

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SIEMENS MOBILITY, INC., GROUND TRANSPORTATION SYSTEMS USA,
INC., HUMATICS CORP., and PIPER NETWORKS, INC.,

Petitioners,

v.

METROM RAIL, LLC

Patent Owner.

Inter Partes Review No. IPR2023-00468
Patent 9,043,131

PATENT OWNER'S SUR-REPLY

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Statutes

35 U.S.C. § 103	10, 11
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EXHIBIT LIST

Exhibit #	Description
2001	Garcia, Cristina & Lehner, Andreas & Strang, Thomas & Rockl, Matthias. (2007). Comparison of Collision Avoidance Systems and Applicability to Rail Transport. 1 - 6. 10.1109/ITST.2007.4295927.
2002	'131 Claim Chart for Claim 1 (IPR2023-00468)
2003	Declaration of Rajendra A. Chiplunkar in Support of Motion for <i>Pro Hac Vice</i> Admission
2004	Scott Andrews' CV
2005	Scott Andrews Summary of Litigation Experience
2006	LinkedIn page of Scott Andrews
2007	Deposition Transcript of Scott Andrews, taken 8/28/2023
2008	Declaration of James A. Marchi
2009	Declaration of Kurt A. Gunther, P.E.
2010	Resume of Kurt A. Gunther, P.E.
2011	Declaration of Dr. Todor Cooklev
2012	Declaration of Carl Conti
2013	Web page – www.pipernetworks.com, retrieved on September 8, 2023
2014	Photograph of the MTA “Genius Award”, March 2018.
2015	MTA Press Release: MTA Announces 8 Winners of MTA Genius Transit Challenge, 3/9/2018
2016	https://web.archive.org/web/20130602090958/http://metrom-rail.com/aura-collision-avoidance-system and attachment

Exhibit #	Description
2017	https://web.archive.org/web/20210805044759/https://www.pipernetworks.com/asset-tracking-rtls-solutions/
2018	https://web.archive.org/web/20211026212904/https://www.pipernetworks.com/asset-tracking-rtls-solutions/
2019	AURA MOW Product Specification
2020	HELIX MOW Limits Compliance & Collision Avoidance System (LCCAS) Product Specification
2021	AURA-Helix Comparison Chart
2022	Helix Claim Chart
2023	AURA Claim Chart
2024	https://novelda.com/articles/uwb-tech/understanding-ultra-wideband-uwb-technology , retrieved on September 13, 2023
2025	LinkedIn page of David Garcia
2026	Not Used
2027	Declaration of Nathaniel E. Frank-White with Exhibit A
2028	Withdrawn
2029	Withdrawn
Proposed 2030	Piper sales collateral for its systems. Collected at the 2023 “NextGen Signalling” convention on October 26, 2023. Marked at the deposition of Kurt Gunther on November 15, 2023
Proposed 2031	Piper, Helix sales collateral for its systems. Collected at the 2023 “NextGen Signalling” convention on October 26, 2023. Marked at the deposition of Kurt Gunther on November 15, 2023

Exhibit #	Description
Proposed 2032	E-mail dated October 12, 2018, from David Garcia to Himanshu Patel, copying PO's employees.
Proposed 2033	E-mail dated October 12, 2018, from David Garcia to Metrom Rail employees.
Proposed 2034	Photograph of a speaking panel at the 2018 NextGen Train Control conference.
Proposed 2035	Photograph of David Garcia speaking at the 2018 NextGen Train Control conference.
Proposed 2036	Transcript and of David Garcia speaking at the 2018 NextGen Train Control Conference, presenting slides represented in Exhibits 2032 and 2033.
Proposed 2032	E-mail dated October 12, 2018, from David Garcia to Himanshu Patel, copying PO's employees.
Proposed 2033	E-mail dated October 12, 2018, from David Garcia to Metrom Rail employees.
Proposed 2034	Photograph of a speaking panel at the 2018 NextGen Train Control conference.
Proposed 2035	Photograph of David Garcia speaking at the 2018 NextGen Train Control conference.

I. INTRODUCTION

The Response evidence in this IPR shows that no one believed Metrom's inventions would work, Metrom achieved success in the market with the inventions, and then the Petitioners copied the invention. The Reply relies on attorney argument to rebut that evidence. However, attorney argument is not evidence and should be accorded no weight. The challenged claims should be confirmed because for all claims, there is a compelling case regarding the objective indicia of non-obviousness. On multiple grounds the Petitioners *prima facie* case was not shown. The claims should be confirmed.

II. THE CONCLUSORY OPINIONS OF PETITIONERS' SOLE DECLARANT SHOULD BE GIVEN NO WEIGHT

A. The Level of Skill / Person of Ordinary Skill.

Petitioners' Reply regarding the level of skill misses the point and conflates the objective indicia of skepticism regarding the invention and resistance to change in the art with the level of skill analysis. Obviousness is assessed from the perspective of the POSITA. A lower level of ordinary skill in the relevant art favors a finding of non-obviousness. *Innovention Toys, LLC v. MGA Entm't, Inc.* 637 F.3d 1314, 1323 (Fed. Cir. 2011). Petitioners' declarant Mr. Andrews is a professional testifying invalidity expert for IPR petitioners with a high level of skill and professional background in an arguably related art but not the same art to which the claims are directed, and therefore deserves little if any weight. *Sundance, Inc. v.*

Demonte Fabricating, cited by Petitioners, is not helpful to Petitioners – in that case the Federal Circuit reversed a decision to allow testimony on invalidity from an expert (a patent attorney) with no skill in the relevant art. *Sundance*, 550 F.3d 1356, 1540 (Fed. Cir. 2008) (“abuse of discretion to permit a witness to testify . . . unless that witness is qualified in the pertinent art.”). That experts, including technical experts, might have helpful information regarding issues related to the ultimate issue of obviousness, does not advance the analysis regarding the weight to be given Mr. Anderson’s conclusions in the face of contradictory conclusions from witnesses who know the industry and the relevant art.

B. Patent Owner’s Declarants Should Be Credited

There is an odd suggestion that because the lead inventor, Kurt Gunther, made the invention “quickly” despite having no prior background in the industry the invention is more likely to be obvious. Petitioners’ suggestion is contrary to the statute and case law. “Patentability shall not be negated by the manner in which the invention was made.” 35 U.S.C. § 103. Asserting that the invention is not an invention because the inventors came up with it “quickly”, Reply at 2-3, violates this statutory command.

On appeal, the Defendants rely in large part on the inventors' and Otsuka's own development efforts in an attempt to prove that aripiprazole would have been obvious. E.g., Br. Defs.-Appellants Apotex, at 46-47 (arguing that Otsuka's aripiprazole development involved a “short timeline” and only “took a few months”). Those arguments cannot trump the district court's careful fact finding,

however. The inventor's own path itself never leads to a conclusion of obviousness; that is hindsight. What matters is the path that the person of ordinary skill in the art would have followed, as evidenced by the pertinent prior art.

Otsuka Pharm. Co. v. Sandoz, Inc., 678 F.3d 1280, 1296 (Fed. Cir. 2012) (citing 35 U.S.C. § 103); “Furthermore, the path that leads an inventor to the invention is expressly made irrelevant to patentability by statute.” *Life Techs., Inc. v. Clontech Labs., Inc.*, 224 F.3d 1320, 1325 (Fed. Cir. 2000). Finally, the evidence shows that the development of AURA was anything but trivial, involving a multi-million dollar development effort and the custom design of multiple components. Marchi Dep. Tr., Exhibit 1054 at 144:3-145:7; Gunther Dep. Tr. Ex. 1052 at 98:12-102:23. The evidence shows that Metrom’s AURA system is not an assembly of “off the shelf” components.

Finally, Petitioners make a tangential argument that the industry was actually innovative because there were patent applications, numbering in the range of 100 a year, being filed in the patent office for “railway” inventions even though the industry was actually implementing few if any new ideas in that time frame, citing an ad hoc search of the PTO database done by counsel. Exhibit 1061. This pure attorney argument proves too much. An industry that generates 100 or fewer patent applications a year is not an innovative standout or even average given that in 2011,

over 500,000 utility applications were filed¹ in the Office. If the narrative is that the railway industry still had some level of constructive idea generation that the industry is skeptical to implement, that confirms, rather than rebuts, Patent Owner's evidence that the industry is not innovative and resists change in terms of the objective indicia of non-obviousness.

The finding of the Initial Determination regarding Mr. Andrews is not inconsistent with this analysis. The Board did not rule on how much weight would be given Petitioners declarant relative to Patent Owners evidence, which is now in. On the full record, Mr. Andrews' is not representative of any skill level in this art and his declaration deserves little to no weight. *See also* Conti Dep. Tr., Exhibit 1053 at 169:20-170:24; 182:15-23; 191:17-192:14 (testimony by expert with railroad experience more helpful than one without it).

III. PETITIONERS HAVE FAILED TO MAKE A PRIMA FACIE CASE ON MULTIPLE GROUNDS

A. GROUND 2A: Claims 17 and 19 are Not Unpatenable

Claim 17 recites, in relevant part, "a first wireless communications antenna operable to send and receive data representing the separation distance over the air." Regarding claim element 17C, the Petition merely alleged that "likewise, in the

¹ U.S. Patent Statistics Chart, Calendar Years 1963 – 2020, found at https://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (retrieved on 1/23/2024).

transceiver embodiment discussed in relation to claim 1 which achieves substantial economy' by combining the transmitter and receiver, a single antenna 704 is used to send and receive data over the air." However, claim 1 does not recite "send and receive data representing the separation distance over the air." Thus, the Petition failed to establish a prima facie case of obviousness.

In Reply, Petitioners argue that "the only way distance information is displayed is if data representing the separation distance is communicated over the air." Reply at 23 (citing EX1006, 23:32-24:28). As an initial matter, this appears to be an inherency argument never made in the Petition. The Board should decline to consider it. It is also wrong because it is based on a mischaracterization of Grisham. Specifically, the cited portions of Grisham describe the embodiment at FIGS. 21 and 22. Set forth below is Fig. 21 from Grisham.

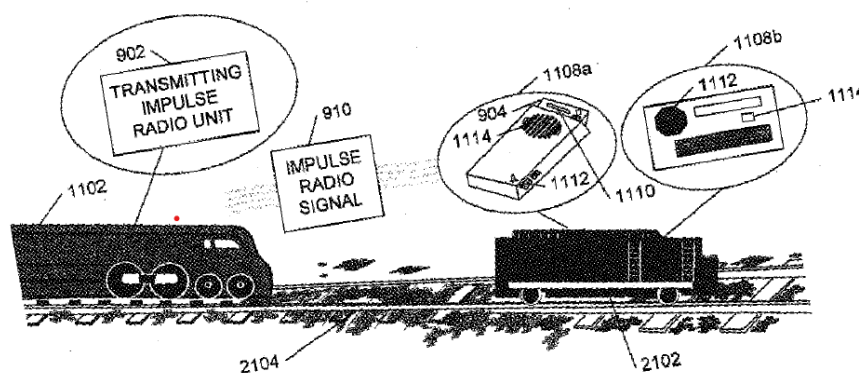


FIG. 21

Grisham explains that "[t]o determine the distance that the first locomotive

1102 is from the second locomotive 2102, a controller 1110 within the receiving impulse unit 904 can use the revolutionary positioning capabilities of impulse radio technology.” EX1006, 23:66-24:3. Thus, in Grisham, the separation distance between the first and second locomotive is determined by the controller in the receiving unit “use the revolutionary positioning capabilities of impulse radio technology.” There is no reason for the Grisham radios “to send and receive data representing the separation distance over the air.”

Petitioners also assert that “the only way distance information is displayed is if data representing the separation is communicated over the air.” Reply at p. 23. Not true. As stated in the prior paragraph, in Grisham, the separation distance between the first and second locomotive is determined by “the revolutionary positioning capabilities of impulse radio technology.” Thus, there is no need to transmit the separation distance. And Mr. Andrews described in his declaration “[a]n example of how UWB-based ranging may be performed using two way time-of-flight (TW-TOF) techniques[.]” Ex. 1003 at ¶¶62-64. The example provided by Mr. Andrews does not include communicating the separation distance over the air.

Petitioners failed to establish that the prior art teaches this aspect of claim 17. The Board should confirm the patentability of claim 17.

Claim 19 depends from claim 17 and is not unpatentable at least because claim 17 has not been shown to be unpatentable.

B. GROUND 2C: Claim 18 is Not Unpatentable

Claim limitation 18B recites “the rail vehicle module is operable to receive calibration information related to a length of the rail vehicle, a mounting location of the first wireless communications antenna, and a mounting location of the second wireless communications antenna.” Petitioners do not dispute that for this element, the Petition merely cross-referenced the arguments made with reference to claims 5-7 and 9 and that the referenced claims do not recite the limitations of claim element 18B. Instead Petitioners claim that “the Petition and Mr. Andrews cross-referenced those claims because a similar analysis applies.” Reply at p. 24. However, the referenced analysis for claims 5-7 and 9 does not identify prior art disclosure of a “rail vehicle module [] operable to receive calibration information related to a length of the rail vehicle, a mounting location of the first wireless communications antenna, and a mounting location of the second wireless communications antenna.” The Reply contends that a POSITA would have understood the benefits of providing calibration information. But this unsupported assertion is made for the first time in Reply. And neither Mr. Andrews analysis for limitation 18B nor the cited prior art discuss calibration information, much less the benefits of calibration information.

C. GROUND 2D: Claim 20 is Not Unpatentable

Claim 20 is not unpatentable at least because it depends from claim 17 which Petitioners have not established is prima facie obvious.

D. GROUND 3A: Claim 17 is Not Unpatentable

Claim limitation 17C recites “a first wireless communications antenna operable to send and receive data representing the separation distance over the air.” The Petition failed to establish that Suzuki alone or in view of Grisham discloses sending and receiving “data representing the separation distance over the air.” The Petition contends that “Suzuki teaches the use of a wireless communications antenna to send and receive data over the air.” Conspicuously missing is any assertion or suggestion that the data communicated over the air “represent[s] the separation distance.” Accordingly, the Petition failed to make a prima facie case of obviousness in the first instance.

To remedy this deficiency, the Reply cites to a previously uncited portion of Suzuki. Reply at 26 (citing Ex. 1005, [0055]). But the portion of Suzuki cited does not recite the quoted text in the Reply. Nevertheless elsewhere, Suzuki explains that “[t]he vehicle-to-vehicle distance measurement part 126 calculates the distance B between two cars from the transmitted location information of other vehicle and its own location information obtained from the location information acquisition part 125.” Ex. 1005, [0016]. Thus Suzuki calculates separation distance. The system in Suzuki need not and does not send and receive “data representing the separation distance over the air.”

The Reply also contends that Grisham discloses transmitting “data

representing the separation distance” between two trains. Reply at p. 26 (citing Ex. 1003, ¶278). As an initial matter, the Petition did not rely on the disclosure of Grisham. The Board should refuse to entertain this argument made for the first time in reply. Further, the cited portion of the Andrews Declaration merely states in conclusory fashion that “[i]t is my opinion that Suzuki alone or alternatively in combination with Grisham, teaches or renders obvious a system having antennas operable to send and receive data wirelessly.” Ex. 1003 at ¶278 (citing *supra* discussion regarding claim element 1b and 1f). However, neither claim element 1b nor 1f recite transmitting “data representing the separation distance” between two trains and this analysis is directed to the wrong limitation. Mr. Andrews’ opinion does not support the Reply and claim 17 should be confirmed.

E. GROUND 3B: Claims 18 and 20 are Not Unpatentable

Claims 18 and 20 are not unpatentable at least because they depend from claim 17 which Petitioners have not established is *prima facie* obvious. Separately, PO explained that “the Petition fail[ed] to establish that the combination of Suzuki, Grisham, and Richardson discloses all the elements of claim 18.” POR at 38. The Reply does not address these arguments. PO submits that Petitioner has waived its right to argue that claim 18 is unpatentable in view of the Ground 3B references.

**IV. THE OBJECTIVE INDICIA OF NON-OBVIOUSNESS SUPPORT
FINDING ALL CLAIMS NOT UNPATENTABLE**

**A. Metrom's Objective Indicia of Non-Obviousness have a Nexus to
the Claims**

Petitioners have presented no cross-examinable evidence to rebut the presumption of nexus and the testimony of Patent Owners four declarants. Petitioners' contention that PO fails to show that AURA practices any claims because Dr. Cooklev did not perform an independent analysis is misguided. Dr. Cooklev independently compared the features of the AURA system to the challenged claims. The results of the comparison were set forth in a separate chart and filed as Exhibit 2023 as was the AURA datasheet that Dr. Cooklev relied on to perform his analysis. (Exhibit 2019). Dr. Cooklev spoke with Mr. Marchi and Mr. Gunther. These conversations also informed Dr. Cooklev's conclusions. Both, Mr. Marchi and Mr. Gunther were subject to cross-examination as was Dr. Cooklev, and their conclusions did not change. Marchi Dep. Tr., Exhibit 1054 at 146:13-147:22; 148:1-20; Gunther Dep. Tr., Exhibit 1052 at 114:22-115:12; 192:6-193:3.

Petitioners also argue that "AURA is not coextensive because it has unclaimed features that are responsible for its alleged success." Reply at 9. Petitioners then recite a list of features from the AURA datasheet and suggest that there is no nexus between the claims and the AURA product because the claims do not recite these alleged unclaimed features. Petitioners' suggestion is misguided. "A patent claim is

not coextensive with a product that includes a ‘critical’ unclaimed feature that is claimed by a different patent and that materially impacts the product’s functionality.” *Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1375 (Fed. Cir. 2019). Petitioners have adduced no evidence to support a conclusion that these unclaimed features are critical, claimed by a different patent, and/or materially affect the AURA system’s functionality. Petitioners do not dispute that the success of the AURA system is substantially because of the patented features, or adduce any declarative evidence that the Helix system is sold on any basis other than as a copy of AURA. That being the case, “[a]n invention may be . . . commercially successful for reasons other than the claimed invention but a nexus may still exist as long as it can be shown that such . . . success is also due in part to the claimed invention.” *Ex Parte Whirlpool Corporation*, Appeal 2013-008232, 15-16 (Oct. 30, 2013) (informative). Finally, “[a] patent challenger cannot successfully rebut the presumption with argument alone—it must present evidence.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1329 (Fed. Cir. 2016). Perfect correspondence is not required, and if Petitioners believed customer demand was driven by other, unpatented features, they had every opportunity to introduce their own evidence, including from their own customer, Amtrak, and did not do so.

B. PO has Established a Long-Felt Need, Unresolved Need and Skepticism

“Evidence of a long felt but unresolved need tends to show nonobviousness

because it is reasonable to infer that the need would have not persisted had the solution been obvious.” *WBIP*, 829 F.3d at 1332. Petitioners’ blanket assertion that “[t]here can be no long-felt, unresolved need where the prior art has resolved the need” is misguided, citing *Nike, Inc. v. Adidas AG*, 955 F.3d 45 (Fed. Cir. 2020). *Nike* involved an unusual procedural posture where the claim had previously been found unpatentable, and the precise need identified by the Patent Owner had been solved by the prior art. Here, the need for a reliable radio based collision avoidance system may have been recognized by the art but objectively, was not met by it. Marchi Dep. Tr., Ex. 1054 at 44:10-17; 45:21-46:9; 48:16-21; 55:8-16; 153:11-154:8; Gunther Dep. Tr., Exhibit 1052 at 79:16-80:8; 174:10-175:4. Petitioners argument is circular – if you assume that their proposed combinations of art would have been made, then the problem would have been solved, because the prior art would have arrived at the invention. The objective history shows the opposite.

Evidence of skepticism² and failure of others abounds and was confirmed on cross examination. The skepticism is highly specific to the invention because much of that was directed to the commercial embodiment of the invention. Gunther Dep.

² Exhibit 1055, new art in Reply, does not help Petitioners any more than any other proffered section 103 reference, is unsupported by any explanatory declaration, on its face, is directed to a CBTC communication application not collision avoidance, and proposes further research not implementation. Exhibit 1055 at 7-8 (Conclusion). Objectively, that work wasn’t done and this proposal is yet another failure by the industry.

Tr., Exhibit 1052 at 36:16-37:4 (failure of the inventor's predecessor); 126:19-127:2; 136:16-137:4; 139:18-141:15; 143:19-144:18; 145:24-146:20; 154:17-156:1 (skepticism), March Dep. Tr., Exhibit 1054 at 46:21-47:14 (failure of others), Conti. Dep. Tr., Exhibit 1053 at 50:4-52:8; 98:10-100:15 (resistance to innovation); 108:20-113:4, 164:18-165:1, 166:14-169:18 (designing for railroad safety adds additional requirements, automotive system would not be used for rail).

C. The AURA System is Commercially Successful

Until Petitioner Piper copied Helix, Patent Owner's AURA system was the only successful, radio based collision avoidance system in the market for any type of railroad equipment. "When a patentee can demonstrate commercial success, usually shown by significant sales in a relevant market, and that the successful product is the invention disclosed and claimed in the patent, it is presumed that the commercial success is due to the patented invention." *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997). Petitioners claim that the relevant market is radio-based collision avoidance systems for rail vehicles, not just MOW equipment. This is a distinction without a difference. The AURA system was "the industry's first ever commercially deployed and successful, terrestrial radio-ranging-based, railroad collision avoidance system." Ex. 2008, ¶19; see also *id.*, ¶22 ("When the AURA CAS was being developed, there were no comparable systems being offered for sale."). Even if the relevant market is rail vehicles, in general, AURA

was the only terrestrial radio-ranging-based, railroad collision avoidance system available for railroads³ until Piper copied the AURA system and Petitioners have not adduced any contrary evidence. Gunther Dep. Tr., Exhibit 1052 at 94:1-18; Proposed Exhibit 2030, Proposed Exhibit 2031.

Petitioners also argue that because “radio-based collision-avoidance systems (including UWB ones) for rail vehicles were known in the art,” “the success [of the AURA system] is not pertinent.” Reply, 8 (citing *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d, 1299 (Fed. Cir. 2006)). *Ormco* is inapposite. First, in *Ormco*, based on lay and expert witness testimony “that commercial success was due to unclaimed or non-novel features of the device” the Federal Circuit held that there was no nexus between the commercial success and the claims. *Id.* at 1312. Here, Petitioners adduced no evidence to rebut PO’s evidence of nexus. Second, in *Ormco*, the prior art reference was an instruction sheet for a prior art device in public use. *Id.* at 1305. In contrast here, the prior art is printed publications asserted for obviousness. Petitioners view is hindsight reconstruction that pre-supposes a lack of nexus by concluding the solution was “known” from the very combination that is the subject of the Petition.

³ The Reply discounts PO’s success based on recent declines in sales, ignoring both the Covid pandemic and that PO is now competing with its own technology copied by Petitioner Piper, part IV.D *infra*.

D. Piper Networks Helix System is a Copy of PO's AURA System

Metrom's evidence of industry praise was not rebutted by Petitioners, and there is no higher praise than imitation. Copying by others in the field is a strong indicator that a patent is not obvious. *E.g., Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1285 (Fed. Cir. 2000). PO accused Piper Networks of copying its AURA CAS when it designed the Helix System. The Reply does not even reference the Helix System. Instead, Petitioners criticize PO for "provid[ing] no direct evidence of copying." Reply at 10. This is disingenuous because Piper Networks opposed PO's motion for additional discovery on copying, opposed PO's motion for supplemental information regarding copying, and forwarded no declarant in Reply to rebut the testimony of PO's declarants that Piper copied and Piper had inside access *via* Mr. Garcia. Marchi Dep. Tr., Exhibit 1054 at 96:9-98:20; 150:18-153:10; 157:8-162:14, Gunther Dep. Tr., Exhibit 1052 at 158:1-172:25; Proposed Exhibits 2032-36. PO's expert compared the AURA System to the Helix System and established similarity of the Helix System to the AURA System. PO also established and Piper Networks does not dispute that Piper Networks' employee, Mr. Garcia, had access to the AURA System. "Evidence of copying may include . . . *direct evidence* such as . . . access and similarity to a patented product." *Liqwd, Inc. v. L'Oreal USA, Inc.*, 941 F.3d 1133, 1137 (Fed. Cir. 2019).

Even assuming PO's evidence is circumstantial, "[c]ircumstantial evidence is

not only sufficient, but may also be more certain, satisfying and persuasive than direct evidence[,]” as is the case here. *Michalic v. Cleveland Tankers, Inc.*, 364 U.S. 325, 330 (1960). For obviousness, “the Federal Circuit has accepted circumstantial evidence to establish copying. *See Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010).

Piper’s filing of a patent application relating to using UWB in a different system using wayside anchors (Exhibit 1056 p.68-69) six months before Mr. Gracia joined Piper is hardly evidence that Piper did not copy the AURA system. Datasheets for the AURA system were publically available as early as 2013. That Petitioners all waited until PO achieved commercial success before imitating PO is additional evidence of skepticism and long felt, unmet need. Second, filing of a patent application is merely evidence of constructive reduction to practice, and there is no testimony linking Exhibits 1056 and 1057 to Helix. The fact that Piper competed for a different project before copying AURA sheds no light on whether Piper copied AURA after hiring Mr. Garcia. Piper’s failure to respond in discovery, resistance to video evidence of Mr. Garcia’s access, and failure to produce Mr. Garcia or any other witness on this topic supports an inference that any evidence Piper could have produced would be unfavorable to Piper under the missing witness rule. “The rule even in criminal cases is that if a party has it peculiarly within his power to produce witnesses whose testimony would elucidate the transaction, the fact that he does not

do it creates the presumption that the testimony, if produced, would be unfavorable.”

Graves v. United States, 150 U.S. 118, 121 (1893).

Petitioners give “the tribute of its praise to the prior art, the tribute of its imitation to the [Patent Owner’s] invention.” *Clements Mfg. Co. v. Regina Corp.*, 34 F.2d 931, 935 (2d Cir. 1929) (paraphrasing *Diamond Rubber Co. v. Consol. Rubber Tire Co.*, 220 U. S. 428 at 441 (1911)). The claims should be confirmed.

**V. ALL CLAIMS ARE NOT UNPATENTABLE IN VIEW OF THE
CORRECT LEVEL OF SKILL AND THE OBJECTIVE INDICIA OF
NON-OBVIOUSNESS**

A. GROUND 1A: Independent Claim 1 is Not Unpatentable

Petitioner’s assertion that “Metrom all but admits that independent claim 1 is *prima facie* obvious” is misguided. Ground 1A alleges obviousness over Grisham. Although “a patent can be obvious in light of a single prior art reference[,]” a challenger must nevertheless establish that “it would have been obvious to modify that reference to arrive at the patented invention.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016); *see also B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582 (Fed. Cir. 1996). Neither the Petition nor the Reply articulated a motivation to modify Grisham (Ground 1A) to arrive at the claimed invention. Additional references and combinations proposed by Petitioners for Grounds 1D, 1E, 2E, and 2F and other similar arguments for dependent claims (see e.g. Grounds 1C, 1F, 2B, 3C, 3D, 3E, and 3F) underscore the point: Petitioners must

combine up to four references to arrive at the claimed invention when what actually happened is Petitioner Piper copied PO's commercial embodiment only after PO achieved commercial success.

B. GROUND 1B: Claims 2-4 are Not Unpatentable

As an initial matter, the Reply does not address PO's argument that "[k]nowing the track and direction of travel is insufficient to *track the location* of the train on that track." Instead, the Reply argues that storing absolute and relative locations of the trains are not required by the claims. While that may be true, Petitioners do not even attempt to explain how Douglas "track[s] the location" of a train. PO's assertion that Douglas "can track" the location of a train is a tacit admission that Douglas does not track the location of a train. Petitioner did not explain how a POSITA would modify Douglas to track the location of a train.

In Reply, Petitioners argue for the first time that Douglas "tracks a list of links (104, 106, etc.) to be traversed by, and the direction of motion of each train (D0 and D1), which together *constitutes* the location of a train."⁴ Reply at 13 (emphasis added). A prospective list of tracks *to be traversed* in the future cannot constitute the location of a train. Recognizing that Douglas does not explicitly disclose an embodiment that "tracks the location" of a train, Petitioners now argue that the

⁴ The Petition argued that "[b]ecause list of links to be traversed by and the direction of motion of each train disclose the path of trains, a POSITA *would understand* Douglas's station-based apparatus tracks the location of the trains."

figures and descriptions “suffice as a disclosure of the claimed limitation.” However, neither the Petition nor the Reply explain how the figures and descriptions sufficiently disclose “track[ing] the location” of a train.

Petitioners’ argument that the challenged claims do not require “any particular precision location information” is misguided for several reasons. First, claim 2 recites that “the central tracking unit is operable to track a location of *the first vehicle mounted module and a location of the second vehicle mounted module[.]*” (emphasis added). It is unreasonable to equate a list of links that will be traversed by a train to the location of a module mounted on the train. Second, the claimed CTU is part of the CAS recited in claim 1. The patent explains that the CAS is capable of *precisely tracking the location* of vehicles. Ex. 1001 at 21:32-33; see also 29:16-19 (“The multi-sensor approach of the collision avoidance system described above, allows for precise tracking of vehicles in these situations.”). Thus, the patent contemplates precise tracking of vehicles. Third, the patent discloses using UWB and GPS sensors to provide location information. These modalities provide precise location and separation information.⁵ Douglas is directed to an entirely different problem – setting up switches for an interlocking.

Finally, neither the Petition nor the Reply articulate a reasonable expectation

⁵ Although GPS is accurate within 10 to 15 feet, the location information a GPS sensor provides is precise coordinates. See Ex. 1001 at 18:56-57.

of success at arriving at the claimed inventions of claims 2-4.

C. GROUND 1C: Claims 5-6 are Not Unpatentable

Richardson does not suggest using its invention on trains. Mr. Andrews relies wholly on hindsight to arrive at the claimed inventions of claims 5 and 6. The Reply also makes the quixotic argument that the claim language does not require a mile-long offset. Petitioners argued that “POSITAs would have understood that the trains contemplated by Grisham can be quite long (*e.g.*, over a mile) and thus that distance calculations at one point on the train would not adequately avoid collisions at other points on the train (such as the end of the train potentially over a mile away).” Pet. at 26. According to Petitioners, “[b]ecause of this, POSITAs would have been motivated to supplement Grisham’s single-UWB-transceiver-based system with other vehicle proximity detection systems, including Richardson’s use of multiple UWB transceivers that can account for the length of a train, particularly to prevent collisions at both the front and rear of the trains.” *Id.* PO merely pointed out the fallacy of Petitioners argument.

D. GROUND 1D: Claim 10 is Not Unpatentable

Petitioner agrees with PO that without knowing the velocities of the local and remote vehicles it is impossible to implement McDaniel’s adaptive threshold feature that Petitioner applies to claim 10. Reply at 17 (“minimum threshold warning distance feature of McDaniel . . . is based on velocities of local and remote

vehicles.”) In response to PO’s contention that McDaniel does not compute velocities, Petitioner argues that “Grisham already determines the speed of rail vehicles” and a POSITA would add McDaniel’s minimum threshold warning distance feature of McDaniel. But speed and velocity are different concepts. *See e.g.*, <https://en.wikipedia.org/wiki/Velocity>.

In response to PO’s contention and Mr. Andrews’ admission that “the ‘adaptive threshold feature’ would [not] be able to selectively disregard situations where a train is merely nearby, but not at risk of collision,” Petitioners argue there “would be sufficient motivation to combine Grisham and McDaniel” because “McDaniel eliminates some nuisance alarms.” Reply at 19. Petitioners miss the point. Because McDaniel cannot discriminate between a true threat *i.e.*, trains on same track, and a false threat, *i.e.*, trains on different tracks, an operator is left guessing whether an alarm is a real alarm or a nuisance alarm. And although claim 10 does not does not require a system to distinguish true threats from false threats, the issue is not what motivated the inventor, but rather whether a POSITA would have been motivated to make the combination. Petitioners argued that a POSITA thus would have been motivated to incorporate McDaniel’s adaptive threshold warning system “to avoid nuisance alerts to the operator.” Pet. at 30. PO conclusively established that McDaniel in combination would Grisham would eliminate no nuisance alarms. The Petition “simply [took] the inventor’s disclosure

as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.” *Ecolochem, Inc. v. S. California Edison Co.*, 227 F.3d 1361, 1371–72 (Fed. Cir. 2000).

The Reply attempts to cure the deficiencies of the combination by arguing that features like track databases or Douglas’ location tracking, could solve the nuisance alarm problem. These arguments were never made in the Petition, the Reply does not identify any portion of Douglas that discusses location tracking in a way that would implicate an adaptive warning, and new Exhibit 1060 (Hawthorne, circa 2002) is even farther afield, having nothing to do with collision avoidance. All this reinforces the objective indicia which are that no one actually made the combination until the PO did years later.

E. GROUND 2A: Claims 7-9 are Not Unpatentable

Petitioners rely on an FCC report to dispute PO’s contention that a POSITA would not be motivated to combine UWB and GPS because the conventional belief at the time of the invention was that UWB would interfere with GPS. Reply at 20 (citing Ex. 1059, 67). In particular, Petitioners’ attorney cherry pick a portion of a sentence from this report and suggest that because “the FCC announced that emission limits for UWB ‘were found to be more than sufficient to protect GPS from harmful interference,’” a POSITA would not be dissuaded from combining GPS and UWB. Reply at 20 (citing Ex. 1059, 67). Petitioners’ argument is misleading. The

FCC report found that reducing the operating power levels of UWB “from 12 to 34 dB below the Part 15 general limits, were found sufficient to protect GPS from harmful interference.” Ex. 1059, 67. As an initial matter, the FCC report recognized that operating at lower powers would only “protect GPS from *harmful* interference.” The FCC report does not suggest that operating at low power would “protect GPS from ~~harmful~~ interference.” This distinction is critical because a POSITA would not be motivated to combine technologies for a collision avoidance system for railroads, if the technologies interfered with each other since such interference would impair the ability of the system to reliably avoid collisions and would be unpredictable. Second, reducing the operating power level to avoid interference with GPS would further reduce the already limited range of UWB. Cross examination confirmed that interference was a concern in the industry years after Exhibit 1059. Gunther Dep. Tr., Exhibit 1052 at 139:18-146:20; Conti Dep. Tr., Exhibit 1053 at 117:10-23.

Mr. Andrews stated that “[s]ince Grisham’s collision avoidance system includes train to train communications using UWB, the trains GPS data (absolute location) may be communicated to the other vehicle and used to determine if a separation distance has been violated in a manner which requires an alarm condition.” Ex. 1003, ¶183. In response to PO’s argument that none of the cited references disclose communicating GPS locations via UWB, Petitioners contend that “a POSITA . . . knew how to allow a GPS unit to share the absolute location of

the first train to the first train's controller, and then the controller would direct the radio units to communicate the location as in Grisham." Reply at 20 (citing Petition, 37; EX1003, ¶¶173-79). However, none of the references teaches communicating the GPS location.

Finally, Petitioners do not meaningfully respond to PO's argument that given the limited range of UWB, a POSITA would not be motivated to communicate GPS over UWB because by the time GPS locations can be exchanged over UWB, the trains would be in close proximity to each other, making the redundancy of GPS meaningless.

VI. CONCLUSION

The Board does not need to engage in the hypothetical exercise of whether or not these claims "would have been obvious" at the time of the invention. The objective evidence is that they were not obvious and that should be the end of the inquiry. Regardless, viewed through the eyes of the correct POSITA, Petitioners have also objectively failed to make out their case on the challenged claims and all claims should be confirmed.

Respectfully submitted,

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Dated: January 26, 2024

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CERTIFICATE OF SERVICE

I certify that the Patent Owner's Sur-Reply was served on January 26, 2024

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CERTIFICATE OF WORD COUNT

Under 37 C.F.R. § 42.24(d), the undersigned attorney for the Patent Owner, Metrom Rail, LLC, declares this Patent Owner's Sur-Reply has 5,479 words, according to Microsoft Word® word count tool, excluding the parts exempted by 37 C.F.R. § 42.24(a)(1).

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