, Wise[7]
1–8	103(a)	Oriol, Masquelier, Wise
1–8	103(a)	Oriol, Masquelier, Pachl [8]
1–8	103(a)	Tamaribuchi,[9] Pachl
1–8	103(a)	Wise, Masquelier

Pet. 3–4. Petitioner further relies on the supporting Declaration of Dr. William R. Michalson, dated July 6, 2023. Ex. 1003.

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[4] The Leahy-Smith America Invents Act ("AIA") included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. We apply the post-AIA version of § 103 here, because the earliest provisional application identified in the '782 patent was filed after the effective date of the AIA. *See* Ex. 1001, code (60).

[5] Oriol, N., Sheridan, T. and Multer, J. (2004). *Supporting Railroad Roadway Worker Communications with a Wireless Handheld Computer: Volume 1: Usability for the Roadway Worker*, Report No. DOT/FRA/ORD-04/13.I. U.S. Department of Transportation, Federal Railroad Administration (Ex. 1004, "Oriol").

[6] Masquelier, T., Sheridan, T., and Multer, J. (2004). *Supporting Railroad Roadway Worker Communications with a Wireless Handheld Computer: Volume 2: Impact on Dispatcher Performance*. Report No. DOT/FRA/ORD-04/13.II. U.S. Department of Transportation, Federal Railroad Administration (Ex. 1005, "Masquelier").

[7] WO 2004/042663 (Ex. 1006, "Wise").

[8] U.S. Patent No. 7,328,090 (Ex. 1020, "Pachl").

[9] U.S. Patent Application Pub. No. 2012/0176217 (Ex. 1007, "Tamaribuchi").

D. Related Proceedings

The Parties identify the ’782 patent as a subject of *Railware, Inc. v. National Railroad Passenger Corporation d/b/a Amtrak*, Case No.1-22-CV-05013-KPF (S.D.N.Y.). Pet. 2; Paper 5, 1. Petitioner also filed petitions challenging claims of two other related patents in *National Railroad Passenger Corporation d/b/a Amtrak v. Railware, Inc.*, IPR2023-01180 (U.S. Patent No. RE47,835 E) and *National Railroad Passenger Corporation d/b/a Amtrak v. Railware, Inc.*, IPR2023-01181 (U.S. Patent No. RE49,115 E).

III. ANALYSIS

A. Legal Standards for Obviousness

A patent claim is unpatentable for obviousness if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, “would have been obvious at the time the invention was made to 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). In *Graham v. John Deere Co.*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness 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 nonobviousness such as “commercial success, long felt but unsolved needs, failure of others, etc.” 383 U.S. at 17–18; *KSR*, 550 U.S. at 407.

“Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016) (citations omitted). “[W]here a party argues a skilled artisan would have been motivated to

combine references, it must show the artisan 'would have had a reasonable expectation of success from doing so.'" *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1068–69 (Fed. Cir. 2012)).

B. Level of Ordinary Skill in the Art

The level of skill in the art is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17–18; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). In determining the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted).

Petitioner contends a person of ordinary skill in the art "would have had at least a bachelor's degree in electrical, mechanical, or related engineering, and also would have had at least two (2) years of experience in railway operations or railway control systems and would have programming experience," and that "[a] higher level of education or specific skill might make up for less experience, and vice-versa." Pet. 7 (citing Ex. 1003 ¶¶ 27–28). Patent Owner does not dispute the level of ordinary skill identified by Petitioner. *See* Prelim. Resp. 9. For purposes of this Decision, we apply Petitioner's proposed level of skill because, on the current record, it is undisputed and consistent with the level of skill at the time of the claimed

invention reflected by the ’782 patent and the cited prior art references. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

We apply 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 that 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. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). In construing claims in accordance with their ordinary and customary meaning, we take into account the specification and prosecution history. *Phillips*, 415 F.3d at 1315–17. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317. If the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] . . . the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316 (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)).

Petitioner proposes no express construction for any claim term. Petitioner argues that “[b]ecause the prior art discloses the claim limitations, the claims require no express construction and should be given their plain and ordinary meaning.” Pet. 8. As an initial matter, Patent Owner argues

in opposition that "[w]hether or not claim construction is necessary does not depend on whether 'the prior art discloses the claim limitations,'" because "[c]laim construction is a *prerequisite* to the validity analysis." Prelim. Resp. 10 (citing *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001) ("A claim must be construed before determining its validity just as it is first construed before deciding infringement.")). Patent Owner further proposes an express construction of the claim term "release code."[10] *Id.* at 10–21. We address Patent Owner's arguments pertaining to "release code" below.

1. "release code"

The claim term "release code" appears in both independent claims 1 and 5. Claim 1 recites, in part, "a code generation part to generate a release code and transmit the release code to an electronic contact address accessible by the railway field worker." Claim 5 recites, in part, "generating . . . a release code and transmitting the release code to an electronic contact

[10] Patent Owner suggests that Petitioner fails to "satisfy its burden," because "one cannot determine whether the prior art discloses the claim elements until the claims have been properly construed." Prelim. Resp. 10. Although Patent Owner does not identify the "burden" it contends is placed on Petitioner, we recognize that a petitioner is required to identify in its petition "[h]ow the challenged claim is to be construed." 37 C.F.R. § 42.104 (b)(3). Petitioner's reliance here on the "plain and ordinary meaning" is not, alone, a sufficient basis to deny the Petition. Rather, for purposes of this Decision, we must determine whether Petitioner has made a sufficient showing to support institution of *inter partes* review by demonstrating a reasonable likelihood of prevailing in showing the unpatentability of at least one of the Challenged Claims. Accordingly, Patent Owner's reliance on *Amazon.com* under these circumstances is not decisive because this Decision is not assessing the validity of any Challenged Claim.

address accessible by the railway field worker." We refer to these limitations as the "code limitations."

Petitioner purports to have applied the "plain and ordinary meaning to all claim terms, including "release code," in the Petition for the purposes of institution. Pet. 8. Petitioner does not otherwise address in the Petition what it contends to be the plain and ordinary meaning of "release code." According to Petitioner, in the '782 patent "a railway control apparatus (computer) blocks a track and transmits a generated code to a worker's user terminal," and "[t]o unblock the track, the worker will transmit the code to the railway control apparatus." Pet. 1 (citing, e.g., Ex. 1001, Abstract, 2:53–57, 4:32–36, 7:1–20).

In arguing that Oriol teaches a code, as required by the '782 patent, Petitioner asserts that "Oriol's Form D number is a release code given the generated Form D number is sent to the worker 'who requested it' . . . and who cancels the same Form D number (under his authority) to release the track block." Pet. 28 (citing Ex. 1004, 36–38, Fig. A-1; Ex. 1003 ¶ 125). Petitioner applies similar reasoning in grounds that do not include Oriol. With regard to obviousness over Tamarbuchi and Pachl, Petitioner contends that Tamarbuchi teaches a "reference number" transmitted to a worker that "is a release code given the same reference number is used to later release the track block." *Id.* at 59 (citing, e.g., Ex. 1007 ¶¶ 110, 111, 118, Figs. 3, 4). With regard to obviousness over Wise and Masquelier, Petitioner contends that Wise teaches generating "an access code" that is transmitted to the worker, and that the worker transmits the same code "'previously . . . allocated to the job' to the railway control apparatus to release the work." *Id.* at 67–68 (citing, e.g., Ex. 1006, 24:19–26, Figs. 5H, 6A).

Thus, Petitioner's analysis suggests that a "release code" encompasses a non-public code that is received by any railway personnel that may be used to release a track block without further limitations on the accessibility to the code by, for example, a dispatcher prior to a release of a track block. Petitioner has not supported its application of the alleged "plain and ordinary meaning" of "release code" with any supporting analysis of the Specification of the '782 patent.

Patent Owner argues that the intrinsic evidence of the '782 patent supports a narrower construction of "release code," which Petitioner fails to show was taught by the asserted art. Prelim. Resp. 10–21. According to Patent Owner, a person of ordinary skill in the art "would have understood the claimed 'release code' to mean 'a code that is not readily available to the dispatcher.'" *Id.* at 10.

Our analysis starts with the claim language. *Phillips*, 415 F.3d at 1312–14. Patent Owner argues that claims challenged require "that the 'release code' is generated and transmitted 'to an electronic contact address accessible by the railway field worker via operation of the user interface of the user terminal,' and that "a track block be removed '*only* upon receiving the release code from the user terminal in return.'" Prelim. Resp. 20 (quoting Ex. 1001, Cls. 1, 5). Patent Owner reasons that "[b]y using the word 'only,' the claims require that the "release code" is not readily available to the dispatcher until the "release code" is received from the user terminal, which is in the field with the railway worker." *Id.* Patent Owner's arguments support a determination that Petitioner fails to sufficiently show how the language of the Challenged Claims shows that the claim term "release code" encompasses a non-public code that is received by any railway personnel that may be used to release a track block without further

limitations on the accessibility to the code by, for example, a dispatcher prior to a release of a track block.

Next, we turn to the Specification. "While we read claims in view of the specification . . . we do not read limitations from the embodiments in the specification into the claims." *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (citation omitted). "We depart from the plain and ordinary meaning of claim terms based on the specification in only two instances: lexicography and disavowal." *Id.* In order for a patentee to act as its own lexicographer, the "patentee must 'clearly set forth a definition of the disputed claim term' other than its plain and ordinary meaning'" and "must 'clearly express an intent' to redefine the term." *Bradium Techs LLC v. Iancu*, 923 F.3d 1032, 1044 (Fed. Cir. 2019)). Patent Owner does not argue that it disavowed the full scope of the plain and ordinary meaning of any term in the Challenged Claims and directs us to no explicit definition of "release code" in the Specification.

We recognize that in the absence of an explicit statement of redefinition, "the specification may define claim terms 'by implication' such that the meaning may be 'found in or ascertained by a reading of the patent documents.'" *AstraZeneca AB v. Mut. Pharm. Co., Inc.*, 384 F.3d 1333, 1339–1340 (Fed. Cir. 2004) (quoting *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Grp., Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001)); *see AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1051–52 (Fed. Cir. 2010) ("[W]hen a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term 'by implication.'" (quoting *Bell Atl.*, 262 F.3d at 1271)).

Patent Owner argues that "the '782 patent repeatedly and consistently refers to the 'release code' as 'secret.'" Prelim. Resp. 11–12 (citing

Ex. 1001, 5:58–60 ("the code generator 101B is configured to produce [a] removal code []such as a cipher which is . . . secret"); 9:65–10:1 ("the railway traffic control terminal 105 . . . enables safety measures so that the block cannot be removed without the input of the secret code generated"); 10:10–13 ("The remove button is disabled without the input of the secret code"); 10:15–22 ("the maintenance worker transmits the random secret code to the railway traffic control center 105 (S1305)")). According to Patent Owner, "[b]y repeatedly and consistently describing the code as 'secret,' a [person of ordinary skill in the art] would understand from the '782 patent that the claimed 'release code' is not readily available to the dispatcher." *Id.* at 12.

As further support that the Specification implicitly limits the "release code" to information not readily available to the dispatcher, Patent Owner argues that the '782 patent "describes the generation and transmission of the 'release code' . . . as 'largely automated' such that the 'release code' is 'automatically transmitted' by the railway control apparatus to the railway field worker." *Id.* (citing Ex. 1001, 2:53–55, 2:58–62, 5:58–64, 7:1–10, 7:32–55, 8:54–59, 10:1–5). According to Patent Owner, "these operations explicitly do not involve displaying the 'release code' to the dispatcher." *Id.*

Patent Owner also directs our attention to Figures 7 and 10 of the '782 patent and argues that Figure 7 illustrates a screen shot of a display of the railway control apparatus for the dispatcher that does not include a release code, as compared to Figure 10, which shows a screen shot of the railway field worker's terminal with a "random code" displayed corresponding to a "release code." *Id.* at 13–14 (citing Ex. 1001, Figs. 7, 10). Patent Owner further directs us to Figure 8 as showing that "only after the railway field worker transmits the 'release code,' is the

dispatcher able to enter the 'release code' into the railway control apparatus and remove the block." *Id.* at 15–16 (citing, e.g., Ex. 1001 8:28–29, Fig. 8).

Additionally, Patent Owner argues that a person of ordinary skill in the art would have "readily understood that the claimed 'release code' is not readily available to the dispatcher, given the problems addressed by the '782 patent." *Id.* at 16. Patent Owner argues as follows:

> The '782 patent acknowledges that "railway transportation is run under strict operational guidelines or rules," such as the Form D number. [Ex. 1001,] 1:21–22. But Form D numbers, alone, are inherently unreliable because they are known to the dispatcher at all times. Indeed, the '782 patent notes that "one study reported that there were 39 roadway worker accidents that occurred between January 1997 and the end of 2011, in which 41 roadway workers perished." *Id.* at 2:29–31. Form D numbers were in operation during this entire span of time, yet accidents and fatalities persisted. Indeed, the '782 patent notes that "even with all of the[] safety features present in a railway system, railway accidents occur, with many of them being fatal. . . . There remains a need for further safety measures to protect the lives of railway workers." [*Id.*] at 2:27–39.
>
> . . .
>
> [T]he '782 patent provides "*supplemental* measures directed to safety of railway workers." *Id.* at 2:45–46 (emphasis added). Specifically, the '782 patent states that, when embodiments of the invention are implemented, "the railway worker has more control over the traffic through the rail block in which the worker is working, and fatal on-track accidents can be reduced." [*Id.*] at 11:12–14.

Prelim. Resp. 16–18.

Lastly, according to Patent Owner, the '782 patent states that "[i]f there is no maintenance worker available to transmit the random secret code, the code can be retrieved from the train traffic control terminal 105 by the train traffic controller (S1306)." *Id.* at 19 (citing Ex. 1001, 10:19–22).

Patent Owner argues that "[b]y forcing the 'release code' to be 'retrieved from the train traffic control apparatus' (as opposed to simply displaying the 'release code' in full view of the dispatcher, like in the prior art), the '782 patent makes clear that the claimed 'release code' is not 'readily' available to the dispatcher." *Id.* at 19–20.

Patent Owner's arguments support a determination that Petitioner fails to sufficiently show how the Specification of the '782 patent shows that the claim term "release code" encompasses a non-public code that is received by any railway personnel that may be used to release a track block without further limitations on the accessibility to the code by, for example, a dispatcher prior to a release of a track block. *See also* Ex. 1001, 11:40–42 (identifying the need for limitations on the accessibility of the code to give the railway worker "more control over the traffic through the rail block in which the worker is working," so that "fatal on-track accidents can be reduced"). The '782 patent makes clear that the release code is "only" received by the relevant railway field worker and an internal storage. *Id.* at 7:4–10, *see also id.* at 2:47–57 ("generating a removal code and transmitting the removal code to the electronic contact address of the *railway field worker*, and permitting the block to the track sections to be removed *only* upon entry of the removal code in the centralized railway control system") (emphases added); 8:21–27 (stating that the railway traffic controller may remove a block "with the input of the release code provided by the designated worker assigned for track work"). Although the '782 patent describes alternative means for retrieving the release code from internal storage when the field worker is unavailable, accessibility to a "release code" is limited and this alternative access is only provided where "no maintenance worker [is] available to transmit the random secret code."

See id. at 10:19–22; *see also id.* at 5:58–60, 9:32–34, 9:65–10:5, 10:10–26 (consistently describing the release code as "secret").

Our analysis in this Decision is limited to determining whether Petitioner has shown a reasonable likelihood of prevailing in showing the unpatentability of any Challenged Claim and we need not expressly construe "release code" to make that determination.[11] Petitioner's application of a purported plain and ordinary meaning of "release code" neglects to address how a person of ordinary skill in the art would have understood "release code" in light of the Specification of the '782 patent. We further address Petitioner's arguments directed to the release code limitations in the context of the asserted prior art below, informed by our determination that Petitioner fails to sufficiently show that the claim term "release code" encompasses a non-public code that is received by any railway personnel that may be used to release a track block without further limitations on the accessibility to the code by, for example, a dispatcher prior to a release of a track block.

2. Additional Claim Terms

The Parties do not dispute the construction of any other claim terms and we find that no other claim terms require express construction for purposes of rendering this Decision. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'" (quoting *Vivid Techs.*, 200 F.3d at 803)).

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[11] Further, for purposes of this Decision we need not resolve whether Patent Owner's proposed express construction of "release code" is the proper meaning of the term in light of the Specification, which we note does not appear to expressly address how a person of ordinary skill in the art would have distinguished a code that is "readily available" to the dispatcher from a code that was not "readily available."

D. Alleged Obviousness Over Oriol

Petitioner contends that claims 1–8 of the '782 patent would have been obvious over Oriol. Pet. 18–37; *see also* Ex. 1003 ¶¶ 90–163 (Dr. Michalson providing testimony in support of Petitioner's contentions). Patent Owner disputes Petitioner's contentions. Prelim. Resp. 21–31. Because we find it determinative, we focus our discussion on whether Petitioner has sufficiently shown for purposes of institution that the code limitations would have been obvious over Oriol. For the reasons that follow, and as further explained above in our discussion of what is not encompassed by the recited "release code" (*see supra* Section III.C.1), we determine Petitioner has not shown a reasonable likelihood of prevailing.

Oriol is a report by the U.S. Department of Transportation that "documents the design and evaluation of a digital communication device intended to improve roadway worker safety and productivity." Ex. 1004, iii. According to Petitioner, "Oriol teaches that a railway worker operates a mobile device (PDA) to request work authorization over the Internet to a central control system (*e.g.*, web server, query server, and database) operated by a dispatcher;" "if the work is permitted, the dispatcher's central control system will block the track and transmit the railway worker a 'Form D number (automatically assigned by system);'" and "[a]fter completing the work, the railway worker from the PDA's interface selects 'Cancel/Fulfill' link or prompt to transmit the Form D number under his authority to the dispatcher's central control system to unblock the track." Pet. 10–12 (citing Ex. 1004, 29, 36–37, Figs. A-1, 2). Oriol states that "[a]ccording to the Amtrak operating rules (NORAC, 1999), the dispatcher issues Form Ds to restrict or authorize train movements." Ex. 1004, 8.

Patent Owner provides a further description of the Form D as follows:

> Other examples of inadequate safety precautions include NORAC's Operating Rules, including the "Form D" control system. *See, e.g.*, EX2002, EX2003. NORAC's Operating Rules have existed since the mid-1980's and "Form D" has been an integral part of NORAC's Operating Rules since at least the early 1990's. *See e.g.*, EX2003. A "Form D" contains "written authorization(s), restriction(s), or instruction(s) issued by the Dispatcher to specified individuals." EX2003 at 6. These instructions can include a "Form D Line 4," which is used when "removing a track from service for maintenance." *Id.* at 48. The Operating Rules require the dispatcher to determine that "controlled signals leading to the affected track are in Stop position" prior to issuing a "Form D Line 4." *Id.* Similarly, prior to releasing a "Form D," the dispatcher ostensibly must take certain actions, including "contact the addressee(s) and state his intent to cancel the Form D . . ., state the Form D number and, date, the cancellation time and date, and his initials, [and] ensure that all cancellation information is repeated [by the addressee] correctly." *Id*. at 62–63. Despite these protections, human errors and accidents continued to occur, such as those recognized in the FRA's Final Rule (EX2001) and in the '782 patent. *See* EX1001 at 2:4–39. Such errors included mistakes such as where "the train dispatchers did not maintain the required blocking devices." EX2001 at 75.

Prelim. Resp. 4–5. Patent Owner further describes the Form D number as follows:

> [A] Form D number is well-known in the railway industry. *See e.g.,* EX2002 at 61-67. Form D numbers were originally designated using paper forms filled out by the dispatcher. *See, e.g.,* EX1004 at 55; EX2002 at 61. The Form D number is distributed broadly, to the dispatcher, locomotive engineers, railway field workers, and managers located outside the dispatcher's location. The form D number is not secret from anyone. Oriol states "[t]he device parameters should allow the PDA user to view all work permissions in effect for each track section on screens indicating the track that is out of service. *It would also be beneficial to include work permissions under the*

> *authority of other roadway workers*." EX1004 at 27 (emphasis added). Fig. A-5 of Oriol shows the Dispatcher Interface, which shows that the Dispatcher is aware of the Form D number from the time that the railway worker requests Form D protection[.]

Id. at 22.

Petitioner asserts that "Oriol's Form D number is a release code given the generated Form D number is sent to the worker 'who requested it' . . . and who cancels the same Form D number (under his authority) to release the track block." Pet. 28 (citing Ex. 1004, 36–38, Fig. A-1; Ex. 1003 ¶ 125). Patent Owner argues that a Form D number is not a "release code," as that term is used in the '782 patent. Prelim. Resp. 22–28. Patent Owner argues that "[a] Form D number is not the same as the claimed 'release code' because a Form D number is simply an identifier for a given Form D, is known to the dispatcher, and is not tied to the release of a track block." *Id.* at 24.

According to Patent Owner, "Oriol shows in Figure A-5, that from the time a Form D is requested, the dispatcher Interface displays the Form D numbers to the dispatcher," and that "Oriol's system utilizes the same generic, sequential numbering convention, generated by and known to the dispatcher, that was previously used on paper forms." *Id.* at 25–26. Patent Owner argues that "Form D's were subject to human error, including prematurely released track blocks," (citing Ex. 2001, 75–76), and that "by keeping the 'release code' secret from the dispatcher," as provided by the release code of the '782 patent, "the dispatcher is unable to release the block, such as either by miscommunication or through error, until the railway worker provides the 'release code.'" *Id.* at 26–27.

We agree with Patent Owner that Petitioner has not sufficiently shown for purposes of supporting institution that a Form D number, as taught by

Oriol, corresponds to the recited "release code." For the reasons detailed above (*see supra* Section III.C.1), Petitioner fails to sufficiently show how the claim term "release code" encompasses a non-public code that is received by any railway personnel that may be used to release a track block without further limitations on the accessibility to the code by, for example, a dispatcher prior to a release of a track block. Petitioner shows only that a Form D number, as taught by Oriol, "is sent to the worker 'who requested it' . . . and who cancels the same Form D number (under his authority) to release the track block." Pet. 28. Petitioner fails to sufficiently show how a Form D number, which is displayed to the dispatcher before any block is to be removed (*see*, *e.g.*, Ex. 1004, A-5), is encompassed within the meaning of a "release code," as required by the Challenged Claims. Thus, we find Petitioner's contentions insufficient to establish a reasonable likelihood of prevailing in showing any Challenged Claim would have been obvious over Oriol.

E. Alleged Obviousness Over Oriol and Masquelier

Petitioner contends claims 1–8 of the '782 patent would have been obvious over Oriol in combination with Masquelier. Pet. 37–45. Petitioner states that "Masquelier is the second volume of Oriol's publication and builds upon Oriol's work." *Id.* at 12. Petitioner argues that a person of ordinary skill in the art "would have been motivated and had a reasonable expectation of success to modify Oriol, to include Masquelier's mobile device, visual track blocking and unblocking, and text messaging." *Id.* at 38. Although Petitioner does not present an element-by-element analysis of any of the Challenged Claims, it is apparent from Petitioner's arguments that Petitioner relies on the Form D number of Oriol as corresponding to the recited "release code." *See*, *e.g.*, *id.* at 41 (stating that "[i]n Oriol, the

railway control apparatus generates a release code and transmits it to the worker's electronic contact address," and that the "previously generated Form D number or release code" is used to remove the track block). Masquelier also describes the use of Form D. *See*, *e.g.*, Ex. 1005, 6; *see also* Pet. 42 (stating that "[a]fter receiving the worker's Form D request, Masquelier teaches that the dispatcher's railway control apparatus software blocks the track") (citing Ex. 1005, 11). Accordingly, we find Petitioner's contentions based on a Form D number insufficient to establish a reasonable likelihood of prevailing in showing any Challenged Claim would have been obvious over Oriol and Masquelier for the same reasons discussed above with regard to alleged obviousness over Oriol, alone. *See supra* Section III.D; *see also* Prelim. Resp. 35 (arguing that "the Petition does not appear to rely on Masquelier for the claimed 'release code' at all" and that the proposed modifications of the teaching of Oriol based on Masquelier are "irrelevant" to the code limitations).

F. Alleged Obviousness Over Oriol and Wise

Petitioner contends claims 1–8 of the '782 patent would have been obvious over Oriol and Wise. Pet. 46–49. Although Petitioner provides a short description of Wise (*see* Pet. 14–15), the summary of Wise provided by Patent Owner more thoroughly explains the disclosure of Wise as follows:

> Wise (EX1006) is entitled "Safety Check" and generally discloses a safety system that can be used, for example, in a rail network. EX1006 at 1:1–7.
>
> According to Wise, a supervisor determines that railway work needs to be done at a work site. *Id.* at 10:28–31. A planner plans the work. *Id.* at 10:31–34. The planner may schedule blocking of railway lines at the work site. *Id.* at 11:6–13. Before

> any repair work begins, an assessor evaluates potential safety issues at the work site. *Id.* [at] 9:7–13; 16:3–5, Fig. 3.
>
> At the time the repair should start, a "Controller of Site Safety" or "COSS user" (who is one for the workers who will perform the repairs) conducts his own safety assessment of the work site. *Id.* at 7:6; 7:12–15. The COSS user then contacts a remote operator, who quizzes the COSS user. [*Id.* at] 3:11–13; 16:12–15; 4:7–10. The remote operator, but not the COSS user, has information supplied by the assessor (who evaluated the potential safety issues at the work site), but the operator will not help the COSS user pass the safety quiz. *Id.* at 26:23–27 ("When the COSS user calls the operator they do so in the full knowledge that no assistance will be given regarding possible answers. The COSS user must have calculated and/or established answers to all predicted questions.").
>
> If the COSS user passes the quiz, the operator verbally gives the COSS user a "Safety Check Number" (SCN), and the COSS user and the workers are permitted to enter the work site and complete the planned repairs. *Id.* at 26:12–19. Thus, because the operator verbally gives the COSS user the SCN, the operator (*e.g.*, the dispatcher) knows the SCN that is given to the COSS user. If the COSS user fails the quiz, he and the workers are not provided an SCN and are not allowed to enter the work site. *Id.* at 26:19–23.

Prelim. Resp. 40–41. Wise also states that "[a]s soon as a job is completed and workers are removed from a target location a qualified caller again calls the operator . . . and informs them that the team has withdrawn providing the operator with the SCN number which has previously been allocated to the job." Ex. 1006, 25:4–9.

Petitioner does not provide a limitation-by-limitation analysis of any Challenged Claim. Instead, Petitioner summarizes how it proposes the teachings of Wise would have been applied to the system of Oriol. Pet 48–49. Petitioner argues that "[a]fter blocking the track, Oriol would generate and transmit Wise's unique access code such as an SCN to be displayed on

the worker's device," "Wise teaches that the access code transmitted to the worker provides authority to enter a track for maintenance," and "[w]hen the work is completed and 'Cancel/Fulfill' is selected, Oriol would transmit the access code (and Form D number) to the railway control apparatus, which would use (or enter) the access code (rather than the Form D number for the reasons discussed above) to unblock the track." *Id.* at 48–49 (citing, e.g., Ex. 1006, 25:4–9).

According to Petitioner, a person of ordinary skill in the art "would have been motivated to modify Oriol with Wise's first blocking the track and thereafter generating a unique access code (*e.g.*, SCN), as the release code." *Id.* at 46 (citing Ex. 1003 ¶ 202). Petitioner asserts that this would enable the code to be generated "once the block has been implemented as otherwise the dispatcher and/or third-party could unsafely or incorrectly use the code before the track is blocked." *Id.* at 46–47 (citing Ex. 1003 ¶ 203). Further, according to Petitioner, "Wise's code would be separate from the Form D number" and "could provide another layer of security over the Form D number because it acts as authority to enter the track for maintenance." *Id.* (citing, e.g., Ex. 1006, Abstract, 12:6–15, 24:19–26, 26:14–23, Fig. 5H). Petitioner further reasons that Oriol's system would be modified "such that the Wise access or release code would be returned with the Form D number to the railway control apparatus." *Id.* at 47 (citing Ex. 1003 ¶ 209).

Patent Owner argues that "the SCN [of Wise] is not involved in setting or releasing any block." Prelim. Resp. 41 (citing Ex. 1005, Fig. 5G). Patent Owner further argues that Wise's SCN is "not the claimed 'release code' because it, like Oriol's Form D number, is known to the dispatcher at all times, and is therefore readily available to the dispatcher." *Id.* at 46

(citing Ex. 1006 at 24:19–26 ("an SCN is automatically generated and displayed on the screen to an operator. This number may then be verbally given to the caller")).

We agree with Patent Owner that Petitioner has not sufficiently shown for purposes of supporting institution that the SCN of Wise corresponds to the recited "release code." For the reasons detailed above (*see supra* Section III.C.1), Petitioner fails to sufficiently show how the claim term "release code" encompasses a non-public code that is received by any railway personnel that may be used to release a track block without further limitations on the accessibility to the code by, for example, a dispatcher prior to a release of a track block. Petitioner shows only that the SCN of Wise is transmitted to a worker and may "provide another layer of security," because the SCN "acts as authority to enter the track for maintenance." Pet. 46–47. Petitioner fails to sufficiently show how Wise's SCN, which is displayed to an operator before any block is to be removed (*see*, *e.g.*, Ex. 1006, 24:19–26), is encompassed within the meaning of a "release code," as required by the Challenged Claims. Thus, we find Petitioner's contentions insufficient to establish a reasonable likelihood of prevailing in showing any Challenged Claim would have been obvious over Oriol and Wise.

G. Alleged Obviousness Over Oriol, Masquelier, and Wise

Petitioner contends claims 1–8 of the '782 patent would have been obvious over Oriol in combination with Masquelier and Wise. Pet. 49–51. Petitioner does not provide a limitation-by-limitation analysis of any Challenged Claim. According to Petitioner, a person of ordinary skill in the art "would have been motivated to modify Oriol and Masquelier to include central control blocking and unblocking as well as the railway control

apparatus to transmit and receive the release code (Form D number) over text message," and "would have been further motivated to modify this Oriol and Masquelier combination such that the railway control apparatus blocks the track and then uses Wise's access code as the release code instead of the Form D number." *Id.* at 50. For the same reasons discussed above in regard to Petitioner's allegations of obviousness over Oriol and Masquelier and over Oriol and Wise, Petitioner fails to sufficiently show how Oriol, Masquelier, or Wise teaches a code encompassed within the meaning of a "release code," as required by the Challenged Claims. *See supra* Sections III.C.1, III.D–F. Thus, we find Petitioner's contentions insufficient to establish a reasonable likelihood of prevailing in showing any Challenged Claim would have been obvious over Oriol, Masquelier, and Wise.

H. Alleged Obviousness Over Oriol, Masquelier, and Pachl

Petitioner contends claims 1–8 of the '782 patent would have been obvious over Oriol in combination with Masquelier and Pachl. Pet. 51–53. Pachl's disclosure relates "to a method for controlling the sequence of trains during traffic control, whereby a telephone communication between a traffic controller in a traffic control centre and a driver is carried out." Ex. 1020, code (57). Pachl calls the communications between the dispatchers and the locomotive engineers "running messages." *Id.* at 1:14.

According to Petitioner, Pachl "teaches a control center with a computer interface and storage to first control the track safety measure and then generate a 'checking code[,]' . . . [and] further teaches that the control center will only release the track upon entry of a received code." Pet. 17 (citing, e.g., Ex. 1020, 1:11–20, 1:33–36, 1:54–58, 1:63–66, 2:47–60, 3:35–45, 4:9–19, 4:50–59; Ex. 1003 ¶¶ 83–86). Patent Owner provides a more thorough explanation of the disclosure of Pachl as follows:

> The mechanism for improving the security of running messages envisioned by Pachl entails "checking codes." [Ex. 1020,] at 1:37–42. In Pachl, the dispatchers/train controllers and locomotive engineers communicate by telephone. *Id*. at 1:16–17. During these telephone calls, the dispatcher provides two pieces of information: a proposed movement permission for the train and a "checking code," which is a number that the dispatcher calculates on his computer based on the current state of the railway system and the proposed movement permission. *Id.* at 1:38–49. Specifically, Pachl teaches:
>
>> Once a train controller in the control center has received a movement request . . . the train controller enters an appropriate movement permission in a train computer. This uses the occupancy status of the requested track section to check the permissibility of the movement permission, and calculates a checking code which is specific for that movement permission. *The movement permission is . . . quasi-granted, together with the checking code, on a train control computer screen display. This movement permission is transmitted by the train controller together with the checking code by telephone.*
>
> [*Id.*] at 4:8–20.
>
> The locomotive engineer then enters the checking code and movement permission into a separate computer on the train. *Id.* at 2:2–5; 2:20–23. The locomotive engineer's computer uses the same algorithm that the train controller's computer used to generate his own version of the checking code. *Id.* at 2:24–26.
>
> If the version of the checking code computed by the locomotive's computer does not match the checking code the locomotive engineer received over the telephone, then he knows that the communication is in error. *Id.* at 2:28–31.

Prelim. Resp. 53–54.

Petitioner does not provide a limitation-by-limitation analysis of any Challenged Claim. Petitioner relies on a Form D number as the recited

"release code." Pet. 51 (stating "Oriol and Masquelier could generate a temporary number or other placeholder and then once the safety measure is made effective, generate the Form D number to provide greater security and safety as that release code would not be known until the track is blocked"), 53 (stating "Oriol and Masquelier could block the track and then generate the code (Form D number)"). Petitioner also refers to the "checking code" of Pachl, but does not argue it is a "release code." *Id.* at 51–53; *see also* Prelim. Resp. 59 (arguing that Pachl's checking code is not a "release code," because "the checking code is shown to the dispatcher on a display and then transmitted by the dispatcher to the train operator by telephone") (citing Ex. 1020, 4:8–20).

Petitioner fails to sufficiently show how a Form D number of Oriol, which is displayed to the dispatcher before any block is to be removed (*see*, *e.g.*, Ex. 1004, A-5), is encompassed within the meaning of a "release code," as required by the Challenged Claims.

To the extent Petitioner's arguments may be interpreted as relying on Pachl's checking code as corresponding to the recited "release code," Petitioner fails to sufficiently show how the checking code of Pachl, which is known to the dispatcher at all times (*see*, *e.g.*, Ex. 1020, 4:8–20), is encompassed within the meaning of "release code," as required by the Challenged Claims. *See* Prelim. Resp. 58–62 (detailing how Pachl's checking code is displayed to the dispatcher and telephoned to a train operator, not to an electronic address accessible by a railway field worker). Accordingly, we find Petitioner's contentions insufficient to establish a reasonable likelihood of prevailing in showing any Challenged Claim would have been obvious over Oriol, Masquelier, and Pachl.

I. Alleged Obviousness Over Tamaribuchi and Pachl

Petitioner contends claims 1–8 of the '782 patent would have been obvious over Tamaribuchi in combination with Pachl. Pet. 54–63. According to Petitioner, "Tamaribuchi describes a central control system that communicates with a maintenance worker's terminal device (e.g., PDA) over a network (e.g., Internet), and the central control system communicates with a power and signaling system to block and unblock tracks." *Id.* at 16 (citing Ex. 1007, Fig 1). Petitioner contends that Tamaribuchi teaches a control unit that produces a work order and adds a "reference number" as an "identification number," such as a "serial number." Pet. 58–59 (citing Ex. 1007 ¶¶ 110, 118, 214, Figs, 3, 4). In regard to Tamaribuchi, Patent Owner explains as follows:

> Tamaribuchi teaches a "PIN lock" system, whereby a user can request that a "central control device 100 control[a] target device 900 to maintain a first state in which the maintenance work can be safely performed." EX1007 at ¶[0087]. Tamaribuchi employs two numbers to effect this teaching. The "PIN" ("Personal Identification Number") identifies a user. *Id.* at ¶[0087]. The second number Tamaribuchi employs is a "reference number" that identifies work orders—it is a work order identification number. *Id.* at ¶[0090].
>
> When a worker wishes to lock a given safety condition, then the roadway worker can select an icon to request that the "PIN lock" be enabled. *Id.* at ¶ [0091]. Similarly, when the roadway worker wishes to unlock the safety condition, they can select another icon that removes the "PIN lock" state. *Id.* at ¶ [0097]–[0098].

Prelim. Resp. 66–67.

Petitioner relies on the reference number of Tamaribuchi as corresponding to the recited "release code." Pet. 58. According to Petitioner, "Tamaribuchi's reference number . . . is a release code given the same reference number is used to later release the track block." *Id.* at 59

(citing Ex. 1003 ¶ 265). Petitioner contends that to remove a track block in Tamaribuchi, a worker transmits an unlock request with the reference number to the railway control apparatus. *Id.* at 60. The control has "a block removal part" that "confirms the worker associated with this reference number has authority to remove the track block," and then updates the safety measures state associated with the reference number to remove the track block. *Id.* at 60–61. Petitioner further argues that "[t]o the extent the reference number must be entered, it would have been obvious with a reasonable expectation of success to modify Tamaribuchi with Pachl's code entry to provide confirmation before the track is unblocked and given Tamaribuchi's existing centralized control system and related software" and that [e]ntering the code" was known to a person of ordinary skill. *Id.* at 61–62.

Patent Owner argues that "Tamaribuchi's 'reference number' is not the claimed 'release code' because . . . the dispatcher is aware of the reference number at all times." Prelim. Resp. 69 (citing Ex. 1007, ¶ 32, Fig. 5 (illustrating "a screen displayed by a display unit of a central control device" with the reference number displayed to the dispatcher).

We agree with Patent Owner that Petitioner has not sufficiently shown for purposes of supporting institution that the reference number of Tamaribuchi corresponds to the recited "release code." For the reasons detailed above (*see supra* Section III.C.1) Petitioner fails to sufficiently show how the claim term "release code" encompasses a non-public code that is received by any railway personnel that may be used to release a track block without further limitations on the accessibility to the code by, for example, a dispatcher prior to a release of a track block. Petitioner fails to sufficiently show how Tamaribuchi's reference number, which is displayed

to the dispatcher before any block is to be removed (*see*, *e.g.*, Ex. 1007, Fig. 5), is encompassed within the meaning of a "release code," as required by the Challenged Claims. Thus, we find Petitioner's contentions insufficient to establish a reasonable likelihood of prevailing in showing any Challenged Claim would have been obvious over Tamaribuchi and Pachl.

J. Alleged Obviousness Over Wise and Masquelier

Petitioner contends claims 1–8 of the '782 patent would have been obvious over Wise in combination with Masquelier. Pet. 63–70. Petitioner relies on the SCN described in Wise as corresponding to the recited "release code." *Id.* at 67–68. Petitioner asserts that "Wise teaches when the work is completed, the worker transmits the same SCN 'previously . . . allocated to the job' to the railway control apparatus to release the work." *Id.* at 68 (citing Ex. 1006, 25:4–9, Fig. 5H). For the same reasons discussed above (*see supra* Section III.F) Petitioner fails to sufficiently show how Wise's SCN, which is displayed to an operator before any block is to be removed (*see*, *e.g.*, Ex. 1006 at 24:19–26), is encompassed within the meaning of a "release code," as required by the Challenged Claims. Thus, we find Petitioner's contentions insufficient to establish a reasonable likelihood of prevailing in showing any Challenged Claim would have been obvious over Wise and Masquelier.

IV. CONCLUSION

We deny institution of *inter partes* review of any of the Challenged Claims.

IV. ORDER

Upon consideration of the record before us, it is:

ORDERED that the Petition is denied and no *inter partes* review is instituted.

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