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Paper No. 8
Date: January 22, 2024

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.

IPR2023-01181
Patent RE49,115 E

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

MURPHY, *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 20–36 ("Challenged Claims") of U.S. Patent No. RE49,115 E (Ex. 1001, "the '115 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 '115 Patent

The '115 patent, titled "Tools for Railway Traffic Control," issued on June 28, 2022, from U.S. Application No. 16/709,126, filed December 10, 2019. Ex. 1001, codes (21), (22), (45), (54). The '115 patent is directed "to railway traffic control, and more specifically, a system, apparatus, and method for railway traffic control to address concerns for safety of railway

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

workers working on or near railroad tracks." *Id.* at 1:29–32. The '115 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 2:40–49. The '115 patent identifies "a need for further safety measures to protect the lives of railway workers." *Id.* at 2:51–52.

As further background, according to the '115 patent, in a standard railway system, "[i]nterlocking signals govern movement within a sector controlled by an interlock." Ex. 1001 1:41–42. "[A] track may be divided into sections," and an "interlocking signal" is exhibited at the entrance to each track section. *Id.* at 1:41–46. "[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 1:46–51.

The '115 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." Ex. 1001 2:62–66. "[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 5:59, 5:63–65; *see also id.* at 5:61–63 (stating that an interlock can "output a STOP signal, therefore, stopping any train traffic within the rails controlled by that interlock"), 5:65–6:2 (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.* at 7:39–41. 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 2:40–50.

"[A]ll of the interlocks" within a railway system may be controlled electronically through "a centralized traffic control (CTC)." *Id.* at 1:56–57. "The CTC is controlled by a single person known as a train dispatcher." *Id.* at 1:60–61. "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 1:62–2:2. 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 1:54–61, 2:60–66, 5:58–65, 7:39–41. 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 2:40–50.

The '115 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." Ex. 1001 11:37–39. To accomplish this purpose, the '115 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 2:66–3:3.

The '115 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.* Ex. 1001 7:61–8:3. "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.* 8:4–9, *see also id.* at 7:21–22 (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 id.* Fig. 6. The '115 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 8:54–57; *see also id.* at 8:57–61 (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"), 8:63–67 (stating "where there are multiple workers assigned for a certain track section, there

[3] The '115 patent refers to the code as the "removal code" (*see*, *e.g.*, Ex. 1001, 2:66), the "release code" (*see*, *e.g.*, *id.* at 7:22), the "random secret code" (*see*, *e.g.*, *id.* at 9:57), the "secret code" (*see, e.g., id.* at 10:25), and the "secret removal code" (*see*, *e.g.*, *id.* at 10:29). In each instance, the '115 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.

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 '115 patent only describes circumstances where the 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, 8:1112; *see also id.* at 11:26–28 ("Once a block has been placed, the interlock remains in a blocked state, 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 11:30–32. 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 11:32–36. In short, the '115 patent makes clear that the train dispatcher typically does not have the code to lift the block until the code is provided by a maintenance worker.

The '115 patent also describes instances where the code may be "retrieved" by the dispatcher from the internal storage of the railway traffic control apparatus, rather than from the maintenance worker. Ex. 1001 10:30–46. The '115 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.* The '115 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 ’115 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 ’115 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 11:37–39.

B. Illustrative Claim

Petitioner challenges the validity of claims 20–36 of the ’115 patent. Pet. 1. Claims 20, 30, and 31 are independent. Claims 21–29 depend directly or ultimately from claim 20, and claims 32–36 depend directly or ultimately from claim 31. Claim 20 is illustrative of the claimed subject matter and is reproduced below (with indicators of changes made during reexam removed):

> 20. A railway control apparatus for centralized control of a centrally controllable railway network including plural railways and a plurality of railway interlocks dispersed in said plural railways, comprising:
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> a processor for controlling a plurality of track sections in the railway network, wherein each track section is associated with a corresponding interlock and is disposed in any of said plural railways of said railway network that is managed by centralized control operation from the railway control apparatus, the processor controlling, by said centralized control operation, one or more interlocks amongst the plurality of railway interlocks dispersed in said plural railways of said railway network, to block

railway traffic to one or more specified track sections; and

a memory device storing computer-executable instructions, wherein execution of the computer-executable instructions by the processor causes the railway control apparatus to:

receive a selection of at least one track section amongst the plurality of track sections;

transmit a block signal to the corresponding interlock associated with the at least one selected track section, to place a block on the selected track section by said centralized control operation from the railway control apparatus;

generate a secret code associated with the at least one selected track section; and

transmit the secret code to a remote user terminal.

Ex. 1001, 14:60–15:22. Independent claim 30 likewise recites a railway apparatus that is caused to "generate a secret code associated with the at least one track section" and to "transmit the secret code to a remote use terminal." *Id.* at 16:14–37. Independent claim 31 recites a method comprising the steps of "generating, by [a] processor, a secret code associated with at least one selected track section" and "transmitting, by the processor, the secret code to a remote user terminal." *Id.* at 16:55–58.

C. Asserted Grounds of Unpatentability

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

Claims Challenged	35 U.S.C. §[4]	References/Basis
20–36	103(a)	Oriol,[5] Masquelier[6]
20–36	103(a)	Oriol, Masquelier, Wise[7]
20–36	103(a)	Oriol, Masquelier, Pachl [8]

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

D. Related Proceedings

The Parties identify the ’115 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*

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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 ’115 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 A1, published May 5, 2004 (Ex. 1006, “Wise”).

[8] U.S. Patent No. 7,328,090 B2, issued February 5, 2008 (Ex. 1020, “Pachl”).

Passenger Corporation d/b/a Amtrak v. Railware, Inc., IPR2023-01179 (U.S. Patent No. 9,517,782 B2) and *National Railroad Passenger Corporation d/b/a Amtrak v. Railware, Inc.*, IPR2023-01180 (U.S. Patent No. RE47,835 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." *Graham*, 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. 8 (citing Ex. 1003 ¶¶ 24–25). Patent Owner does not dispute the level of ordinary skill identified by Petitioner. *See* Prelim. Resp. 11. 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 '115 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. 9. 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. 12 (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 “secret code.”[9] *Id.* at 10–21. We address Patent Owner’s arguments pertaining to this term below.

1. “secret code”

The claim term “secret code” appears in the challenged independent claims. Claims 20 and 30 recite “generate a secret code associated with the at least one selected track section” and “transmit the secret code to a remote user terminal.” Claim 31 recites “generating, by the processor, a secret code associated with the selected at least one selected track section; [and] transmitting, by the processor, the secret code to a remote user terminal.” We refer to these limitations as the “code limitations.”

Petitioner purports to have applied the “plain and ordinary meaning” to all claim terms, including “secret code” in the Petition for the purposes of institution. Pet 9. Petitioner does not otherwise address in the Petition what it contends to be the plain and ordinary meaning of “secret code.”

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[9] 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. 12. 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.

According to Petitioner, the ’115 patent describes tools “to control traffic over a railway section” where “a block is placed” and “a release code is generated” such that the “block is removed from the track section when the release code is received by the system.” Pet. 4 (citing Ex. 1001, Abstract). Petitioner also states that in the ’115 patent “[t]he claim language does not describe ‘the secret code’ and what makes a code ‘secret’ including failing to detail any specific level of security.” *Id.* at 39. Petitioner also implies that there are “no specifics” in the ’115 patent. *Id.* (citing Ex. 1001, 6:6–9).

In arguing that Oriol and Masquelier teach a code as required by the ’115 patent, Petitioner asserts that the Form D number disclosed by these references is a secret code “because the generated Form D number is sent to specified worker ‘who requested it’” and “who only can cancel the same Form D number (or under his authority) to remove the track block.” Pet. 39 (citing Ex. 1004 38, 57) *see also id.* at 40 (asserting that “the Form D number is a secret code given the worker can only access the Form D number ‘under his/her authority’ and given the secured communications.”) In arguing that Wise teaches a “secret code,” Petitioner asserts that a SCN (security check number) disclosed by Wiser would be considered a secret code because “without the code a worker cannot access the worksite and only that worker has access to the code.” Pet. 65 (citing Ex. 1006 31:33–32:3). In arguing that Pachl teaches a “secret code,” Petitioner argues that a “checking code” disclosed by Pachl is secret because “it is calculated and only the central control and receiving device can determine the code.” Pet. 71 (citing Ex. 1020 2:50–60, 4:7–26, 4:50–59, claim 1, Figs. 1–2).

Thus, Petitioner’s analysis suggests that a “secret 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 of the code by, for example, a dispatcher prior to release of a track block. Petitioner has not supported its application of the alleged "plain and ordinary meaning" of "secret code" with any supporting analysis of the Specification of the '115 patent.

Patent Owner argues that the intrinsic evidence of the '115 patent supports a narrower construction of "secret code," which Petitioner fails to show was taught by the asserted art. Prelim. Resp. 13–23. According to Patent Owner, a person of ordinary skill in the art "would have understood 'secret code' to mean 'a code that is not readily available to the dispatcher.'" *Id.* at 13.

Our analysis starts with the claim language. *Phillips*, 415 F.3d at 1312–14. Patent Owner argues that the Challenged Claims "expressly" require that the code be "secret," making it "clear" to a person of ordinary skill in the art that "the 'secret code' is not readily available to the dispatcher." Prelim. Resp. 22 (citing Ex. 1001, Cls. 20, 30, 31). Patent Owner also argues that the Challenged Claims "specify that the 'secret code' is generated and transmitted 'to a remote user terminal.'" *Id.* Patent Owner explains that if "the dispatcher has ready access to the removal code, then code would not be 'secret' and the dispatcher could remove the block at any time and particular due to miscommunication or error. *Id.* at 23.

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 "secret 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 "secret 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 "[t]he '115 patent repeatedly and consistently refers to the 'secret code' as 'secret.'" Prelim. Resp. 13 (citing Ex. 1001, 6:6–8 ("the code generator 101B is configured to produce [a] removal code []such as a cipher which is . . . *secret*"); 10:22–25 ("the

railway traffic control terminal 105 . . . enables safety measures so that the block cannot be removed without the input of the *secret code* generated"); 10:34–35 ("The remove button is disabled without the input of the secret code"); 10:40–42 ("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 '115 patent that the claimed 'secret code' is not readily available to the dispatcher." *Id.* at 14.

As further support that the Specification implicitly limits the cod to information not readily available to the dispatcher, Patent Owner argues that the '115 patent "describes the generation and transmission of the 'secret code' . . . as 'largely automated' such that the 'secret code' is 'automatically transmitted' by the railway control apparatus to the railway field worker." *Id.* at 14–15 (citing Ex. 1001, 3:4–9, 2:66–3:1, 6:6–13, 7:27–36, 7:53–8:9, 9:9–14, 10:25–29). According to Patent Owner, "these operations explicitly do not involve displaying the 'secret code' to the dispatcher." *Id.*

Patent Owner also directs our attention to Figures 7 and 10 of the '115 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 code as compared to Figure 10, which shows a screen shot of the railway field worker's terminal with a code displayed corresponding to a code as required by the '115 patent. *Id.* at 15–17 (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 'secret code,' is the dispatcher able to enter the 'secret code' into the railway control apparatus and remove the block." *Id.* at 18 (citing, e.g., Ex. 1001, 8:50–51, Fig. 8).

Additionally, Patent Owner argues that a person of ordinary skill in the art would have readily understood "that the claimed [code] is not readily available to the dispatcher, given the problems addressed by the '115 patent." Prelim. Resp. 19. Patent Owner argues as follows:

> The '115 patent acknowledges that "railway transportation is run under strict operational guidelines or rules," such as the Form D number. [Ex. 1001] at 1:36–40. But Form D numbers, alone, are inherently unreliable because they are known to the dispatcher at all times. Indeed, the '115 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 2:41–44. Form D numbers were in operation during this entire span of time, yet accidents and fatalities persisted. Indeed, the '115 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 2:40–52.
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> . . .
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> [T]he '115 patent provides "***supplemental*** measures directed to safety of railway workers." *Id.* at 2:56–59 (emphasis added). Specifically, the '115 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 11:37–39.

Id. at 20–21.

Lastly, according to Patent Owner, the '115 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" by "the train traffic controller." *Id.* at 21–22 (citing Ex. 1001, 10:42–46). Patent Owner argues that "[b]y forcing the 'secret code' to be 'retrieved from the train traffic control apparatus' (as opposed to simply displaying the 'secret code'

in full view of the dispatcher, like the prior art), the '115 patent makes clear that the claimed 'secret code' is not 'readily' available to the dispatcher." *Id.* at 22.

Patent Owner's arguments support a determination that Petitioner fails to sufficiently show how the Specification of the '115 patent shows that the claim term "secret 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, 11:37–39 (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 '115 patent makes clear that the secret code is "only" received by the relevant railway field worker and an internal storage. *Id.* at 7:27–30, *see also id.* at 2:66–3:3 ("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); 8:44–49 (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 '115 patent describes alternative means for retrieving the code from internal storage when the field worker is unavailable, accessibility to this 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 10:42–44; *see also id.* at 6:8, 9:56, 10:25, 10:35 (consistently describing the 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 "secret code" to make that determination.[10] Petitioner's application of a purported plain and ordinary meaning of "secret code" neglects to address how a person of ordinary skill in the art would have understood "secret code" in light of the Specification of the '115 patent. We further address Petitioner's arguments directed to the 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 "secret code" encompasses a non-public code 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., Inc. v. American Science & Engineering, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 2011).

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[10] Further, for purposes of this Decision we need not resolve whether Patent Owner's proposed express construction of "secret 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 and Masquelier

Petitioner contends that claims 20–36 of the ’115 patent would have been obvious over Oriol and Masquelier. *See* Pet. 19–62; *see also* Ex. 1003 ¶¶ 90–226 (Dr. Michalson providing testimony in support of Petitioner’s contentions). Patent Owner disputes Petitioner’s contentions. *See* Prelim. Resp. 23–38. 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 and Masquelier. For the reasons that follow, and as further explained above what is not encompassed by the recited “secret code” (*see supra* Section III.C.1), we determine Petitioner has not shown a reasonable likelihood of prevailing.

Oriol and Masquelier are volumes one and two, respectively, of a Federal Railroad Administration’s report on “Supporting Railroad Roadway Worker Communications with a Wireless Handheld Computer.” Ex. 1004, i, Ex. 1005, i. Oriol “documents the design and evaluation of a digital communication device intended to improve roadway worker safety and productivity.” Ex. 1004, iii. Masquelier “evaluate[s] the human factor implications of computer and communications technology in railroad operations.” Ex. 1005, iii. 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.

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” that is “operated by a dispatcher.” Pet. 12. If the work authorization involves on-track equipment and/or will disturb the track, it is “denoted as Form D.” *Id.* at 13 (citing Ex. 1004 7, 8, 29, Fig. 2, Fig. 4). If the dispatcher grants the Form D, appropriate information is sent

to the railway worker, and this information includes a "Form D number (automatically assigned by system)." *Id.* at 13 (citing Ex. 1004, 6, 38). "After completing the work, the railway worker from the PDA's interface selects 'Cancel/Fulfill' link to transmit the same Form D number to the dispatcher's central control system to unblock the track." Pet. 13–14 (citing Ex. 1004 36–37, Fig. A-1).

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 '115 patent. *See* EX1001 at 2:18–39. 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 Form D 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 24–25.

Petitioner asserts that "the Form D number is a secret code because the generated Form D number is sent to a specific registered worker 'who requested it' . . . and who only can cancel the same Form D number (or under his authority) to remove the track block." Pet. 39 (citing Ex. 1004, 36–38, 57, Fig. A-1; Ex. 1003 ¶ 138). Patent Owner argues that a Form D number is not a "secret code," as that term is used in the '115 patent. *See* Prelim. Resp. 28–33. Patent Owner argues that "[a] Form D number is not the same" as the claimed code because "a Form D number is simply an identifier for a given Form D" and "is known to the dispatcher." *Id.* at 29.

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 29–30. Patent Owner argues that "Form D's were subject to human error, including

prematurely released track blocks," and that "by keeping the 'secret code' secret from the dispatcher," as provided by the secret code of the '115 patent, "the dispatcher is unable to release the block, such as either by miscommunication or through error, until the railway worker provides the 'secret code.'" *Id.* at 31, citing Ex. 1001 11:37–39, Ex. 2001 75–76.

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/Masquelier corresponds to the recited "secret code." For the reasons detailed above (*see supra* Section III.C.1), Petitioner fails to sufficiently show how the claim term "secret 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 "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. 39. 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 "secret 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 Masquelier.

E. Alleged Obviousness Over Oriol, Masquelier, and Wise

Petitioner contends claims 20–36 of the '115 patent would have been obvious over Oriol, Masquelier, and Wise. Pet. 62–69. Although Petitioner provides a short description of Wise (*see* Pet. 16–17), 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. 34–35. 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 summarizes how it proposes the teachings of Wise would have been applied to the system of Oriol. Pet. at 64–65. Petitioner argues that "[a]fter blocking the track, Oriol and Masquelier would also generate and transmit Wise's unique access code such as an SCN to the worker" and that "[t]his code would be considered a secret code because without the code a worker cannot access the worksite and only that worker has access to the code." *Id.* (citing Ex. 1006, 12:6–15, 31:33–32:3, Ex. 1003 ¶¶ 239–240).

According to Petitioner, a person of ordinary skill in the art "would have been motivated to modify Oriol and Masquelier with Wise's first blocking the track and thereafter generating a unique access code (*e.g.*, SCN),as the secret code" as "[t]his modification could enhance safety and security as the central control system would only generate the code 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." Pet. 63 (citing Ex. 1003 ¶¶ 229–231). Additionally, 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).

Patent Owner argues that "the SCN [of Wise] is not involved in setting or releasing any block." Prelim. Resp. 35 (citing Ex. 1005, Fig. 5G). Patent Owner further argues that Wise's SCN is "not the claimed 'secret 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." Prelim. Resp. 42; s*ee also* Ex. 1006 at 24:19–26 ("an SCN is automatically

generated and displayed on the screen to an operator" and "[t]his 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 "secret code." For the reasons detailed above (*see supra* Section III.C.1), Petitioner fails to sufficiently show how the claim term "secret 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 Petitioner, however, 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. 63. 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 "secret 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, Masquelier, and Wise.

F. Alleged Obviousness Over Oriol, Masquelier, and Pachl

Petitioner contends claims 20–36 of the '115 patent would have been obvious over Oriol, Masquelier, and Pachl. Pet. 69–74. 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 ""a train controller at the control center uses the interface to enter a code to release the track." Pet. 18 (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; Fig. 2, Ex. 1003 ¶¶ 84–86. 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. 1001,] 1:37–42. ("The introduction of the checking code which is specific to the movement permission technically precludes the transmission of a movement permission for which the safety preconditions are not satisfied."). 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 (emphasis added).
>
> The locomotive engineer then enters the checking code and movement permission into a separate computer on the train. *Id.* at 2:2–5 ("The movement permission which is transmitted by telephone from the train controller to the locomotive engineer is entered in the vehicle appliance together with the checking code by the locomotive engineer."); 2:20–23 ("When the locomotive engineer enters the movement permission (which is being transmitted by telephone by the train controller). 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 ("The vehicle appliance uses the same algorithm as the train control computer to calculate the checking code for every movement permission that is entered")..
>
> 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. 43–45.

Petitioner relies on the Form D number as the recited "secret code." See Pet. 71 (arguing that "Oriol and Masquelier could block the track and then generate the code (Form D number) as shown by Pachl first implementing a safety measure and then generating a code"). Petitioner also refers to the "checking code" of Pachl and argues that "[t]he Pachl code is secret because it is calculated and only the central control and receiving device can determine the code." *Id.* at 71 (citing Ex. 1020, 2:50–60, 4:7–26, 4:50–59, claim 1, Figs. 1, 2; Ex. 1003 ¶ 274)..

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 "secret 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 "secret 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 "secret code," as required by the Challenged Claims. 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.

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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