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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.

IPR2023-01180
Patent RE47,835 E

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 1–7, 9–16, and 18–41 ("the Challenged Claims") of U.S. Patent No. RE47,835 E (Ex. 1001, "the '835 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 '835 Patent

The '835 patent, titled "Tools for Railway Traffic Control," issued on February 4, 2020, from U.S. Patent Application No. 15/928,955, filed March 22, 2018. Ex. 1001, codes (21), (22), (45), (54). The '835 patent is directed "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 1:21–24. The '835 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 2:33–43. The '835 patent identifies "a need for further safety measures to protect the lives of railway workers." *Id.* at 2:44–45.

As further background, according to the '835 patent, in a standard railway system, "[i]nterlocking signals govern movement within a sector controlled by an interlock." Ex. 1001 1:34–35. "[A] track may be divided into sections," and an "interlocking signal" is exhibited at the entrance to each track section. *Id.* 1:35–39. "[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 1:39–42.

The '835 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 2:53–63. "[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 5:55–56, 5:60–62; *see also id.* at 5:55–60 (stating that an interlock can "output a STOP signal, therefore, stopping any train traffic within the rails controlled by that interlock"), 5:62–66 (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.* 7:35–37. 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 2:33–43.

"[A]ll of the interlocks" within a railway system may be controlled electronically through "a centralized traffic control (CTC)." *Id.* at 1:47–51. "The CTC is controlled by a single person known as a train dispatcher." *Id.* at 1:53–54. "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 1:55–67. 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 1:47–54, 2:53–63, 5:55–62, 7:35–37. 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 2:33–43.

The '835 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 11:40–42. To accomplish this purpose, the '835 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 2:53–63.

The '835 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 7:57–65. "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.* 8:1–6, *see also id.* at 7:17–19 (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 '835 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 8:51–54; *see also id.* at 8:54–58 (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

[3] The '835 patent refers to "the code" as the "removal code" (*see*, *e.g.*, Ex. 1001, 2:53–63), the "release code" (*see*, *e.g.*, *id.* at 7:17–19), the "random secret code" (*see*, *e.g.*, *id.* at 9:54–56), the "secret code" (*see*, *e.g.*, *id.* at 10:22–25), the "secret removal code" (*see*, *e.g.*, *id.* at 10:26–30), and the "secret release code" (*see*, *e.g.*, *id.* at 15:40–63). In each instance, the '835 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.

section"), 8:58–64 (stating "where there are multiple workers assigned for a 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. . . by the train traffic controller in order to be able to remove blocks on certain track sections"). Thus, the '835 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, 8:6–10; *see also id.* at 11:29–33 ("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 11:33–35. 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 11:35–39. In short, the '835 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 '835 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. *Id.* at 10:31–48. The '835 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. . . by the train traffic controller [i.e., the dispatcher]." *Id.* The '835 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 '835 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 '835 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 11:40–42.

B. Illustrative Claim

Petitioner challenges claims 1–7, 9–16, and 18–41 of the '835 patent. Pet. 1. Claims 1, 10, 19, 20, 30, and 40 are independent. Claims 2–7 and 9 depend from claim 1, claims 11–16 and 18 depend from claim 10, claims 21–29 depend from claim 20, claims 31–39 depend from claim 30, and claim 41 depends from claim 40. Claim 1 is illustrative of the claimed subject matter and is reproduced below (with the indicators of changes made during reexam removed):

> 1. A centralized railway control system comprising:
> a rail personnel contact database registering, for each railway personnel, an electronic contact address of the railway personnel; and
> a railway traffic control apparatus configured for centralized control of traffic of a centrally controllable railway network including plural railways and a plurality of railway traffic interlocks dispersed in said plural railways

> constituting said railway network, for controlling access to railway tracks, said railway traffic 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 traffic control apparatus communicates via a network with a user terminal,
>
> wherein execution of said one or more programs of executable instructions configures the railway traffic control apparatus comprising the processor to include:
>
> a block placing part to place a block on one or more specified track sections in any of said plural railways constituting said railway network that is managed by centralized control operation from the railway traffic control apparatus, the railway traffic control apparatus controlling, by said centralized control operation, one or more interlocks amongst the plurality of railway traffic interlocks dispersed in said plural railways constituting said railway network, to block railway traffic to the specified track sections and thereby to permit a railway field worker to enter the track sections;
>
> a code generation part to generate a removal code, retrieve the electronic contact address of the railway field worker from the rail personnel contact database, and transmit the removal code to the electronic contact address of the railway field worker; and
>
> a block removal part to remove only upon entry of the removal code by said centralized control operation from the railway control apparatus, the block placed by the block placing part on said one or more track sections.

Ex. 1001, 11:50–12:23. Independent claim 10 is directed to a "railway traffic control apparatus," and, similar to claim 1, recites "a code generation part to generate a removal code . . . and transmit the removal code to . . . the railway field worker." *Id.* at 13:34–65. Independent claim 19 is directed to a "method for controlling railway access" and recites "generating a removal

code" and "transmitting the removal code to . . . the railway field worker." *Id.* at 15:5–39. Independent claim 20 is directed to a "railway traffic control apparatus," and recites "generate a secret release code" and "transmit the secret release code to a user terminal." *Id.* at 15:40–63. Independent claim 30 is directed to a "method for controlling railway access" and recites "generating a secret release code" and "transmitting the secret release code to a user terminal." *Id.* at 16:37–60. Independent claim 40 is directed to a "system," and recites "generate a secret code." *Id.* at 17:28–18:21.

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
1–7, 9–16, 18–41	103(a)	Oriol,[5] Masquelier[6]
1–7, 9–16, 18–41	103(a)	Oriol, Masquelier, Wise[7]
1–7, 9–16, 18–41	103(a)	Oriol, Masquelier, Pachl [8]

[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 '835 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").

Pet. 3–4. 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 ’835 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.*, IPR2023-01179 (U.S. Patent No. 9,517,782 B2) 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. 8 (citing Ex. 1003 ¶¶ 24–25). Patent Owner does not dispute the level of ordinary skill identified by Petitioner. *See* Prelim. Resp. 12. 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 '835 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. 8–9. 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. 13 (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 terms "removal code," "secret release code," and "secret code."[9] *Id.* at 14–24. We address Patent Owner's arguments pertaining to these terms below.

1. "removal code"/"secret release code"/"secret code"

The claim term "removal code" appears in independent claims 1, 10, and 19. The claim term "secret release code" appears in independent claims 20 and 30. The claim term "secret code" appears in independent claim 40. Each of these independent claims require either a part to generate the recited code or a step of generating the recited code. We refer to these

[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. 13–14. 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.

limitations as the "code limitations" and to the claim terms "removal code," "secret release code," and "secret code" as "the code."

Petitioner purports to have applied the "plain and ordinary meaning" to all claim terms, including "removal code," "secret release code," and "secret code," in the Petition for the purposes of institution. Pet. 8–9. Petitioner does not otherwise address in the Petition what it contends to be the plain and ordinary meaning of "removal code," "secret release code," or "secret code." According to Petitioner, the '835 patent describes tools "to control traffic over a railway track 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 '835 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 42. Petitioner also implies that there are "no specifics" in the '835 patent. *Id.* (citing Ex. 1001, 6:3–6).

In arguing that Oriol teaches a code, as required by the '835 patent, Petitioner asserts that "Oriol's Form D number is a removal code given the generated Form D number is sent to the worker 'who requested it' . . . and who cancels the same Form D number (or under his authority) to remove the track block." Pet. 33–34 (citing Ex. 1004, 36–38, Fig. A-1; Ex. 1003 ¶ 125. Petitioner also argues that the Form D number of Oriol and Masquelier "is a secret code given only a specific registered worker can access the Form D

numbers he owns."[10] *Id.* at 42–43 (citing Ex. 1004, 36–39); *see also id.* at 43 (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 this code is transferred using the secured communications") (citing Ex. 1003 ¶¶ 194–195). Additionally, with regard to obviousness over Oriol, Masquelier, and Wise, Petitioner contends that Wise teaches "generating a unique access code (*e.g.*, SCN), as the removal or secret code." *Id.* at 57 (citing Ex. 1003 ¶ 271). According to Petitioner, Wise's access 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.* at 59–60 (citing Ex, 1003 ¶¶ 283–284; Ex. 1006, 31:33–32:3). Petitioner also argues that Pachl teaches a "checking code" that "is secret because it is calculated and only the central control and receiving device can determine the code." Pet. 69 (citing Ex. 1020 2:50–60, 4:7–26, 4:50–59, claim 1, Figs. 1–2).

Thus, Petitioner's analysis suggests that the claim terms "removal code," "secret release code," and "secret code" each encompass 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

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[10] We note Petitioner mischaracterizes the disclosure of Oriol in this regard. Oriol states that "the roadway worker can retrieve a list of Form D's … under his/her authority," and that by following certain links on the worker's personal digital assistant device "the roadway worker is able to give some track under his authority back to the dispatcher." Ex. 1004, 36. Oriol does not state, as Petitioner represents, that "only a specific registered worker can access the Form D numbers he owns." To the contrary, Oriol makes clear that both the dispatcher and the authorized field worker can access the Form D number. *See* Ex. 1004, 37–40, Fig. A-5 (illustrating the "Dispatcher Interface" with the "Form D #" prominently displayed to the dispatcher).

supported its application of the alleged "plain and ordinary meaning" of any of "removal code," "secret release code," or "secret code" with any supporting analysis of the Specification of the '835 patent.[11]

Patent Owner argues that the intrinsic evidence of the '835 patent supports a narrower construction of "removal code," "secret release code," and "secret code," which Petitioner fails to show was taught by the asserted art. Prelim. Resp. 14–24. According to Patent Owner, a person of ordinary skill in the art "would have understood the claimed 'removal code'/'secret release code'/'secret code' to mean 'a code that is not readily available to the dispatcher.'" *Id.* at 14.

Our analysis starts with the claim language. *Phillips*, 415 F.3d at 1312–14. Patent Owner argues that claims challenged require "that the 'removal 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 entry of the removal code." Prelim. Resp. 23–24 (citing Ex. 1001, Cls. 1, 10, 19). Patent Owner reasons that "[b]y using the word 'only,' the claims require that the removal code is not readily available to the dispatcher until the removal code is received from the user terminal, which is in the field with the railway worker." *Id.*; *see also id.* at 24 (arguing in regard to independent

[11] Petitioner cites to Dr. Michalson's testimony that "[c]laim 1 . . . does not describe the 'removal code,' its contents, or how it is created" for the proposition that "claim 1 . . . *and the specification* do not describe the 'removal code.'" Pet. 33 (emphasis added) (citing Ex. 1003 ¶ 152). Petitioner's assertion is not supported by the cited portion of Dr. Michalson's testimony, which refers only to claim 1, not to the entirety of the Specification of the '835 patent. Moreover, we find the assertion conclusory and unsupported by any analysis of the Specification of the '835 patent.

claims 20, 30, and 40 that "each expressly require that the claims 'secret release code'/'secret code' is 'secret,'" and that the "express recitation of secrecy" makes clear to a person of ordinary skill in the art that the code "is not readily available to the dispatcher, particularly because the claims also recite that the secret release code/secret code is expressly transmitted to the user terminal of the railway field worker"). Patent Owner's arguments support a determination that Petitioner fails to sufficiently show how the language of the Challenged Claims shows that the claim terms "removal code," "secret release code," and "secret code" encompass 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 "removal code," "secret release code," or "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 '835 patent specification consistently and repeatedly describes the [code] as 'secret,' 'automatically' generated and transmitted, and saved to 'internal storage.'" Prelim. Resp. 14–15 (citing Ex. 1001, 6:3–5 ("the code generator 101B is configured to produce [a] removal code []such as a cipher which is . . . *secret*"); 10:22–25 (stating the railway traffic control terminal "enables safety measures so that the block cannot be removed without the input of the *secret code* generated"); 10:35–36 ("[t]he remove button is disabled without the input of the *secret code*"); 10:42–44 ("the maintenance worker transmits the random *secret code*" to the railway traffic control"). 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 '835 patent that the claimed 'removal code'/'secret release code'/'secret code' is not readily available to the dispatcher." *Id.* at 15.

As further support that the Specification implicitly limits the code to information not readily available to the dispatcher, Patent Owner argues that the '835 patent "describes the generation and transmission of the [code] . . . as 'largely automated' such that a [code] is 'automatically transmitted' by the railway control apparatus to the railway field worker."

Id. at 16 (citing Ex. 1001, 2:59–61, 2:64–3:6, 6:3–10, 7:24–33, 7:49–8:12, 9:7–12, 10:26–30). According to Patent Owner, "these operations explicitly do not involve displaying the [code] to the dispatcher." *Id.*

Patent Owner also directs our attention to Figures 7 and 10 of the '835 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 "random code" displayed, corresponding to a code, as required by the '835 patent. *Id.* at 16–17 (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 [code], is the dispatcher able to enter the [code] into the railway control apparatus and remove the block." *Id.* at 19–20 (citing, e.g., Ex. 1001, 8:47–48, 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 '835 patent." *Id.* at 20. Patent Owner argues as follows:

> The '835 patent acknowledges that "railway transportation is run under strict operational guidelines or rules," such as the Form D number. [Ex. 1001], at 1:29–30. But Form D numbers, alone, are inherently unreliable because they are known to the dispatcher at all times. Indeed, the '835 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 2:35–37. Form D numbers were in operation during this entire span of time, yet accidents and fatalities persisted. Indeed, the '835 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 2:33–45.

. . .

> [T]he '835 patent provides "*supplemental* measures directed to safety of railway workers." *Id.* at 2:49–52 (emphasis added). Specifically, the '835 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 11:40–42.

Prelim. Resp. 21–22.

Lastly, according to Patent Owner, the '835 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 . . . by the train traffic controller." *Id.* at 23 (citing Ex. 1001, 10:44–48). Patent Owner argues that "[b]y forcing the [code] to be 'retrieved from the train traffic control apparatus' (as opposed to simply displaying the [code] in full view of the dispatcher, like the prior art), the '835 patent makes clear that the claimed [code] is not 'readily' available to the dispatcher." *Id.*

Patent Owner's arguments support a determination that Petitioner fails to sufficiently show how the Specification of the '835 patent shows that the claim terms "removal code," "secret release code," and "secret code" encompass 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 '835 patent makes clear that the code is "only" received by the relevant railway field worker and an internal storage. *Id.* at 7:20–27, *see also id.* at 2:53–63

("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); 8:40–46 (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 '835 patent describes alternative means for retrieving the code from internal storage when the field worker is unavailable, accessibility to the 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 10:44–48; *see also id.* at 6:3–6, 9:54–56, 10:23–30, 10:35–52 (consistently describing the "removal code"/"secret release code"/"secret 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 "removal code," "secret release code," or "secret code" to make that determination.[12] Petitioner's application of a purported plain and ordinary meaning of "removal code, " "secret release code," and "secret code" neglects to address how a person of ordinary skill in the art would have understood "removal code," "secret release code," and "secret code" in light

[12] Further, for purposes of this Decision we need not resolve whether Patent Owner's proposed express construction of "removal code," "secret release code," and "secret code" is the proper meaning of the terms 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."

of the Specification of the ’835 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 terms “removal code,” “secret release code,” and “secret code” encompass 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)).

D. Alleged Obviousness Over Oriol and Masquelier

Petitioner contends that claims 1–7, 9–16, and 18–41 of the ’835 patent would have been obvious over Oriol and Masquelier. Pet. 18–56; *see also* Ex. 1003 ¶¶ 94–268 (Dr. Michalson providing testimony in support of Petitioner’s contentions). Patent Owner disputes Petitioner’s contentions. Prelim. Resp. 25–37. 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 in our discussion of what is not encompassed by the recited “removal code,” “secret release code,” and “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.* (citing Ex. 1004, 6–8, 29, 38, Figs. 2, 4). If the dispatcher grants the Form D, the appropriate information is sent to the railway worker, and this information includes a "Form D number (automatically assigned by system)" *Id.* "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." *Id.* at 13 (citing Ex. 1004, 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 '835 patent. *See* EX1001 at 2:11–43. 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 a Form D number as follows:

> [A] Form D number is a number 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. ("For movements or other purposes requiring its use, Form D must be issued by the Dispatcher. Form D's must be numbered consecutively each day beginning at midnight, and the number must be prefixed with the letter designation of the issuing railroad"); *id.* ("Information shown on Form D must be legible and without erasure or alteration. Only authorized abbreviations may be used in Form D's. Commas must be used to separate numbers or locations listed in a series. Applicable Form D line numbers must be circled. Employees must review the entire form for additional information. Operators must keep an office copy of each Form D received.").
>
> 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 26–27.

Petitioner asserts that "Oriol's Form D number is a removal code given the generated Form D number is sent to the worker 'who requested it' . . . and who cancels the same Form D number (or under his authority) to remove the track block."[13] Pet. 33 (citing Ex. 1004, 36–38, Fig. A-1; Ex. 1003 ¶ 154); *see also id.* at 43, 47 (asserting a Form D number corresponds to the recited "secret code"). Patent Owner argues that a Form D number is not a "removal code," a "secret release code," or a "secret code," as those terms are used in the '835 patent. Prelim. Resp. 29–37; Patent Owner argues that "[a] Form D number is not the same as the claimed removal 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 30. Patent Owner asserts that, for the same reasons, a Form D number also is not a "secret release code" or a "secret code." *Id.* at 35–36. Moreover, Patent Owner asserts a Form D number is not secret because "the dispatcher can see the Form D numbers." *Id.* at 36 (citing Ex. 1004, 27).

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[13] Patent Owner notes that Petitioner "only cites Masquelier for an alleged motivation to modify Oriol 'to first block the track via the interface and thereafter generate a code,'" which Patent Owner asserts is "irrelevant to whether a Form D number is a 'removal code.'" Prelim. Resp. 32–33 (citing Pet. 35).

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 30–31. 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 code secret from the dispatcher, as required by the Challenged Claims, "the dispatcher is unable to release the block, such as either by miscommunication or through error, until the railway worker provides the 'removal code.'" *Id.* at 32.

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 "removal code," "secret release code," or "secret code." For the reasons detailed above (*see supra* Section III.C.1), Petitioner fails to sufficiently show how the claim terms "removal code," "secret release code," and "secret code" encompass 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 (or under his authority) to remove the track block." Pet. 33. 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 "removal code," "secret release code," or "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 1–7, 9–16, and 18–41 of the '835 patent would have been obvious over Oriol in combination with Masquelier and Wise. Pet. 57–65. Although Petitioner provides a short description of Wise (*see* Pet. 15–16), 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. 37–39. 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 and Masquelier. Pet 57–59. Petitioner argues that "[a]fter blocking the track, Oriol and Masquelier would also generate and transmit Wise's code such as an SCN to the worker," that "Wise teaches that the access code transmitted to the worker provides authority to enter a track for maintenance," and that "[w]hen the work is completed and once 'Cancel/Fulfill' is selected, Oriol and Masquelier would transmit Wise's access code (and Form D number) to the railway control apparatus to be entered." *Id.* at 59–60 (citing, e.g., Ex. 1003 ¶¶ 280–285).

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 removal or secret code." *Id.* at 57 (citing Ex. 1003 ¶ 271). 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.* (citing Ex. 1003 ¶ 272). 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.* at 57–58 (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 code would be returned with the Form D number to the railway control apparatus." *Id.* at 58 (citing Ex. 1003 ¶ 278).

Patent Owner argues that "the SCN [of Wise] is not involved in setting or releasing any block." Prelim. Resp. 39 (citing Ex. 1005, Fig. 5G). Patent Owner further argues that Wise's SCN is not the claimed 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 45–46 (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 "removal code," "secret release code," or "secret code." For the reasons detailed above (*see supra* Section III.C.1), Petitioner fails to sufficiently show how the claim terms "removal code," "secret release code," and "secret code" encompass 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. 58. 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 "removal code," "secret release code," or "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 1–7, 9–16, and 18–41 of the '835 patent would have been obvious over Oriol in combination with Masquelier and Pachl. Pet. 66–72. 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. 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 ¶¶ 87–90). 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 (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) in the vehicle appliance, the checking code which is likewise transmitted must also be entered."). The locomotive engineer's computer uses the same algorithm that the train controller's computer used to generate its 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 s/he knows that the communication is in error. *Id.* at 2:28–31 ("If the manually entered checking code does not match the calculated checking code, the movement permission is rejected.").

Prelim. Resp. 47–49.

Petitioner relies on the Form D number as the recited "removal code," "secret release code," and "secret code." *See* Pet. 66 (stating a person of ordinary skill in the art "would have been motivated to modify Oriol and Masquelier with Pachl to first block the track and thereafter generate a code (Form D number)"), 67 (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 removal (secret) code would not be known until the track is blocked"), 68 (stating "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 69 (citing, e.g., Ex. 1020, 2:50–60, 4:7–26, 4:50–59).

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 "removal code," "secret release code," or "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 "removal code," "secret release code," or "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 "removal code," "secret release code," or "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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