

IPR2023-01179
U.S. Pat. No. 9,517,782

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.

Inter Partes Review No. IPR2023-01179

U.S. Patent No. 9,517,782

**PATENT OWNER PRELIMINARY RESPONSE
UNDER 35 U.S.C. § 313 AND 37 C.F.R. §42.107**

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PATENT OWNER'S EXHIBIT LIST

Exhibit Number	Description
EX2001	Revisions to Rules Regarding Railroad Workplace Safety; Railroad Worker Protection, 81 Fed. Reg. 112 (May 26, 2016) (amending 49 C.F.R. Pt. 214)
EX2002	NORAC Operating Rules, 6th. Ed. (Jan. 1, 1997)
EX2003	NORAC Operating Rules, 4th. Ed. (Jan. 1, 1993)

I. PRELIMINARY STATEMENT

Pursuant to 37 C.F.R. § 42.107, Patent Owner Railware, Inc. (“Railware” or “Patent Owner”) submits this Preliminary Response to the Petition for *Inter Partes* Review (“IPR”) of U.S. Pat. No. 9,517,782 (the “’782 patent”). Paper 2 (“Petition”). Petitioner National Railroad Passenger Corp. d/b/a/ Amtrak (“Petitioner”) challenges the validity of claims 1-8 of the ’782 patent (“Challenged Claims”).

As the ’782 patent notes, “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.” EX1001 at 2:27-39. The Federal Railroad Administration (FRA) agreed. EX2001 at 75-76. According to the FRA, railroads should “ensure appropriate safety redundancies are in place in the event of miscommunication or error,” including “where working limits were no longer protected due to dispatcher error.” EX2001 at 82.

In response, Railware developed the invention of the ’782 patent, which introduced a new, distributed network architecture that changed the operation of centralized railway control systems by implementing an unconventional network architecture for generating, transmitting, receiving, and using a “release code” as a

form of redundant signal protection. The FRA recommended Railware's Enhanced Employee Protection System (EEPS), which embodies the claims of the '782 patent. *Id.*

Each of the claims of the '782 patent requires a "release code" that is transmitted to the railway field workers that are working on the track, but otherwise remains "secret." EX1001 at 5:58-64, Cls. 1, 5. By keeping the code secret, particularly from the dispatcher, the '782 patent prevents dispatcher errors.

The Petition has not established a reasonable likelihood that any of the Challenged Claims are unpatentable. The Petition fails to appreciate or even address any of the above context, which is expressly set forth in the '782 patent via the claimed "release code." None of the references cited in the Petition teach or suggest generating, transmitting, receiving, or using the claimed "release code." While the Petition ostensibly asserts that the cited references teach a "release code," the Petition fails to address the secret nature of the claimed "release code" that the '782 patent repeatedly emphasizes and claims. Notably, the Petition offers no construction for "release code" and fails to even superficially describe what the claimed "release code" is or does. This failure is fatal to the Petition. Because the Petition fails to support its assertion that the cited references disclose the claimed "release code," as a person of ordinary skill in the art (POSITA) would understand

that term, the Petition fails to establish a reasonable likelihood that any of the Challenged Claims are invalid.

The Petition further fails to address other limitations of the Challenged Claims, including that the block be released “only upon receiving of the release code from the user terminal in return.” The Petition repeatedly ignores this element, and specifically the word “only” by resorting to hand-waiving, unexplained attorney argument and unsupported expert testimony.

As a second reason to deny institution, the Petition routinely fails to conduct an element-by-element analysis of the claims, as required by the Board’s Rules. Moreover, the Petition routinely fails to even identify which reference is being relied upon to allegedly disclose a given element of the Challenged Claims.

As a third reason to deny institution, the Petition advances conclusory and unsupported arguments that a POSITA would have been motivated to modify and/or combine references that are insufficient as a matter of law.

Accordingly, Railware respectfully requests that the Board deny institution.

II. FACTUAL BACKGROUND OF THE ’782 PATENT

When railway tracks require maintenance, railway field workers must physically enter the track area to perform the necessary maintenance. *See* EX1001 at 2:27-37, 11:12-14. Entering an active track area poses grave risks to the railway

field workers, who are defenseless against train traffic. *See* EX1001 at 2:27-37.

Over time, various safety systems were developed, such as alarm systems that alerted railway workers to incoming train traffic, ideally allowing them time to vacate the track area before the train approached. These systems proved inadequate in protecting railway field workers.

Other examples of inadequate safety precautions include NORAC's Operating Rules, including the "Form D" control system. *See, e.g.*, EX2002, EX2003. NORAC's Operating Rules have existed since the mid-1980's and "Form D" has been an integral part of NORAC's Operating Rules since at least the early 1990's. *See e.g.*, EX2003. A "Form D" contains "written authorization(s), restriction(s), or instruction(s) issued by the Dispatcher to specified individuals." EX2003 at 6. These instructions can include a "Form D Line 4," which is used when "removing a track from service for maintenance." *Id.* at 48. The Operating Rules require the dispatcher to determine that "controlled signals leading to the affected track are in Stop position" prior to issuing a "Form D Line 4." *Id.* Similarly, prior to releasing a "Form D," the dispatcher ostensibly must take certain actions, including "contact the addressee(s) and state his intent to cancel the Form D . . . , state the Form D number and, date, the cancellation time and date, and his initials, [and] ensure that all cancellation information is repeated [by the

addressee] correctly.” *Id.* at 62-63. Despite these protections, human errors and accidents continued to occur, such as those recognized in the FRA’s Final Rule (EX2001) and in the ’782 patent. *See* EX1001 at 2:4-39. Such errors included mistakes such as where “the train dispatchers did not maintain the required blocking devices.” EX2001 at 75.

The birth of centralized train control or centralized traffic control (“CTC”) systems provided another option. *See* EX1001 at 1:40-47. A remote dispatcher could remotely control the tracks used by trains. *See id.* This remote control enabled the remote dispatcher to “block” sections of track and to temporarily reroute trains away from blocked track sections that were being worked on by railway field workers. But these systems too suffered from certain drawbacks. *See id.* 2:10-27. Specifically, the blocking of track sections was controlled *entirely* by the remote dispatcher. *See id.* at 1:40-47. Human error could and did lead to blocks being removed prematurely or mistakenly by the dispatcher, such as either because the dispatcher falsely believed that the work was complete, or because the dispatcher intended to remove a different block and mistakenly removed a block on a track section where railway field workers were still working. *See id.* at 2:27-37.

To overcome these inadequacies, Railware developed the invention of '782 patent. Railware's owner and inventor of the '782 patent, Ross Pirtle, spent years developing the invention of the '782 patent and its commercial embodiment, EEPS. As a result of his years of effort and investment, Mr. Pirtle was awarded a number of U.S. Patents, including the '782 patent.

The '782 patent is directed to a new and unique design for centralized railway control systems. This new system mitigates the potential for human error by restructuring the systems used to protect railway workers to require railway traffic controllers and railway field workers to cooperate to lift blocks on track sections. Instead of placing the power to remove blocks solely in the hands of remote dispatchers, the '782 patent introduced a new, distributed network architecture that uses unconventional components, operations and communications in an unconventional way to achieve new functionality previously unknown. *See id.* at 2:47-3:7. The operation of centralized railway control systems changed by implementing an unconventional network architecture for generating a unique, secret code for each block placed by the dispatcher, sending that unique, secret code to a railway worker, and permitting the dispatcher to remove the block only upon receiving the unique, secret code from the railway worker. *Id.* For example, the '782 patent forestalls errant block removal by requiring railway traffic

controllers or dispatchers and railway field workers on the tracks to cooperate to lift a block. *See id.* at 2:47-58. Every time a block is placed, a “release code” is generated and automatically sent to the railway field worker. *See id.* at 7:50-68. The “release code” is “secret” in the sense that it is not readily available to the dispatcher. *See id.* at 5:59-60. The “release code” is “save[d] to an internal storage” and “automatically transmitted, by a code generation part, to the electronic contact address of the railway field worker.” *Id.* at 2:60-63, 7:2-3. By automatically sending the “release code” to the railway field worker, the dispatcher is unaware of the “release code” until it is provided by the railway field worker to release the block. *See id.* at 8:21-31. For a block to be removed, its corresponding “release code” must be sent back to the dispatcher at the dispatch center by the railway field worker to authorize removal. *See id.* at 2:60-67. By putting the power to lift a block with the “release code” in the hands of the railway field worker operating under the block’s protection, and not the dispatcher, the ’782 patent prevents errant blocking and block removal and ultimately saves lives.

In placing the power to remove blocks in the hands of the railway field worker, the ’782 patent recognized that there may be some times where the railway field worker is unable to provide the “release code.” Recognizing this possible pitfall, as a failsafe, the ’782 patent contemplates having the “release code” also

stored in the internal storage of the railway traffic control terminal from which it could be retrieved, for example, in event of emergency. EX1001 at 8:29-31. This failsafe, however, does not change the fact that, while the block is in place, the dispatcher remains ignorant of the “release code” needed to remove the block.

As a result of Railware’s hard work and innovations, the commercial embodiment of the ’782 patent, EEPS, won the Federal Railroad Administration (“FRA”) President’s Award and is recommended by the FRA for use in every railroad in the country. *See* EX2001 at 82. EEPS has also been implemented into nation-leading railroads, including the Metro-North Railroad and Long Island Railroad.

III. LEGAL STANDARDS

The obviousness inquiry requires determining “the scope and content of the prior art,” the “differences between the prior art and the claims at issue,” and “the level of ordinary skill in the pertinent art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). Obviousness determinations must be made without “any hint of hindsight.” *Star Sci., Inc. v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1375 (Fed. Cir. 2011).

Petitioner has the “burden to demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve

the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (internal citation and quotation omitted). Petitioner cannot satisfy its burden through “mere conclusory statements,” but “must instead articulate specific reasoning, based on evidence of record” that supports an obviousness determination. *Id.* at 1380. Petitioner cannot satisfy its burden with unsupported and conclusory expert testimony. *See* 37 C.F.R. § 42.65(a)

IV. PERSON OF ORDINARY SKILL IN THE ART

At this time, Patent Owner does not dispute, for purposes of these preliminary proceedings, the level of skill for a POSITA of the ’782 Patent at the time of the invention, as laid out in the Petition. Petition at 14–15. Patent Owner does not waive, however, any argument regarding the proper level of skill for a POSITA, and reserves the right to advance additional or modified arguments at a later date.

V. CLAIM CONSTRUCTION

“Claim terms are generally given their plain and ordinary meanings to one of skill in the art when read in the context of the specification and prosecution history.” *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*)); *see also* 37 C.F.R. § 42.100(b). “Importantly, the person of ordinary skill in

the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* at 1313.

Petitioner asserts 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. at 8. This is not an accurate statement of the law. Whether or not claim construction is necessary does not depend on whether “the prior art discloses the claim limitations,” as the Petition incorrectly asserts. Claim construction is a *prerequisite* to the validity analysis. *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.”). Thus, the Petition puts the cart before the horse because one cannot determine whether the prior art discloses the claim elements until the claims have been properly construed. On this basis alone, the Petitioner fails to satisfy its burden.

A. “Release Code” Means “a Code that Is Not Readily Available to the Dispatcher.”

A POSITA would have understood the claimed “release code” to mean “a code that is not readily available to the dispatcher.” The intrinsic evidence of the ’782 patent supports this construction.

1. The Specification of the '782 Patent Supports the Construction.

The '782 patent specification consistently and repeatedly describes the “release code” as “secret,” “automatically” generated and transmitted, and saved to “internal storage.” Additionally, the Figures of the '782 patent support the construction because none of the Figures displays the claimed “release code” to the dispatcher prior to receiving the “release code” from the railway field worker. Moreover, the construction is consistent with a stated goal of the '782 patent to give “the railway worker [] more control over the traffic through the rail block in which the worker is working.” EX1001 at 11:12-14. Finally, the specification of the '782 patent supports the construction because the '782 patent discloses, within the unconventional network architecture for generating, transmitting, receiving and using the “release code,” a failsafe in which the dispatcher may “retrieve” the code from the internal storage, for example, if the railway field worker is unable to provide the code.

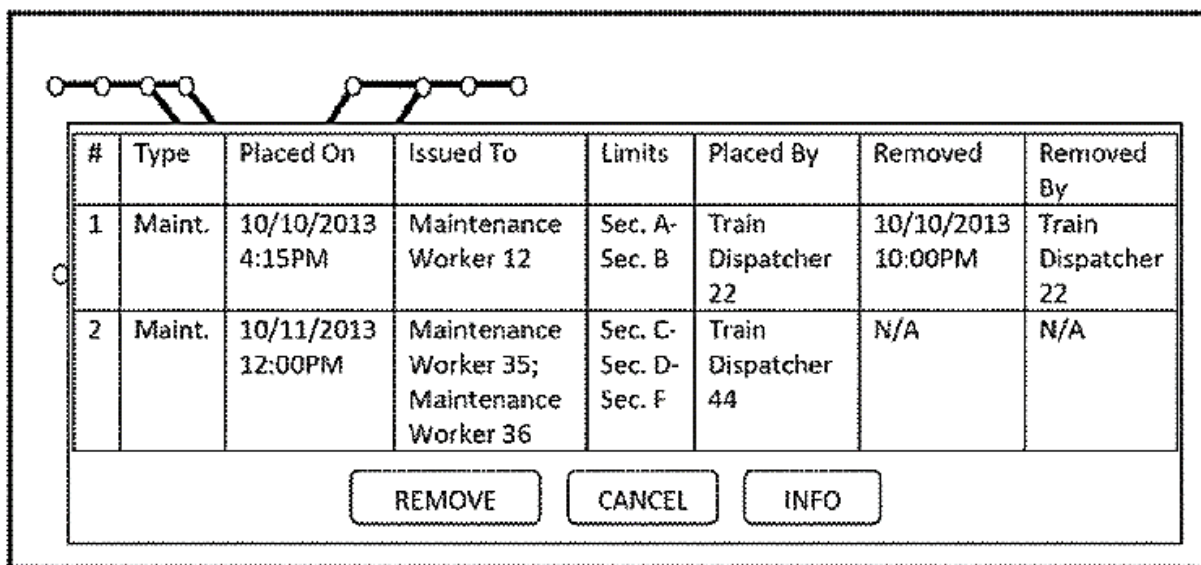
First, the '782 patent repeatedly and consistently refers to the “release code” as “secret.” The '782 patent states “the code generator 101B is configured to produce [a] removal code []such as a cipher which is . . . *secret*.” EX1001 at 5:58-60 (emphasis added); *see also id.* at 9:65-10:1 (“the railway traffic control terminal 105 . . . enables safety measures so that the block cannot be removed without the

input of the *secret code* generated.”); 10:10-13 (“The remove button is disabled without the input of the *secret code*”); 10:15-22 (“the maintenance worker transmits the random *secret code* to the railway traffic control center 105 (S1305).”). By repeatedly and consistently describing the code as “secret,” a POSITA would understand from the ’782 patent that the claimed “release code” is not readily available to the dispatcher.

Second, the ’782 patent describes that the “release code” is saved to *internal* storage of the railway control apparatus (*i.e.*, the dispatcher’s system). Specifically, the ’782 patent states “the railway control apparatus 105 may then generate a release code and save it to an internal storage.” *Id.* at 7:2-3; *see also, id.* at 8:29-31. Moreover, the ’782 patent describes the generation and transmission of the “release code” within the unconventional network architecture as “largely automated” such that the “release code” is “automatically transmitted” by the railway control apparatus to the railway field worker. *Id.* at 2:58-62; *see also, e.g., id.* at 2:53-55, 5:58-64, 7:1-10, 7:32-55, 8:54-59, 10:1-5. The fact that the “release code” is saved to internal storage of the railway control apparatus, largely automated, and automatically transmitted to the railway field worker further supports the construction of “release code” because these operations explicitly do not involve displaying the “release code” to the dispatcher.

Third, the figures of the '782 patent, which show screen shots of the railway control apparatus and the railway field worker's terminal support the construction. The figures of the '782 patent never show the "release code" displayed to the dispatcher prior to receiving the code from the railway field worker. Fig. 7, for example, shows various details about blocks that are displayed on the railway control apparatus:

FIGURE 7



#	Type	Placed On	Issued To	Limits	Placed By	Removed	Removed By
1	Maint.	10/10/2013 4:15PM	Maintenance Worker 12	Sec. A- Sec. B	Train Dispatcher 22	10/10/2013 10:00PM	Train Dispatcher 22
2	Maint.	10/11/2013 12:00PM	Maintenance Worker 35; Maintenance Worker 36	Sec. C- Sec. D- Sec. F	Train Dispatcher 44	N/A	N/A

REMOVE CANCEL INFO

EX1001, Fig. 7. Notably absent from Fig. 7 is any "release code" that is associated with the blocks. Moreover, Figure 7 *does* include a sequential numbering of the blocks in the left-hand column, labeled "#." This left-hand column is a Form D number, which, as discussed throughout this Preliminary Response, is readily available to the dispatcher at all times. The fact that Fig. 7 displays a sequential

Form D number, but ***does not*** display the “release code” to the dispatcher on the railway control apparatus, further supports the construction of “release code.”

In contrast, Figure 10, which shows the railway field worker’s terminal, shows the “release code” (called a “random code” in Figure 10) displayed to the railway field worker.

FIGURE 10

The image shows a terminal screen with a black border. At the top, a white box contains the word "Terminal". Below this, a white box contains the text "Railway Traffic Controller". Underneath, the text "Sec. A - Sec. B" is displayed. This is followed by "BLOCKED on 10/10/2013" and "4:15PM". Then, "By Train Dispatcher 22" is shown. A red rectangular box highlights the text "Random Code: 912478". Below this, the text "CALL UNBLOCK LINK" is displayed, followed by "MESSAGE UNBLOCK LINK". At the bottom, there is a white button with the text "OK".

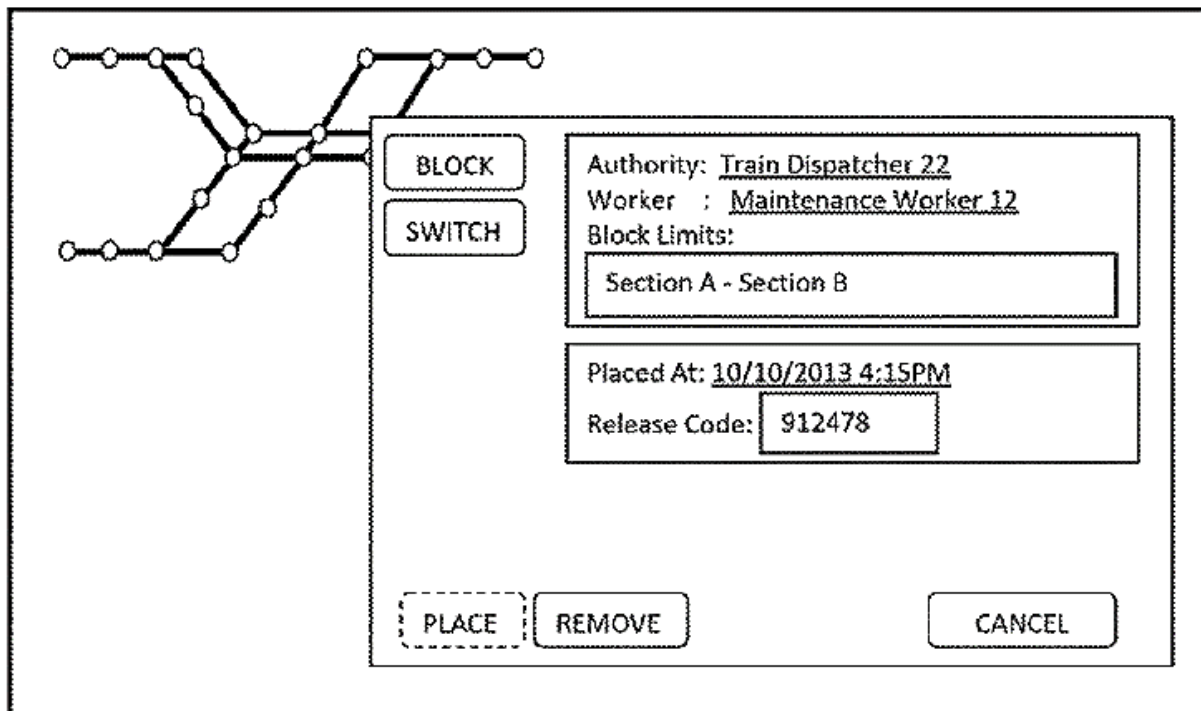
EX1001, Fig. 10 (Patent Owner's annotations in red).

It is not until the railway field worker seeks to remove the block that the dispatcher receives the “release code” for the first time:

In order for a block on a certain track to be lifted, the release code has to be input into the railway traffic control apparatus. The terminal 102 sends the release code to the railway traffic control apparatus 105. The release code is then input into the block remover 101C. After which, the block is removed and traffic to that section of rail is then allowed.

Id. at 7:14-20. Fig. 8, which “shows the user interface of the railway traffic control terminal 105 as the railway traffic controller inputs the release code to remove the block on certain track sections,” stands in further contrast to Figure 7.

FIGURE 8



Id., Fig. 8. As illustrated in Figure 8, only after the railway field worker transmits the “release code,” is the dispatcher able to enter the “release code” into the railway control apparatus and remove the block. *Id.* at 8:28-29 (“Without input of release code, the remove option is not available to be selected.”); *see also, e.g., id.* at 2:55-57, 3:30-33, 5:67-6:3, 7:8-10, 7:35-38, 7:55-60, 8:28-31, 8:46-53, 10:15-19, 10:23-36.

Fourth, a POSITA would readily understand that the claimed “release code” is not readily available to the dispatcher, given the problems addressed by the ’782 patent. The ’782 patent acknowledges that “railway transportation is run under

strict operational guidelines or rules,” such as the Form D number. *Id.* at 1:21-22. But Form D numbers, alone, are inherently unreliable because they are known to the dispatcher at all times. Indeed, the ’782 patent notes that “one study reported that there were 39 roadway worker accidents that occurred between January 1997 and the end of 2011, in which 41 roadway workers perished.” *Id.* at 2:29-31. Form D numbers were in operation during this entire span of time, yet accidents and fatalities persisted. Indeed, the ’782 patent notes that “even with all of the[] safety features present in a railway system, railway accidents occur, with many of them being fatal There remains a need for further safety measures to protect the lives of railway workers.” EX1001 at 2:27-39. The FRA agreed. The FRA stated in a 2016 Final Rule:

In [two accidents in 2007 and 2013] the train dispatchers did not maintain the required blocking devices, allowing train movements into the roadway work groups’ established working limits without the relevant RWIC’s knowledge. . . . Despite the fact that FRA’s regulations already prohibit the actions that led to these accidents, FRA recognizes more can be done to try to prevent these types of mistakes from causing future tragedies.

EX2001 at 75-76. The FRA specifically noted that railroads should “ensure appropriate safety redundancies are in place in the event of miscommunication or error,” including “where working limits were no longer protected due to dispatcher

error.” EX2001 at 82. “FRA explained it would scrutinize a railroad’s PTC development and safety plans to determine if the plans left any opportunity for a single point human failure with regard to incursions into work zones (e.g., any opportunity for a dispatcher to remove a blocking device in error).” *Id.* at 85.

In response to continued instances of, *inter alia*, dispatcher miscommunication or error, Railware developed the invention of the ’782 patent, which requires a distributed architecture for generating, transmitting, receiving and using a “release code” as a form of redundant signal protection. The FRA recommended Railware’s EEPS, which embodies the claims of the ’782 patent. *Id.* Thus, the ’782 patent provides “*supplemental* measures directed to safety of railway workers.” *Id.* at 2:45-46 (emphasis added). Specifically, the ’782 patent states that, when embodiments of the invention are implemented, “the railway worker has more control over the traffic through the rail block in which the worker is working, and fatal on-track accidents can be reduced.” EX1001 at 11:12-14.

Along these lines, each of the claims of the ’782 patent requires an unconventional network architecture for generating, transmitting, receiving and using a “release code” that is transmitted to the railway field workers that are working on the track, but otherwise remains “secret.” EX1001 at 5:58-64, Cls. 1, 5. By keeping the “release code” secret, other than from the railway field worker to

which it is sent, the '782 patent prevents the very dispatcher miscommunication or errors that plagued the industry and that the FRA acknowledged in its Final Rule report.

A POSITA would readily understand, given this context, that the claimed “release code”—which, *inter alia*, is “**secret**,” saved to “**internal** storage,” “**automatically** transmitted” to the railway field worker, and only after the railway field worker transmits the “release code,” is the dispatcher able to enter the “release code” into the railway control apparatus and remove the block—must not be readily available to the dispatcher, or else the objects of the unconventional, distributed network architecture would not be achieved.

Finally, the fact that the “release code” is not “readily” available is further evident from the '782 patent’s description of what happens when the railway field worker cannot provide a “release code” for some reason. Specifically, the '782 patent states, “[i]f there is no maintenance worker available to transmit the random secret code, the code can be retrieved from the train traffic control terminal 105 by the train traffic controller (S1306).” EX1001 at 10:19-22. A POSITA would understand that by using the words “retrieved from the railway control apparatus,” the otherwise “secret” nature of the “release code” makes such retrieval onerous and employed only in limited circumstances. By forcing the “release code” to be

“retrieved from the train traffic control apparatus” (as opposed to simply displaying the “release code” in full view of the dispatcher, like in the prior art), the ’782 patent makes clear that the claimed “release code” is not “readily” available to the dispatcher.

2. The Claim Language Supports the Construction.

Consistent with the specification, the claims of the ’782 patent itself support this construction. Specifically, independent claims 1 and 5 each specify that the “release code” is generated and transmitted “to an electronic contact address accessible by the railway field worker via operation of the user interface of the user terminal.” EX1001 at Cls. 1, 5. The claims specifically do not say that the “release code” is displayed to the dispatcher. Further, claims 1 and 5 each require that a track block be removed “*only* upon receiving the release code from the user terminal in return.” *Id.* (emphasis added). By using the word “only,” the claims require that the “release code” is not readily available to the dispatcher until the “release code” is received from the user terminal, which is in the field with the railway worker. If, on the other hand, the dispatcher had ready access to the “release code,” then they would be able to release the block at any time, and not “*only* upon receiving the release code from the user terminal in return.”

Accordingly, the proper construction of “release code” is “a code that is not readily available to the dispatcher.”

**VI. THE PETITION FAILS TO ESTABLISH A REASONABLE
LIKELIHOOD THAT THE CHALLENGED CLAIMS ARE
OBVIOUS.**

The Petition does not establish a reasonable likelihood that Oriol (Ground 1), the combination of Oriol, Masquelier, Wise, and/or Pachl (Grounds 2, 3, 4, and 5), the combination of Tamaribuchi and Pachl (Ground 6), or the combination of Wise and Masquelier (Ground 7), disclose all of the elements of any claim of the ’782 patent, or that a POSITA would be motivated to combine the references.

**A. The Petition Does Not Establish a Reasonable Likelihood that
Oriol Renders Unpatentable Claims 1-8 (Ground 1).**

1. Overview of Oriol.

Oriol (EX1004) is entitled “Supporting Railroad Roadway Worker Communications with a Wireless Handheld Computer: Volume 1: Usability for the Roadway Worker.” Oriol describes “[a] prototype communications device [] developed for roadway workers to request train and territory information and to request track protection from the dispatcher. The device uses a wireless data link to send and receive information in digital form.” EX1004, Abstract.

In Oriol’s prototype, a dispatcher having a networked computer can communicate with a roadway worker’s PDA. EX1004, Fig. 2, 29. Workers who

wish to work on a work site and who request authorization to work at a work site will—if the request is granted—receive various information from the dispatcher. EX1004 at 38. This information includes “Form D number (automatically assigned by system), Form D recipient, date, track number, track location, and foreman in charge of the track out of service.” *Id.*

As discussed above in Section II, 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:

Requested Active Rejected and cancelled	
Requested Form Ds 0003, Oriol - Read 0002, Oriol - Read	Requested Foul Time 10.00a-10.30a, Oriol - Read
Form Ds waiting for time effective 0004, Oriol - Read	

Form D 0003 is Requested

Foreman **Oriol** would like to work in **1** track at/between **Branford** and **Guilford**

Desired starting time: **11.00a**
Expected duration of work: **1 hour**

Form D #: **0003**
Delivered to: **Oriol**
Date: **01/28/2000**

Line 4: track out of service between/at and in charge of

Train: **North East Corridor**
Dispatcher:

Please select 'Confirm' to grant permission to work or 'Deny' to disregard this form D request and then press 'Send Response'

☒ Confirm
☐ Deny Reason:

EX1004, Fig. A-5.

2. The Petition Does Not Establish that Oriol Discloses All Elements of the Challenged Claims.

a. Claims 1/5.

i. Oriol Does Not Disclose “a Code Generation Part to Generate a Release Code” (Claim 1) / “Generating by the Railway Control Apparatus a Release Code” (Claim 5).

The Petition does not establish a reasonable likelihood that Oriol discloses “a code generation part to generate a release code” (claim 1) or “generating by the railway control apparatus a release code” (claim 5) (these elements are referred to

together herein as the “Code Generation Elements”). Specifically, Oriol does not disclose the claimed “release code.”

As discussed above, a POSITA would understand the claimed “release code” to be mean “a code that is not readily available to the dispatcher.” The Petition fails to address the proper (or any) construction for “release code.” This alone is fatal to the Petition. *Samsung Elecs. Co., Ltd. v. Blaze mobile, Inc.*, IPR2021-01571, Paper 15, 17 (P.T.A.B. Apr. 4, 2022) (“Petitioner has not adequately established that the claimed ‘identification code’ should be construed to include the prior art’s teachings of credit card numbers, expiration dates, and CVV codes. Thus, we determine Petitioner has not adequately shown that the cited prior art satisfies the claims’ limitations.”). As in *Blaze*, the Petition here fails to establish that the claimed “release code” should be construed to include the cited references’ teachings of Form D numbers.

Additionally, the Petition incorrectly contends that Oriol’s “Form D number” satisfies the “release code” elements. *See* Pet. at 27-31. A Form D number is not the same as the claimed “release code” because a Form D number is simply an identifier for a given Form D, is known to the dispatcher, and is not tied to the release of a track block.

Oriol confirms this understanding. Oriol explains that “according to the Amtrak operating rules (NORAC, 1999), the dispatcher issues Form Ds.” Oriol at 8. A critical distinction, however, is that 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.

The screenshot displays a web-based dispatcher interface. At the top, there are three tabs: "Requested", "Active", and "Rejected and cancelled". The "Requested" tab is selected. Below the tabs, the interface is divided into three main sections. The left section, titled "Requested Form Ds", contains a list of two items: "0003, Oriol - Read" and "0002, Oriol - Read". The middle section, titled "Requested Foul Time", contains a list item: "10.00a-10.30a, Oriol - Read". The right section, titled "Form D 0003 is Requested", contains the following information: "Foreman Oriol would like to work in 1 track at/between Branford and Guilford", "Desired starting time: 11.00a", "Expected duration of work: 1 hour", "Form D #: 0003", "Delivered to: Oriol", "Date: 01/28/2000", "Line 4: 1 track out of service between/at 81.5 Branford and 90.4 Guilford in charge of Oriol", "Train: North East Corridor", "Dispatcher:", and a section for "Please select 'Confirm' to grant permission to work or 'Deny' to disregard this form D request and then press 'Send Response'". The "Confirm" radio button is selected. At the bottom of the right section is a "Send Response" button.

Figure A-5. Dispatcher Interface

EX1004, Fig. A-5 (Patent Owner’s annotations in red). Indeed, as evident from this Figure, Oriol’s dispatcher display shows all Form D numbers to the dispatcher. By referencing the pre-existing Form D number, Oriol makes clear to a POSITA 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.

Oriol further explains that the Form D it references follows the 6th edition of the NORAC Operating Rulebook (1997) (“NORAC Rules,” EX2002). EX1004 at 56, 61. Historically, Form Ds were paper forms completed by the dispatcher, and therefore the Form D number was readily available to the dispatcher, since the dispatcher completed the form. *Id.* Oriol did not change this fundamental truth about Form D numbers, and the Petition fails to assert otherwise.

The distinctions between Form D numbers and the claimed “release code” is not trivial, but serve an important purpose in achieving the goals of the ’782 patent. Form D’s were subject to human error, including prematurely released track blocks. *See* EX2001 at 75-76. As the FRA recognized, “‘redundant signal protections’ are intended to protect against dispatchers or control operators unintentionally or mistakenly allowing train or other on-track movements into working limits before a roadway work group has released its authority.” *Id.* at 80. The claimed “release code” solves this exact problem. *Id.* at 82 (“FRA encourages railroads to use new technologies such as EEPs as they become available to provide redundant signal protections for roadway work groups.”).

In short, by keeping the “release code” secret from the dispatcher, the dispatcher is unable to release the block, such as either by miscommunication or through error, until the railway worker provides the “release code.” Thus, by utilizing the invention of the ’782 patent, “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.” EX1001 at 11:12-14.

Thus, the Petition fails to establish a reasonable likelihood that Oriol renders claims 1 and 5 unpatentable.

- ii. **Oriol Does Not Disclose “a Block Removal Part to Remove Only upon Receiving the Release Code from the User Terminal in Return, the block” (Claim 1) / “Permitting the Block to Said One or More Track Sections to Be Removed by the Railway Control Apparatus Only upon Receiving the Release Code from the User Terminal in Return” (Claim 5).**

The Petition does not establish a reasonable likelihood that Oriol discloses “a block removal part to remove only upon receiving the release code from the user terminal in return, the block” (claim 1) or “permitting the block to said one or more track sections to be removed by the railway control apparatus only upon receiving the release code from the user terminal in return” (claim 5) (these elements are referred to together herein as the “Block Removal Elements”). As

discussed above, Oriol's Form D number is not the claimed "release code." On this basis alone, the Petition fails.

The Petition also fails to establish a reasonable likelihood that Oriol discloses these elements for two additional reasons.

First, the Petition fails to establish that the block is removed "**only** upon receiving the release code from the user terminal," as that term is used in the context of the '782 patent. The Petition completely ignores the claim term "only." *See*, Pet. at 31-34. Instead, the Petition simply concludes, without explanation, that the element is taught by Oriol. Pet. at 31-32. Failure to address all claim elements with particularity is fatal to the Petition. 37 C.F.R. § 42.104(b)(4) ("The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.").

At best, Oriol discloses **one way** for the roadway worker to request removal of a block, but not that it is the **only** way. Oriol teaches that a roadway worker may use a "Cancel/Fulfill" link to "give some track under his authority back to the dispatcher." Pet. at 31-34. The Petition concludes, without explanation or support, that "[t]hus, **only** the worker can remove the track block 'under his/her authority' by selecting a 'Cancel/Fulfill' link." Pet. at 31 (emphasis added) (citing EX1003, ¶138).

But the cited portion of Oriol does not support the conclusion asserted by the Petition that “*only* the worker can remove the track block.” Just because a roadway worker *can* use the “Cancel/Fulfill” operation to remove a block does not mean that the “Cancel/Fulfill” operation is the *only* way to request that a block be removed. For example, the dispatcher could remove the block because s/he knows the Form D number. Thus, the Petition fails to establish a reasonable likelihood that this claim element is met because Oriol does not disclose the “Cancel/Fulfill” operation is the “only” (as that term is used in the context of the ’782 patent) way to remove a placed block.

Second, the Petition fails to establish a reasonable likelihood that Oriol’s “Cancel/Fulfill” operation causes the Form D number (even assuming this is the alleged “release code,” which it is not) to be “receiv[ed] from the user terminal in return.” Oriol states that “following the links ‘Cancel/Fulfill’ or ‘Clear,’ the roadway worker is able to give some track under his authority back to the dispatcher.” Oriol at 36. However, this does not mean that the Form D number (even assuming this is the alleged “release code,” which it is not) is “receiv[ed] from the user terminal in return.” Oriol does not specify what information is actually transmitted back to the dispatcher from the railway field worker.

The Petition purports to find support for its conclusory analysis that “a specific form D ‘0003’ is transmitted to the railway control apparatus to unblock the track,” in Fig. A-1 of Oriol. But Fig. A-1 shows the *roadway worker’s PDA*. Pet. at 33; Oriol at 32. Fig. A-1 does not show the *dispatcher’s* terminal. Therefore, Fig. A-1 cannot be relied upon to demonstrate what information, if any, is actually “received in return” at the dispatcher’s terminal. Oriol does not explain precisely what happens when the roadway worker selects the link “Cancel/Fulfill.” Specifically, Oriol is silent as to whether the Form D number (even assuming this is the alleged “release code,” which it is not) is actually returned to the dispatcher to remove the block. Thus, Oriol fails to disclose that the block is removed “*only* upon receiving the release code from the user terminal.”

The Petition further states, *without any citation to Oriol*, that “[t]hus, a specific form D ‘0003’ is transmitted to the railway control apparatus to unblock the track as shown by the same Form D number, ‘form D# 0003,’ being cancelled.” Pet. at 33. This assertion finds no support in Oriol, and the Petition provides none. Similarly, the Petition states, again without any support, that “[s]electing this link transmits the previously generated Form D number or release code . . . to the railway control apparatus block removal part (software), which only unblocks the

track after receiving the same release code.” Pet. at 32. There is no such disclosure in Oriol, and the Petition cites no support for its conclusory assertion.

Thus, the Petition fails to establish a reasonable likelihood that Oriol renders claims 1 and 5 unpatentable.

b. Dependent Claims 2-4, 6-8.

Dependent claims 2-4 each depend from claim 1, and dependent claims 6-8 each depend from claim 5. Thus, the Petition fails on the dependent claims for the same reasons as claims 1 and 5.

B. The Petition Does Not Establish a Reasonable Likelihood that the Combination of Oriol and Masquelier Renders Unpatentable Claims 1-8 (Ground 2).

1. Overview of Masquelier.

Masquelier (EX1005) is the second volume of the FRA’s report on “Supporting Railroad Roadway Worker Communications with a Wireless Handheld Computer.” Masquelier focuses on the “impact on Dispatcher performance.” EX1005 at Title. Masquelier states that “The purpose of the experiment described in this report was to evaluate its impact on dispatcher performance when roadway workers use this device in addition to voice communications.” *Id.* at 3

As with Oriol, Masquelier discloses that a worker can request work authorization from a dispatcher using the existing Form D system. *Id.* at 6. Like

with Oriol, the dispatcher in Masquelier can see a list of active Form D authorizations, including the Form D number, on their display at all times. Thus, Masquelier's Form D number is readily available to the dispatcher.

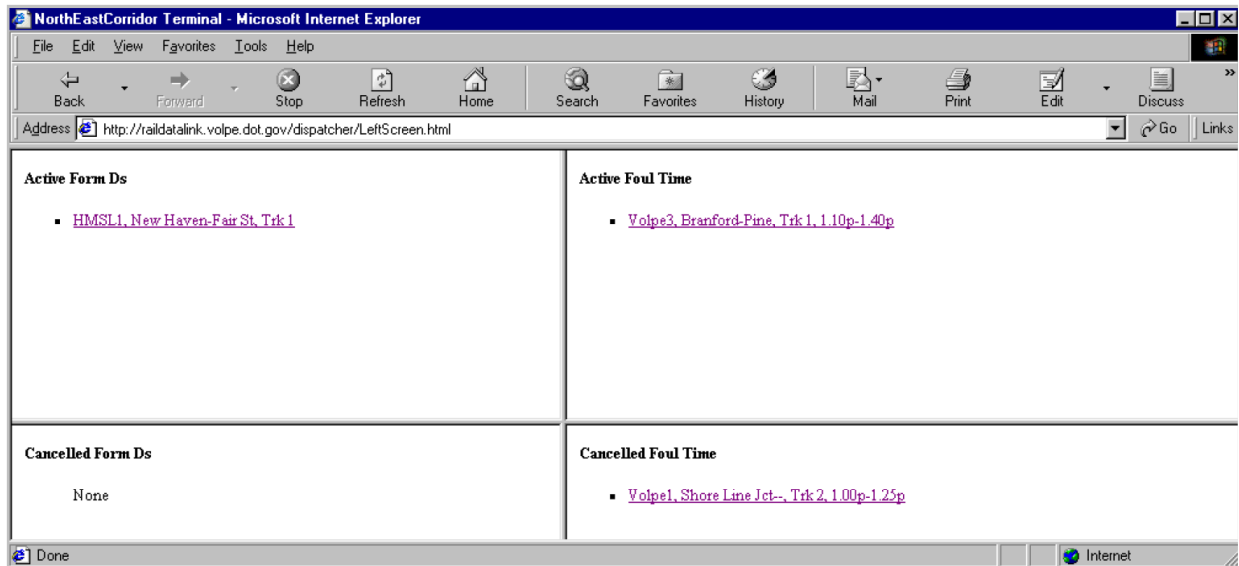


Figure 18. Work Authorization Status Display

EX1005, Fig. 18. Masquelier also tested for dispatcher errors, including “[r]eleasing the track section before the work authorization is cancelled.” EX1005 at 30. In other words, Masquelier was testing for situations in which a dispatcher releases a block prematurely, i.e., “before the work authorization is cancelled” by the railway field worker. *Id.* The fact that the authors of Masquelier believed this possibility warranted collecting data indicates that the dispatcher has all of the information necessary to release the track block at any time, including prematurely or erroneously.

2. The Petition Does Not Establish that the Combination of Oriol and Masquelier Discloses All Elements of the Challenged Claims.

a. The Petition Does Not Provide an Element-by-Element Analysis of the Challenged Claims for Ground 2.

37 C.F.R. § 42.104(b)(4) requires that “the petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” Here, with respect to Ground 2, the Petition does not conduct an element-by-element analysis comparing the teachings of Oriol and/or Masquelier to the claim elements of the ’782 patent. *See*, Pet. at 41-44. This fact alone is fatal to this ground. *Dexcwin Global, Inc. v. Aribex, Inc.* IPR2016-00440, Paper 15, 7 (P.T.A.B. Sep. 13, 2016) (denying institution where “the Petition did not provide an element-by-element analysis of each of these claims, as required by the Board’s rules”); *HTC Corp. v. Cellular Comms. Equip. LLC*, IPR2016-01503, Paper 7, 11 (P.T.A.B. Feb. 13, 2017) (“The Petition lacks a limitation-by-limitation analysis explaining how the asserted prior art allegedly teaches each limitation

Without such explanation, we can only speculate as to why Petitioner believes each specific limitation of the claims is taught.”). Indeed, the entire discussion of independent claims 1 and 5 spans less than four pages, including a number of screen shots from Oriol and Masquelier, with no headings or subheadings. Pet. at 41-44. The Petition fails to identify *any* claim element that it is addressing, let

alone each and every claim element. Because the Petition does not include an element-by-element analysis for Ground 2, the Petition fails to “specify where each element of the claim is found in the prior art patents or printed publications” and therefore fails to establish a reasonable likelihood that the combination of Oriol and Masquelier renders invalid the Challenged Claims.

Due to its failure to provide an element-by-element analysis, the Petition likewise fails to specify whether it is relying on Oriol or Masquelier to disclose each element of the claims. Notably, the Petition does not even explain what element is missing from a reference that requires the need to look to another reference for support. This also is fatal to the Petition. *Supercell OY v. Gree, Inc.*, IPR2021-00499, Paper 7, 13 (Aug. 16, 2021) (“we agree with Patent Owner that without any explanation of what is missing in the primary reference, what is modified, and in view of what teachings in which reference the primary reference is modified, the Petition fails to adequately explain with appropriately precise and specific articulation the basis of the proposed ground(s).” (internal quotations omitted)).

b. Claims 1/5.

Setting aside the Petition’s failure to provide an element-by-element analysis (or any analysis, for that matter), the Petition’s discussion of Ground 2 is wholly irrelevant to the Challenged Claims.

i. The Combination of Oriol and Masquelier Does Not Disclose the Code Generation Elements.

The Petition does not establish a reasonable likelihood that the combination of Oriol and Masquelier discloses the Code Generation Elements. As discussed above, Oriol alone fails to disclose these elements because it does not disclose the claimed “release code.” *See supra*, Section VI.A. The Petition fails to address the proper (or any) construction for “release code.” This alone is fatal to the Petition. *Blaze*, IPR2021-01571, Paper 15, 17. Masquelier also does not disclose these elements for the same reasons. Tellingly, the Petition does not appear to rely on Masquelier for the claimed “release code” at all. While the Petition offers three proposed modifications to Oriol (untethered to any support), each of the proposed modifications is irrelevant to these claim elements. Patent Owner addresses each in turn.

First, the Petition asserts that the system of Oriol “could implement Masquelier’s mobile device” for the railway workers. Pet. at 41. Whether a POSITA could or would use Masquelier’s mobile device in place of Oriol’s

personal digital assistant is irrelevant to generating the claimed “release code.” In the Challenged Claims, the “code generation part” and “generating . . . a release code” each occur in the *railway control apparatus* (i.e., the dispatcher’s system), not in the railway field worker’s mobile device. Thus, even if the Petition were correct that a POSITA would have been able to combine Masquelier’s mobile device with Oriol’s system (which s/he would not), such combination does not disclose these claim elements because the code generation occurs in a completely different piece of hardware, not the mobile device.

Second, the Petition asserts that “Oriol could further implement Masquelier’s visual track blocking and unblocking.” Pet. at 42. Again, this proposed modification is irrelevant. “Visual track blocking and unblocking” has *no relation* to generating the claimed “release code.” Visual track blocking and unblocking simply refers to the way in which the dispatcher knows what track sections are or are not blocked. The fact that the dispatcher can visually see that a track is blocked conveys no information regarding how the track was blocked or the operations that lead to its release. Thus, even if the Petition were correct that a POSITA would have been able to combine Masquelier’s “visual track blocking and unblocking” with Oriol’s system (which s/he would not), such combination does not disclose these claim elements.

Third, the Petition asserts “Oriol’s railway control apparatus would generate the Form D number or release code (*see* Ground 1, 1[D]/5[C]) and would implement Masquelier’s text messaging to transmit (using the track display or dispatcher’s phone) that release code to the worker’s phone or electronic contact address.” Pet. at 43. Here, the Petition admits that it is relying on Oriol’s Form D number to allegedly disclose the claimed “release code.” As discussed above with respect to Ground 1, Oriol’s Form D number is not the claimed “release code” because a Form D number is readily available to the dispatcher. The proposed modification of using “text messaging” from Masquelier to transmit the Form D number does not transform the Form D number into the claimed “release code.” This again is irrelevant to the claim element of generating a “release code” because the Petition’s proposed modification merely addresses *how* the Form D number *is transmitted*, not what the Form D number is or does.

Thus, the Petition fails to establish a reasonable likelihood that combination of Oriol and Masquelier renders claims 1 and 5 unpatentable.

ii. The Combination of Oriol and Masquelier Does Not Disclose “the Block Removal Elements.”

The Petition does not establish a reasonable likelihood that the combination of Oriol and Masquelier discloses the Block Removal Elements. The Petition’s

proposed modifications to Oriol are irrelevant to whether the block is removed “only upon receiving the release code from the user terminal in return.”

First, the proposed modification of implementing Masquelier’s mobile device into Oriol’s system relates only to what hardware is used by the railway field worker. Using Masquelier’s mobile device instead of Oriol’s personal digital assistant does not change the process by which a block is removed, including whether the block is removed “only upon receiving the release code from the user terminal in return.” Whether a POSITA could or would use Masquelier’s mobile device in place of Oriol’s personal digital assistant is irrelevant to releasing a track block. In the Challenged Claims, the “block removal part” (claim 1) and “permitting the block . . . to be removed” (claim 5) each occur in the *railway control apparatus* (i.e., the dispatcher’s system), not in the railway field worker’s mobile device. The Petition does not contend otherwise. Thus, the Petition’s first proposed modification is irrelevant to these claim elements.

Second, the Petition’s proposed modification of implementing Masquelier’s visual track blocking/unblocking is also irrelevant to these claim elements. As stated above, visual track blocking/unblocking merely shows the dispatcher which sections of track are blocked/unblocked. Visual track blocking/unblocking does not relate to *how* blocks are *removed*, as recited in these claim elements. Specifically,

visual track blocking/unblocking is irrelevant to whether a block is removed “only upon receiving the release code from the user terminal in return.” The Petition does not contend otherwise. Thus, the Petition’s second proposed modification is irrelevant to these claim elements.

Third, the Petition’s proposed modification of using Masquelier’s text messaging to transmit Oriol’s Form D number is also irrelevant to these claim elements. As stated above, using text messaging to transmit the Form D number relates only to the *way* in which the Form D number is transmitted from the dispatcher to the railway field worker. The *way* (*i.e.*, by text message) in which the number is transmitted to the railway field worker does not relate to *how* blocks are removed, as recited in these claim elements. Specifically, using text messaging to transmit a Form D number to a railway field worker is irrelevant to whether a block is removed “only upon receiving the release code from the user terminal in return.” The Petition does not contend otherwise. Thus, the Petition’s third proposed modification is irrelevant to these claim elements.

Thus, the Petition fails to establish a reasonable likelihood that combination of Oriol and Masquelier renders claims 1 and 5 unpatentable.

c. Dependent Claims 2-4, 6-8.

Dependent claims 2-4 each depend from claim 1, and dependent claims 6-8 each depend from claim 5. Thus, the Petition fails on the dependent claims for the same reasons as claims 1 and 5.

C. The Petition Does Not Establish a Reasonable Likelihood that the Combination of Oriol and Wise Renders Unpatentable Claims 1-8 (Ground 3).

1. Overview of Wise.

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.* 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. 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.

In Wise, the SCN is not involved in setting or releasing any block. Wise *explicitly* states as much. For example, Wise states that “total possession of lines taken by engineers,” *i.e.*, blocks, is “not presently covered by SCN systems.” *Id.* at Fig. 5G. This definitive statement in Wise is dispositive.

2. The Petition Does Not Establish that a POSITA Would Have Either a Reason to Combine Oriol with Wise or an Expectation of Success from the Combination.

The Petition fails to establish a reason to combine Oriol with Wise and a reasonable expectation of success because the Petition’s entire motivation to

combine is based on unexplained string citations, unsupported attorney argument and expert testimony, and improper hindsight reasoning.

The Petition states in a conclusory manner that “[a] POSITA would have been motivated to modify Oriol with Wise and had a reasonable expectation of success because both references are in the field of, and solve the problem of, railway control for safe maintenance work.” Pet. at 46. However, the Petition does not explain this conclusory assertion, which is legally insufficient and therefore fatal to the Petition. Indeed, “[a] conclusory assertion with no explanation is inadequate to support a finding that there would have been a motivation to combine.” *TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019). The Federal Circuit has similarly affirmed denial of an IPR where, as here, the petition “merely alleged the references came from the same field of study and address the same problem.” *Comcast Cable Commc’ns, LLC v. Promptu Sys. Corp.*, 838 F. App’x 555, 557 (Fed. Cir.), *cert. denied*, 141 S. Ct. 2721 (2021).

The Petition’s unexplained string citation to references cannot save it. *TQ Delta*, 942 F.3d at 1359; *see also* 37 C.F.R. § 42.104(b)(5) (“The Board may exclude or give no weight to the evidence where a party has failed to state its relevance or to identify specific portions of the evidence that support the challenge.”); *Fujitsu Network Comms., Inc. v. Core Optical Techs., LLC*, IPR2016-

01618, Paper 13, 12 (P.T.A.B. Jan. 31, 2017) (“We give no weight to evidence where a party fails to state its relevance.”).

Lastly, the Petition’s unexplained citations to expert testimony cannot save the Petition. For example, the Petition states:

a POSITA would have been motivated and had a reasonable expectation of success to modify Oriol, including to block the track and thereafter generate a release code. Michalson, ¶¶202. For instance, a POSITA would have been motivated to modify Oriol with Wise’s first blocking the track and thereafter generating a unique access code (e.g., SCN), as the release code. Michalson, ¶202 This 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. Michalson, ¶203. Moreover, because Wise’s code would be separate from the Form D number, it would be more difficult for a third-party to decipher and potentially unsafely unblock the track. Michalson, ¶204.

Pet. at 46-47. None of these citations is explained or supported, and therefore they are insufficient to meet the Petition’s burden to establish a motivation to combine.

Boragen, Inc. v. Syngenta Participations AG, IPR2020-00124, Paper 16, n. 14 (May 5, 2020) (“Nor do vague citations to testimony of Petitioner’s declarants,

without any adequate explanation in the Petition itself, suffice to demonstrate persuasive reasons for combining the art.”).

The Petition’s unsupported expert testimony is also textbook hindsight, which is improper. *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014) (“Dr. Yanco’s testimony primarily consisted of conclusory references to her belief that one of ordinary skill in the art could combine these references, not that they would have been motivated to do so.”). Indeed, the Federal Circuit has found similar conclusory analysis to be “fraught with hindsight bias.” *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327 (Fed.Cir.2012) (“[T]he expert’s testimony on obviousness was essentially a conclusory statement that a person of ordinary skill in the art would have known . . . how to combine any of a number of references to achieve the claimed inventions. This is not sufficient and is fraught with hindsight bias.”).

Petitioner’s “kitchen-sink of unclear and confusing motivation-to-combine arguments” fail to establish an articulated reason with a rational underpinning to combine the respective teachings of the references. *Sisvel Int’l S.A., v. Sierra Wireless, Inc.*, No. 22-1493, slip op. at 14 (Fed. Cir. 2023). Thus, the Petition fails to establish a reasonable likelihood that combination of Oriol and Wise renders claims 1 and 5 unpatentable.

3. The Petition Does Not Establish that the Combination of Oriol and Wise Discloses All Elements of the Challenged Claims.

a. The Petition Does Not Provide an Element-by-Element Analysis of the Challenged Claims for Ground 3.

Like with Ground 2, discussed above, the Petition fails to provide an element-by-element analysis for Ground 3. Indeed, the Petition’s entire discussion of Ground 3 for independent claims 1 and 5 spans barely over one page, and fails to address *any* specific elements of the claims. Pet. at 48-49. For the same reasons discussed above with respect to Ground 2, the Petition therefore fails to “specify where each element of the claim is found in the prior art patents or printed publications relied upon.” 37 C.F.R. § 42.104(b)(4); *Dexcowin Global, Inc.*, IPR2016-00440, Paper 15, 7; *HTC Corp.*, IPR2016-01503, Paper 7, 11.

b. Claims 1/5.

Setting aside the Petition’s failure to provide an element-by-element analysis, the Petition’s paltry analysis of Ground 3 fails to establish a reasonable likelihood that the Challenged Claims are unpatentable over Oriol and Wise.

i. The Combination of Oriol and Wise Does Not Disclose the Code Generation Elements.

The Petition does not establish a reasonable likelihood that the combination of Oriol and Wise discloses the Code Generation Elements. The Petition fails to

address the proper (or any) construction for “release code.” This alone is fatal to the Petition. *Blaze*, IPR2021-01571, Paper 15, 17. As discussed above, Oriol’s Form D number is not the claimed “release code” because Oriol’s Form D number is readily available to the dispatcher. *See supra*, Section VI.A. Petitioner attempts to cover this gap by shoehorning Wise’s “security check code” or “SCN” into Oriol’s Form D number. Pet. at 48. Wise’s SCN, however, is also not the claimed “release code” because it, like Oriol’s Form D number, is known to the dispatcher at all times, and is therefore readily available to the dispatcher.

Wise discloses that after the COSS has completed their assessment and provided satisfactory answers regarding all of the precautions that are being taken at the work site, “an SCN is automatically generated and ***displayed on the screen to an operator. This number may then be verbally given to the caller . . .***” EX1006 at 24:19-26. Thus, the “operator” (*e.g.*, the dispatcher) is aware of the SCN associated with the job from the beginning. Accordingly, Wise’s SCN is not the claimed “release code” because it is readily available to the dispatcher.

Thus, the Petition fails to establish a reasonable likelihood that combination of Oriol and Wise renders claims 1 and 5 unpatentable.

ii. The Combination of Oriol and Wise Does Not Disclose the Block Removal Elements.

Additionally, the Petition does not establish a reasonable likelihood that the combination of Oriol and Wise discloses the Block Removal Elements. As discussed above, Oriol's Form D number is not the claimed "release code." *See supra*, Section VI.A.

The Petition fails to demonstrate how Wise remedies the shortcomings of Oriol, nor can it. The Petition states that "When the work is completed and 'Cancel/Fulfill' is selected, Oriol would transmit the access code (and Form D number) to the railway control apparatus, which would use (or enter) the access code (rather than the Form D number for the reasons discussed above) to unblock the track." Pet. at 49. In alleged support of this statement, the Petition cites only to Wise. *Id.* (citing EX1006, 25:4-9). This discussion is inadequate for two reasons.

First, the Petition provides no support, either through a written explanation or through Petitioner's expert, of how or why a POSITA would understand that Oriol "would transmit the access code (and Form D number) to the railway control apparatus." Such a bare assertion is rife with hindsight bias. *ActiveVideo*, 694 F.3d at 1327. Neither reference discusses transmitting both of these numbers together, and the Petition provides no support for its conclusion. The Petition's statement that the railway control apparatus "would use (or enter) the access code (rather

than the Form D number for the reasons discussed above) to unblock the track” (Pet. at 49) is similarly unsupported, unexplained, and based on hindsight bias. Again, nothing in the references indicates that an access code should be used instead of a Form D number, and the Petition does not provide any support for this conclusion.

The alleged support, a single citation to Wise, does not save the Petition from its failings. All the cited portion of Wise states is that “once the ‘job is completed . . . the operator [is provided] with the SCN number which has previously been allocated to the job.” Pet. at 49 (citing EX1006 at 25:4-9). This statement does not discuss block removal at all, let alone removing a block “*only* upon receiving the release code from the user terminal in return,” as recited in the Challenged Claims. The Petition’s failure to explain the relevance of the cited portions of the reference to the Challenged Claims is fatal to the Petition. *TQ Delta*, 942 F.3d at 1359; *see also* 37 C.F.R. § 42.104(b)(5).

Second, Wise is clear as to what happens as a result of the SCN number being provided to the operator or dispatcher, and it is not removal of a block. Indeed, immediately following the excerpt cited by the Petition, Wise states “at this stage the bulletin board is updated to indicate that that job has successfully

been carried out.” EX1006 at 25:10-11.¹ That is it. Wise is silent as to releasing any blocks on tracks. This is unsurprising because Wise is concerned with the safety precautions being taken by the workers *on the tracks*, not by blocks being placed by remote dispatchers.

For example, Wise discloses that various safety measures can be taken at a work site to reduce the risk of injury, including “the introduction of look outs to observe potential risks as they occur and the provision of safe locations to which personnel can locate themselves when conditions become dangerous.” *Id.* at 2:12-15. Wise notes, however, that “a problem with such circumstances is that they are prone to user error so that look outs and safe locations may be incorrectly or

¹ Wise explains that the “bulletin board” is “a computer generated display visible to various authorised users.” EX1006 at 11:18-19. The bulletin board “indicat[es] all forthcoming jobs.” *Id.* at 15:30-31. Additionally, a “job is automatically displayed on [the] bulletin board in a remote location where authorised personnel may observe the development of that job and other jobs logged by other callers which may be taking place at many different work sites.” *Id.* at 24:30-34. Thus, Wise’s “bulletin board” is simply a status indicator for jobs. It has nothing to do with track blocks.

inadequately provided. Also, human nature tends to underestimate danger or potential risks may simply be ignored.” *Id.* at 2:16-20. Thus, the human error that Wise seeks to remedy is *onsite* errors on the tracks on the part of the workers, not errors on the part of a remote dispatcher, which are the errors that the invention of the ’782 patent addresses.

This fatal distinction is evident throughout Wise’s disclosure. For example, Wise states that the SCN “acts as a permit authorizing [sic] the COSS [controller of site safety] user and his work group to enter onto the work site and carry out the service they need to do *under the safety provisions that the COSS qualified user has indicated during the dialogue with the operator.*” EX1006 at 26 (emphasis added). Further, Wise discloses a number of potential safety measures that can be implemented, all of which are taken by the workers on-site on the tracks. For example, Wise discloses “T(i) protection,” which is described as “a blockage of a line or lines by a signaller.” *Id.* at Fig. 5G. A signaller is an individual that operates a signal box at the track location.² Wise also identifies a number of *on-site*

² <https://nationalcareers.service.gov.uk/job-profiles/railway-signaller> (last accessed September 7, 2023) (“Railway signallers operate the signals and points *on rail tracks* to keep trains running safely and on time.” (emphasis added))

blocking systems under the designation “T(ii) protection.” These include use of a track circuit operating device (T(ii)-A), disconnection of signaling equipment (T(ii)-D), use of handsignallers (T(ii)-H), block instrument in signal box to set at train or on line (T(ii)-T), or a signaller holding signs at the scene (T(ii)-X). *Id.* at Fig. 5G. Each of these protections occurs on-site with the railway field workers. None of them are protections provided by a dispatcher at a railway control apparatus, as recited in the Challenged Claims. Notably, Wise specifically states that “total possession of lines,” as would be given in the remote blocking system claimed in the ’782 patent, is “not presently covered by [the] SCN system.” *Id.* Stated differently, Wise specifically states that the SCN system is not used to effect placement and removal of blocks on tracks, as the claimed “release code” is. Therefore, the SCN is not the claimed “release code.”

Thus, the Petition fails to establish a reasonable likelihood that combination of Oriol and Wise renders claims 1 and 5 unpatentable.

c. Dependent Claims 2-4, 6-8.

Dependent claims 2-4 each depend from claim 1, and dependent claims 6-8 each depend from claim 5. Thus, the Petition fails on the dependent claims for the same reasons as claims 1 and 5.

D. The Petition Does Not Establish a Reasonable Likelihood that the Combination of Oriol, Masquelier, and Wise Renders Unpatentable Claims 1-8 (Ground 4).

1. The Petition Does Not Establish that the Combination of Oriol, Masquelier, and Wise Discloses All Elements of the Challenged Claims.

Each of Oriol, Masquelier, and Wise are discussed above. *See supra*, Section VI.A-C. For the same reasons as stated above, the Petition fails to establish a reasonable likelihood that the combination of Oriol, Masquelier, and Wise disclose “a code generation part to generate a release code” or “a block removal part to remove only upon receiving the release code from the user terminal in return,” as recited in claim 1, or “generating by the railway control apparatus a release code” or “permitting the block to said one or more track sections to be removed by the railway control apparatus only upon receiving the release code from the user terminal in return,” as recited in claim 5. The Petition further fails to address the proper (or any) construction for “release code.” This alone is fatal to the Petition. *Blaze*, IPR2021-01571, Paper 15, 17.

Further, the Petition does not include an element-by-element analysis of the proposed combination of Oriol, Masquelier, and Wise, and therefore fails to establish a reasonable likelihood that the combination of Oriol, Masquelier, and Wise renders invalid the Challenged Claims. 37 C.F.R. § 42.104(b)(4); *Dexcowin*

Global, Inc., IPR2016-00440, Paper 15, 7; *HTC Corp.*, IPR2016-01503, Paper 7, 11.

Dependent claims 2-4 each depend from claim 1, and dependent claims 6-8 each depend from claim 5. Thus, the Petition fails on the dependent claims for the same reasons as claims 1 and 5.

E. The Petition Does Not Establish a Reasonable Likelihood that the Combination of Oriol, Masquelier, and Pachl Renders Unpatentable Claims 1-8 (Ground 5).

1. Overview of Pachl.

Pachl (EX1020) is entitled “Method for Controlling the Sequence of Trains During Traffic Control.” Pachl concerns the communication between personnel at railway traffic control terminals and locomotive engineers. EX1020 at Abstract (“The invention 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.”). Pachl calls the communications between the dispatchers and the locomotive engineers “running messages.” *Id.* at 1:14.

The mechanism for improving the security of running messages envisioned by Pachl entails “checking codes.” *Id.* 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.***

EX1020 at 4:8-20.

The locomotive engineer then enters the checking code and movement permission into a separate computer on the train. *Id.* at 2:2-5; 2:20-23. The locomotive engineer’s computer uses the same algorithm that the train controller’s computer used to generate his own version of the checking code. *Id.* at 2:24-26.

If the version of the checking code computed by the locomotive’s computer does not match the checking code the locomotive engineer received over the telephone, then he knows that the communication is in error. *Id.* at 2:28-31.

2. The Petition Does Not Establish that a POSITA Would Have Either a Reason to Combine Oriol and Masquelier with Pachl or an Expectation of Success from the Combination.

The Petition does not establish a reason to combine Pachl with the combination of Oriol and Masquelier or an expectation of success from the combination for reasons similar to those discussed above with respect to Ground 3. As with Ground 3, the Petition employs conclusory statements of a motivation to combine accompanied with unexplained string citations. Pet. at 51 (“A POSITA would have been motivated to combine Oriol, Masquelier, and Pachl and had a reasonable expectation of success given that the references provide railway control.” (citations omitted)). Moreover, as with Ground 3, the Petition includes a laundry list of alleged motivations to combine, citing only the unsupported testimony of Dr. Michalson. *See* Pet. at 51-52. Such conclusory allegations and unexplained citations fail as a matter of law to demonstrate a reasonable likelihood that a POSITA would have been motivated to combine Oriol, Masquelier, and Pachl. *TQ Delta*, 942 F.3d at 1359; *Fujitsu Network Comms., Inc.*, IPR2016-01618, Paper 13, 12; *Boragen, Inc.*, IPR2020-00124, Paper 16, n. 14.

Further, the Petition’s alleged motivations to combine simply discuss what a POSITA *could* do, and not what they would have been motivated to do at the time of the invention of the ’782 patent. *See, e.g.*, Pet. at 51-52 (“POSITA would have a

reasonable expectation of success because Oriol and Masquelier **could** generate a temporary number or other placeholder and then once the safety measure is made effective, generate the Form D number to provide greater security and safety as that release code would not be known until the track is blocked.” (emphasis added)); *Id.* at 53 (“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 Oriol and Masquelier **could** further implement Pachl’s code entry to release the track.” (emphasis added)). “The obviousness inquiry does not merely ask whether a skilled artisan **could** combine the references, but instead asks whether ‘they **would have been motivated to do so.**’” *Adidas AG v. Nike, Inc.*, 963 F.3d 1355, 1359 (Fed. Cir. 2020) (emphasis added) (quoting *InTouch Techs., Inc.*, 751 F.3d at 1352). The Petition fails to establish that a POSITA would have been motivated to combine Oriol, Masquelier and Pachl.

Thus, the Petition fails to establish a reasonable likelihood that combination of Oriol, Masquelier, and Pachl renders claims 1 and 5 unpatentable.

3. The Petition Does Not Establish that the Combination of Oriol, Masquelier, and Pachl Discloses All Elements of the Challenged Claims.

a. The Petition Does Not Provide an Element-by-Element Analysis of the Challenged Claims for Ground 5.

Like with Grounds 2 and 3, discussed above, the Petition fails to provide an element-by-element analysis for Ground 5. Indeed, the Petition’s entire discussion of Ground 5 spans less than three pages, and fails to identify *any* specific element of the Challenged Claims. Pet. at 51-53. For the same reasons discussed above with respect to Ground 2 and 3, the Petition therefore fails to “specify where each element of the claim is found in the prior art patents or printed publications relied upon,” and therefore fails to establish a reasonable likelihood that the combination of Oriol, Masquelier and Pachl renders invalid the Challenged Claims.

37 C.F.R. § 42.104(b)(4); *Dexcwin Global, Inc.*, IPR2016-00440, Paper 15, 7; *HTC Corp.*, IPR2016-01503, Paper 7, 11.

b. Claims 1/5.

Setting aside the Petition’s failure to provide an element-by-element analysis, the Petition’s paltry analysis of Ground 5 fails to establish a reasonable likelihood that the Challenged Claims are unpatentable over Oriol, Masquelier, and Pachl.

i. The Combination of Oriol, Masquelier, and Pachl Does Not Disclose the Code Generation Elements.

The Petition does not establish a reasonable likelihood that the combination of Oriol, Masquelier, and Pachl discloses the Code Generation Elements. The Petition fails to address the proper (or any) construction for “release code.” This alone is fatal to the Petition. *Blaze*, IPR2021-01571, Paper 15, 17. As discussed above, Oriol’s and Masquelier’s Form D number is not the claimed “release code” because it is readily available to the dispatcher. *See supra*, Section VI.A-B. Pachl does not remedy this shortcoming.

The Petition asserts that “Pachl teaches a central control center with a computer interface to first control the track safety measure (‘movement permission’) and then generate a ‘checking code.’” Pet. at 53. But the Petition does not explain what Pachl’s “checking code” is, what it does, or explain how it is similar or different from the claimed “release code” or Oriol and Masquelier’s Form D number. These omissions, alone, doom the Petition on Ground 5. 37 C.F.R. § 42.104(b)(4).

Even if the Petition had explained how or why it was relying on Pachl’s “checking code,” Pachl reveals that the “checking code” is nothing like the claimed “release code” recited in the Challenged Claims.

First, Pachl’s “checking code” is known to the dispatcher at all times, and therefore is readily available to the dispatcher. Specifically, Pachl teaches:

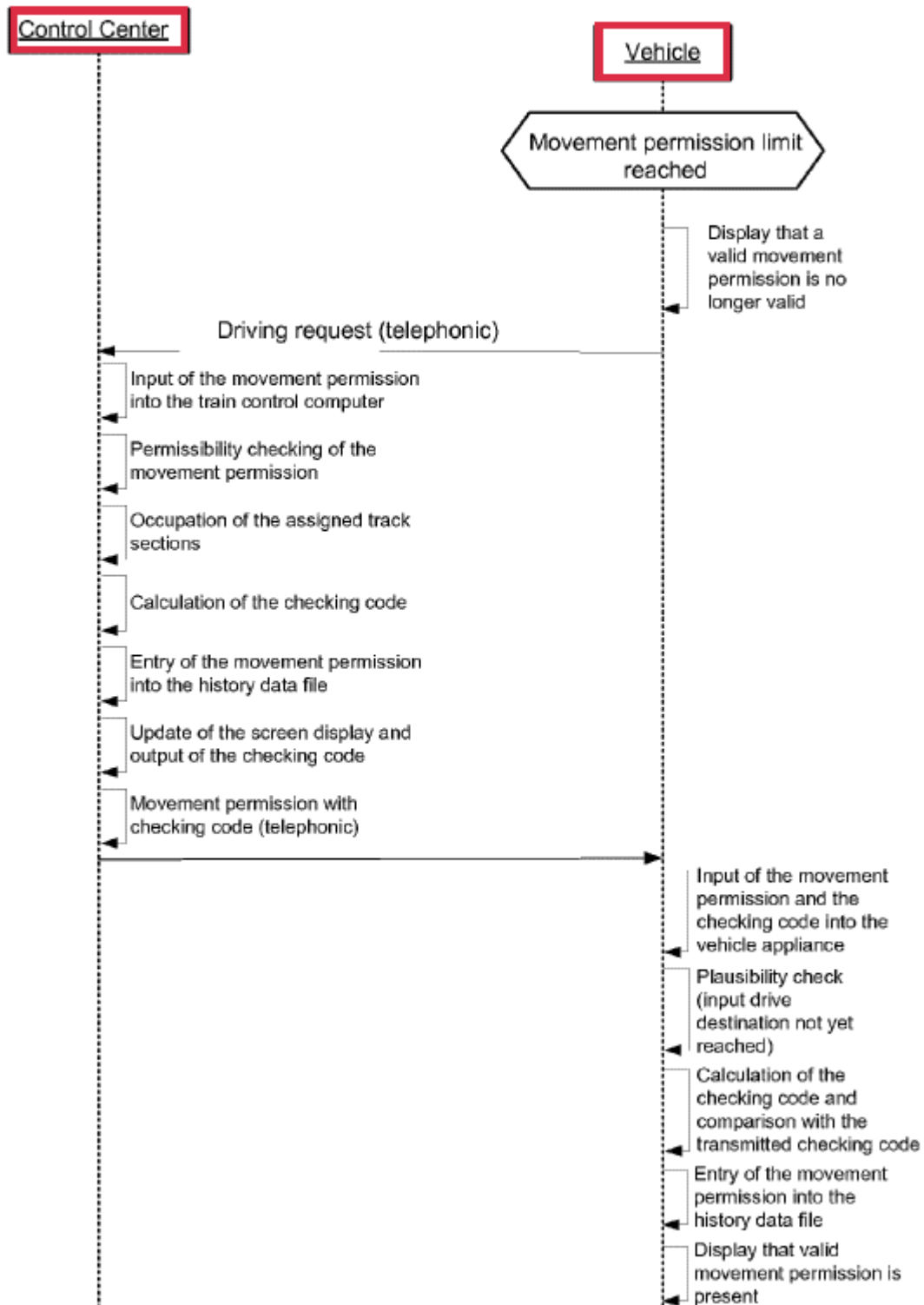
Once a train controller in the control center has received a movement request . . . the train controller enters an appropriate movement permission in a train computer. This uses the occupancy status of the requested track section to check the permissibility of the movement permission, and calculates 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.***

EX1020 at 4:8-20. Thus, Pachl teaches that the checking code is shown to the dispatcher on a display and then transmitted by the dispatcher to the train operator by telephone. Accordingly, Pachl’s “checking code” is not the claimed “release code” because it is readily available to the dispatcher.

Second, the Challenged Claims are clear that the claimed “release code” is transmitted by the code generation part “to an electronic contact address accessible by a railway field worker.” EX1001 at Cl. 1, 5. In other words, the claimed “release code” is transmitted to workers on the track, not to train operators. Pachl, on the other hand, involves only communications between the dispatcher/train controller and the *locomotive engineer* who is operating a train. Thus, Pachl is

unrelated to the safety of *railway field workers*, does not discuss railway field workers at all, and discusses no communications with railway field workers whatsoever. The Petition does not contend otherwise. In fact, Pachtl's check code is exclusively exchanged between a control center and a vehicle (i.e., a train), as shown in in Fig. 1 (annotated in red below), not between a dispatcher and a railway field worker.

FIG.1



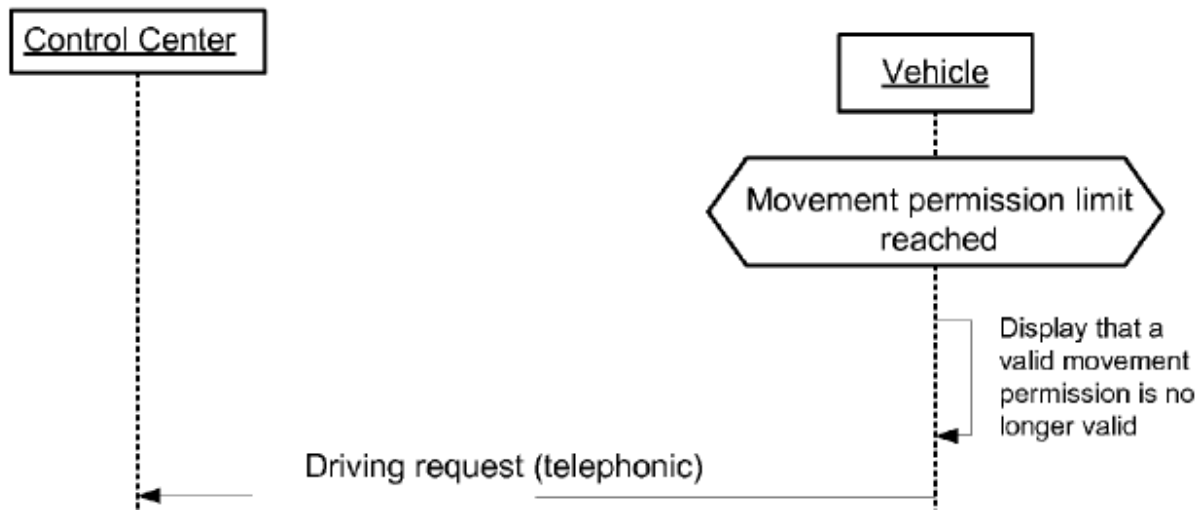
EX1020, Fig. 1 (annotated). Because Pachl’s checking code is never transmitted to an electronic address accessible by a railway field worker, it fails to teach “transmit[ing] the release code to an electronic contact address accessible by the railway field worker.” The Petition does not address this failure of Pachl at all.

Thus, the Petition fails to establish a reasonable likelihood that combination of Oriol, Masquelier, and Pachl renders claims 1 and 5 unpatentable.

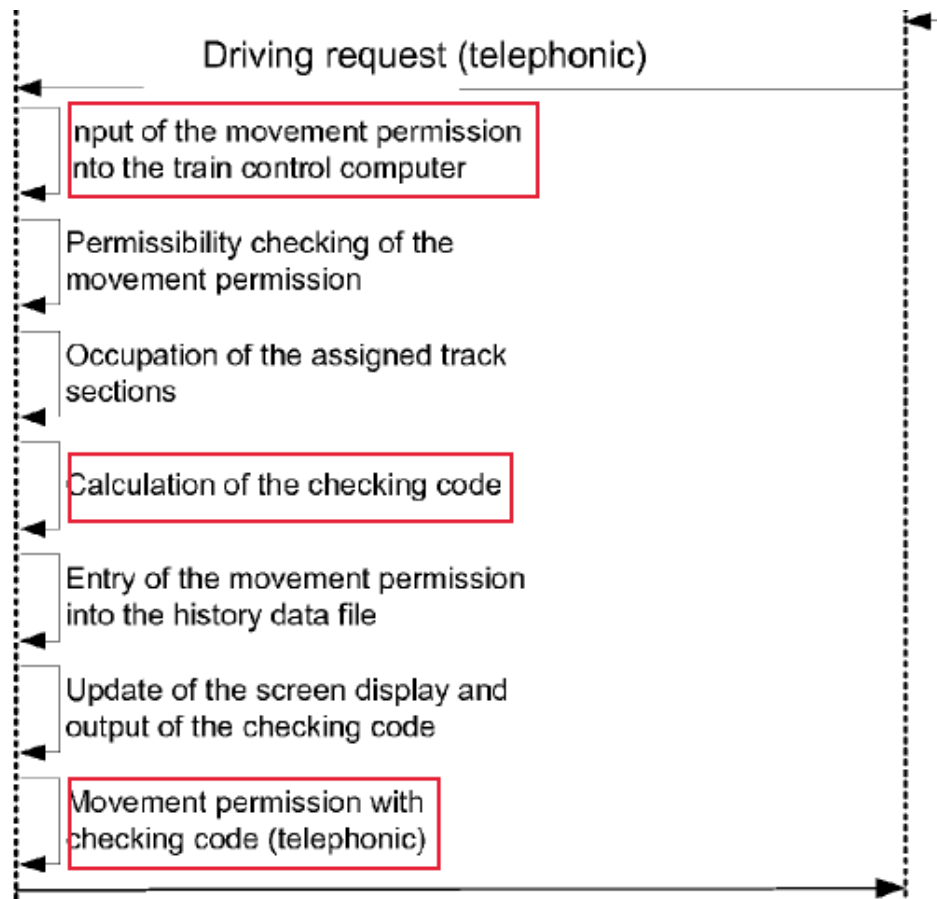
ii. The Combination of Oriol, Masquelier, and Pachl Does Not Disclose the Block Removal Elements.

Additionally, the Petition also fails to establish a reasonable likelihood that the combination of Oriol, Masquelier, and Pachl render unpatentable the Challenged Claims because none of the references disclose the Block Removal Elements. As discussed above with respect to Grounds 1 and 2, neither Oriol nor Masquelier discloses these claim elements. *See supra*, Section VI.A-B. Pachl does not remedy this shortcoming.

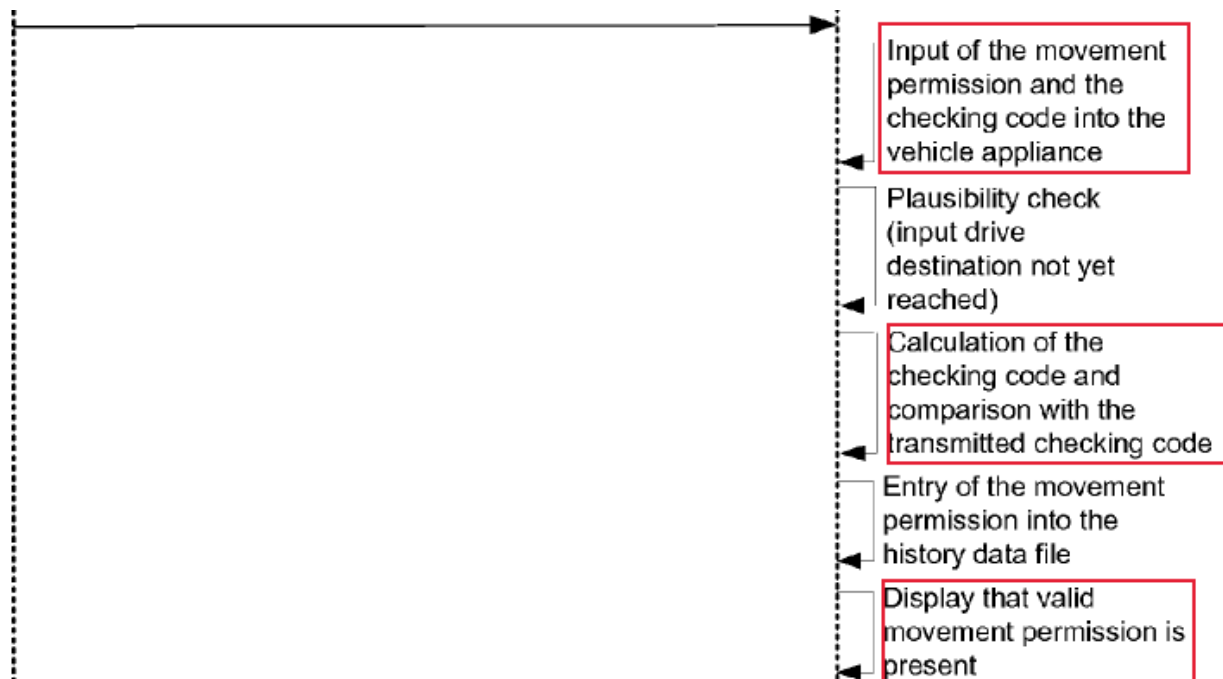
Pachl’s “checking code” fails to satisfy these elements because the checking code is never “receiv[ed] . . . from the user terminal in return.” Fig. 1 (annotated in red below) of Pachl is illustrative. According to Pachl, after a train operator no longer has a valid movement position, the train operator makes a telephonic driving request to the dispatcher in the control center:



EX1020, Fig. 1. Thereafter, the dispatcher inputs the movement position into a computer, calculates a checking code, and telephonically provides the checking code to the train operator:



Id. (Patent Owner's annotations in red). Finally, the train operator inputs the checking code into the vehicle's computer, calculates its own checking code, and if it matches the checking code provided by the dispatcher, then the train displays that a valid movement permission is present:



Id. (Patent Owner's annotations in red).

Critically, Pachl **never** discloses the train operator providing the same checking code **to** a dispatcher that was previously provided **by** a dispatcher to the train operator. Stated differently, Pachl never discloses “receiving the release code from the user terminal in return” as recited in the Challenged Claims.

Similarly, because the checking code is never received in return, it follows that Pachl cannot disclose removing a block “**only** upon receiving the release code in return.” If receiving the checking code in return never happens (it does not in Pachl), then it is impossible to release the block “only” when the checking code is received in return.

Thus, the Petition fails to establish a reasonable likelihood that combination of Oriol, Masquelier, and Pahl renders claims 1 and 5 unpatentable.

a. Dependent Claims 2-4, 6-8

Dependent claims 2-4 each depend from claim 1, and dependent claims 6-8 each depend from claim 5. Thus, the Petition fails on the dependent claims for the same reasons as claims 1 and 5.

F. The Petition Does Not Establish a Reasonable Likelihood that the Combination of Tamaribuchi and Pahl Renders Unpatentable Claims 1-8 (Ground 6).

1. Overview of Tamaribuchi.

Tamaribuchi (EX1007) is entitled “Control System, Terminal Device for Maintenance Worker and Control Device.” Tamaribuchi teaches a “PIN lock” system, whereby a user can request that a “central control device 100 control[a] target device 900 to maintain a first state in which the maintenance work can be safely performed.” EX1007 at ¶[0087]. Tamaribuchi employs two numbers to effect this teaching. The “PIN” (“Personal Identification Number”) identifies a user. *Id.* at ¶[0087]. The second number Tamaribuchi employs is a “reference number” that identifies work orders—it is a work order identification number. *Id.* at ¶[0090].

When a worker wishes to lock a given safety condition, then the roadway worker can select an icon to request that the “PIN lock” be enabled. *Id.* at ¶ [0091].

Similarly, when the roadway worker wishes to unlock the safety condition, they can select another icon that removes the “PIN lock” state. *Id.* at ¶ [0097]-[0098].

2. The Petition Does Not Establish that a POSITA Would Have Either a Reason to Combine Tamaribuchi with Pachl or an Expectation of Success from the Combination.

Like the other deficient motivations to combine discussed above with respect to Grounds 2-5, the Petition reverts to vague and unexplained allegations that a POSITA would have been motivated to combine Tamaribuchi and Pachl. *First*, the Petition vaguely asserts that a POSITA would have been motivated to combine the references “given the references provide railway control.” Pet. at 54. But this vague observation is legally insufficient because it does not explain why, specifically, a POSITA would have been motivated, at the time of the ’782 patent’s invention, to combine Tamaribuchi and Pachl specifically to achieve the claimed invention. Thus, the Petition’s allegation is insufficient because it is “generic and bears no relation to any specific combination of prior art elements. The Petition also fails to explain why a person of ordinary skill in the art would have combined elements from specific references *in the way the claimed invention does.*” *ActiveVideo Networks, Inc.*, 694 F.3d at 1328 (emphasis in original). The Petition attempts to support this statement with a long, unexplained string citation, but that is insufficient as well because unexplained citations are entitled to no weight. *TQ*

Delta, 942 F.3d at 1359; *Fujitsu Network Comms., Inc.*, IPR2016-01618, Paper 13, 12.

Second, the remainder of the Petition’s discussion of the alleged motivation to combine Tamaribuchi and Pachl is nothing more than unsupported expert testimony based on hindsight reasoning. For example, the Petition cites only Dr. Michalson’s declaration, which parrots the Petition, for the assertion that the combination of Tamaribuchi and Pachl “would prevent workers receiving the code from unsafely entering a work area before the track is blocked.” Pet. at 54. This unexplained and unsupported assertion is insufficient to establish a motivation to combine. *TQ Delta*, 942 F.3d at 1359; *Fujitsu Network Comms., Inc.*, IPR2016-01618, Paper 13, 12.

Thus, the Petition fails to establish a reasonable likelihood that combination of Tamaribuchi and Pachl renders claims 1 and 5 unpatentable.

3. The Petition Does Not Establish that the Combination of Tamaribuchi and Pachl Discloses All Elements of the Challenged Claims.

a. Claims 1/5.

i. The Combination of Tamaribuchi and Pachl Does Not Disclose the Code Generation Elements.

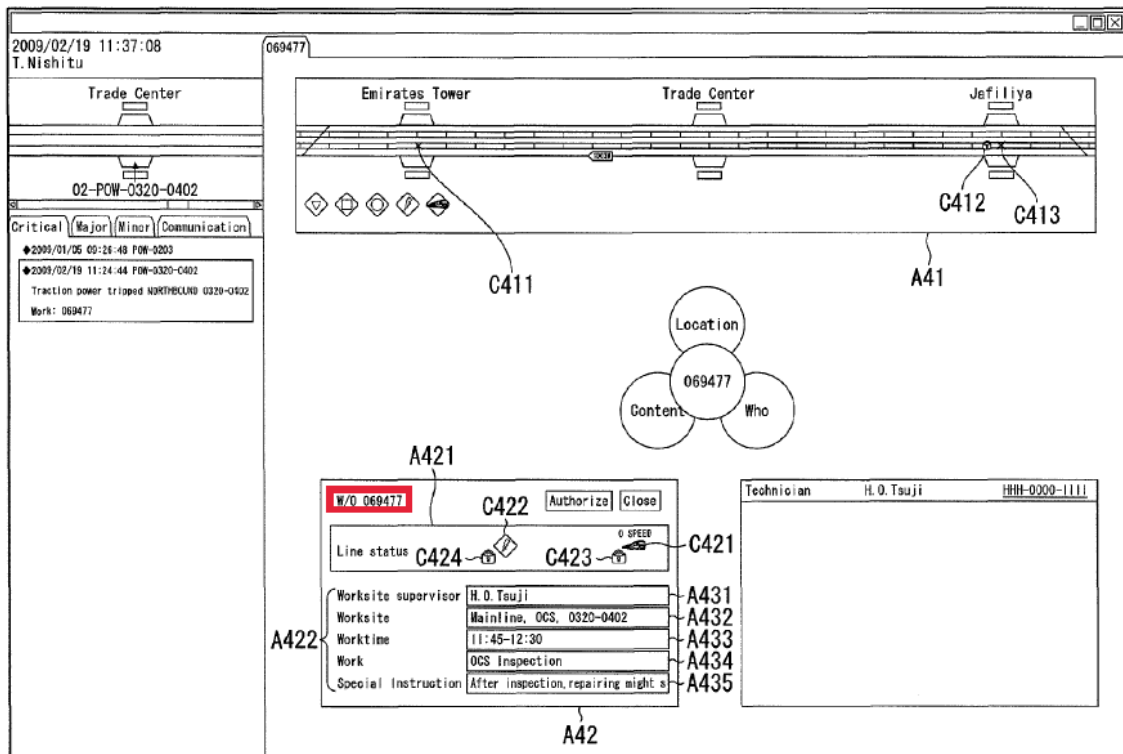
The Petition does not establish a reasonable likelihood that the combination of Tamaribuchi and Pachl discloses the Code Generation Elements. The Petition

does not cite to Pachl at all for this element. *See* Pet. at 58-60. And in any event, Pachl does not disclose this element for the same reasons stated above. *See supra*, Section VI.E.3. According to the Petition, Tamaribuchi's "reference number" discloses this claim element. Pet. at 58. Not so.

The Petition fails to address the proper (or any) construction for "release code." This alone is fatal to the Petition. *Blaze*, IPR2021-01571, Paper 15, 17.

Tamaribuchi's "reference number" is not the claimed "release code" because it is readily available to the dispatcher. Indeed, Tamaribuchi shows that the dispatcher is aware of the reference number at all times. Specifically, Figure 5 (annotated in red below) shows "a screen displayed by a display unit of a central control device." EX1007, ¶[0032]. Fig. 5 clearly shows the reference number (annotated in red below), in full display to the dispatcher (and anyone else with access to the central control device):

FIG. 5



EX1007, Fig. 5 (annotated). This alone is sufficient to deny the Petition.

Thus, the Petition fails to establish a reasonable likelihood that combination of Tamaribuchi and Pacht renders claims 1 and 5 unpatentable.

b. Dependent Claims 2-4, 6-8.

Dependent claims 2-4 each depend from claim 1, and dependent claims 6-8 each depend from claim 5. Thus, the Petition fails on the dependent claims for the same reasons as claims 1 and 5.

G. The Petition Does Not Establish a Reasonable Likelihood that the Combination of Masquelier and Wise Renders Unpatentable Claims 1-8 (Ground 7).

1. The Petition Does Not Establish that a POSITA Would Have Either a Reason to Combine Masquelier with Wise Or an Expectation of Success from the Combination.

Like with Grounds 2-6, the Petition resorts to conclusory assertions, unexplained string citations, and unsupported expert testimony as allegedly providing a motivation to combine. Pet. at 63-64. For example, the Petition asserts that “[a] POSITA would have been motivated to modify Wise with Masquelier because both references are in the field of, and the solve the problem of, railway control for maintenance work.” Pet. at 63. The Petition then includes a string citation, but does not explain how any of the cited portions of the exhibits support the Petition’s conclusion. The Petition further includes numerous conclusory statements that only cite to unsupported expert testimony. For example, the Petition states that “[a] POSITA would further have been motivated to modify Wise with Masquelier’s central control track blocking and unblocking to enhance safety” and “a POSITA would have been motivated to modify Wise with Masquelier’s mobile device with text message communication because such functionality would improve safety for both the worker and central control dispatcher.” Pet. at 63-64. The only citations in support of these statements are to Dr. Michalson’s declaration, which simply parrots the same language in the

Petition. Such conclusory, unexplained, and unsupported assertions fail for the same reasons stated above with respect to Grounds 2-6. *TQ Delta*, 942 F.3d at 1359; *Fujitsu Network Comms., Inc.*, IPR2016-01618, Paper 13, 12.

Thus, the Petition fails to establish a reasonable likelihood that combination of Masquelier and Wise renders claims 1 and 5 unpatentable.

2. The Petition Does Not Establish that the Combination of Masquelier and Wise Discloses All Elements of the Challenged Claims.

a. Claims 1/5.

i. The Combination of Masquelier and Wise Does Not Disclose the Code Generation Elements or the Block Removal Elements.

The Petition fails to establish a reasonable likelihood that the combination of Masquelier and Wise discloses the Code Generation Elements or the Block Removal Elements for the same reasons stated above with respect to Grounds 2-4. *See Supra*, Sections VI.B-D.

b. Dependent Claims 2-4, 6-8.

Dependent claims 2-4 each depend from claim 1, and dependent claims 6-8 each depend from claim 5. Thus, the Petition fails on the dependent claims for the same reasons as claims 1 and 5.

VII. CONCLUSION

For the foregoing reasons, the Petition fails to establish a reasonable likelihood of rendering the Challenged Claims obvious. The Petition should be denied.

Date: October 23, 2023

Respectfully submitted,

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WORD COUNT CERTIFICATION

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner certifies that this Patent Owner Preliminary Response has a total of 13,875 words as counted by Microsoft Word, exclusive of the cover page, table of contents, table of authorities, mandatory notices under § 42.8, certificate of service, word count, appendix of exhibits or claim listing, and signature block (37 C.F.R. § 42.24(a)). The word count includes include all other text, including headings, footnotes, and quotations. This is within the 14,000-word limit allowed under § 42.24(a)(1)(i).

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CERTIFICATE OF SERVICE

I hereby certify that on October 23, 2023, a copy of this Patent Owner Preliminary Response, including all accompanying attachments, appendices, and exhibits, has been served in its entirety via e-mail on Attorneys for Petitioner at the following e-mail addresses:

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