

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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WESTINGHOUSE AIR BRAKE TECHNOLOGIES CORPORATION  
Petitioner

v.

SIEMENS MOBILITY, INC.  
Patent Owner

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CASE: IPR2017-01454  
U.S. PATENT NO. 6,978,195

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**PETITIONER'S OPPOSITION TO PATENT OWNER'S MOTION TO  
EXCLUDE EVIDENCE PURSUANT TO 37 C.F.R. §42.64(c)**

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**List of Exhibits**

- Ex. 1001: U.S. Patent No. 6,978,195 (“195 Patent”), filed October 14, 2004, issued December 20, 2005.
- Ex. 1002: Declaration of Samuel Phillip Pullen, Ph.D.
- Ex. 1003: *Curriculum vitae* of Samuel Phillip Pullen, Ph.D.
- Ex. 1004: Prosecution History of U.S. Patent No. 6,978,195.
- Ex. 1005: Report of the Railroad Safety Advisory Committee to the Federal Railroad Administrator, *Implementation of Positive Train Control Systems* (August 1999) (“RSAC”).
- Ex. 1006: Burns et al., “Safety and Productivity Improvement of Railroad Operations by Advanced Train Control Systems,” *Proceedings, Technical Papers Presented at the 1989 IEEE/ASME Joint Railroad Conference*, April 25-27, 1989 (“Burns”).
- Ex. 1007: Monfalcone et al., “Safety Modeling of a Direct Traffic Control (DTC) Train Control System Using the Axiomatic Safety-Critical Assessment Process (ASCAP),” *Annual Reliability and Maintainability Symposium, 2001 Proceedings, the International Symposium on Product Quality and Integrity (Cat. No.01CH37179)*, January 22-25, 2001 (“Monfalcone”).
- Ex. 1008: Reserved.

- Ex. 1009: Federal Railroad Administration, Report to Congress (July 1994) (*“FRA Report”*).
- Ex. 1010: ARES Operators Manual, Rockwell Int’l, Operators Manual for Advanced R.R. Elecs. Sys. For Burlington Northern R.R., (June 1, 1987) (*“ARES”*).
- Ex. 1011: Judge et al., “BNSF/UP PTS pilot advances in Northwest,” *Progressive Railroading*, May 1996 (*“Judge”*).
- Ex. 1012: U.S. Patent No. 6,044,673 to Jefferson, filed November 11, 1998, issued April 4, 2000 (*“Jefferson”*).
- Ex. 1013: General Code of Operational Rules (April 2, 2000) (*“GCOR”*).
- Ex. 1014: U.S. Patent No. 5,564,657 to Dimsa et al., filed November 16, 1994, issued October 15, 1996 (*“Dimsa”*).
- Ex. 1015: U.S. Patent No. 5,787,371 to Balukin et al., filed August 15, 1997, issued July 28, 1998 (*“Balukin”*).
- Ex. 1016: Affidavit of Christopher Butler, Office Manager at the Internet Archive, regarding Archive.org information about the URL, <https://web.archive.org/web/20010705192331/http://www.bnsf-ttc.com/bnsftime/GCOR0400.pdf>, and attached printout of the pdf file at that URL (Ex. A).
- Ex. 1017: Prosecution History of U.S. Patent No. 5,177,684.

- Ex. 1018: Deposition Transcript of John Loud dated June 5, 2018.
- Ex. 1019: Excerpts from the June 1, 2018 deposition of John D. Loud in the District of Delaware, Case No. 1:17-cv-01687-LPS-CJB.
- Ex. 1020: Excerpts from the December 12, 2017 deposition of Samuel Phillip Pullen, Ph.D., in IPR2017-00981 (U.S. Patent No. 7,092,801).

Pursuant to 37 C.F.R. § 42.23, Petitioner hereby opposes Patent Owner's Motion to Exclude Exhibit 1002. (Paper 26, Mot. Excl.).

## **I. INTRODUCTION**

Patent Owner moves to exclude Exhibit 1002 under Federal Rules of Evidence ("FRE") 702 and 402/403. (Mot. Excl. at 1). As movant, Patent Owner has the burden of showing that an exhibit is not admissible under the Federal Rules of Evidence. 37 C.F.R. § 42.20(c). Patent Owner has failed to meet its burden regarding admissibility of Exhibit 1002, so its Motion to Exclude should be denied.<sup>1</sup>

## **II. THE BOARD SHOULD NOT EXCLUDE EXHIBIT 1002**

### **A. Exhibit 1002 Contains Proper Expert Testimony Under FRE 702**

Patent Owner seeks to exclude Dr. Pullen's declaration under FRE 702 because Patent Owner claims that he "lacks the requisite experience to qualify as an expert in the field of train operations or train control systems, or to be able to opine as to the knowledge or understanding of a POSITA at the time of the '195 Patent's earliest filing date." (Mot. Excl. at 2). Patent Owner gives little weight to Dr. Pullen's "twenty years of experience in the field of transportation safety and control systems" since only his "last three years" were "specifically focused on

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<sup>1</sup> It should be noted that Patent Owner does not dispute Dr. Pullen's credentials if Dr. Pullen's definition for the level of skill in the art (Ex. 1002, ¶ 46) is adopted.

train safety and control systems.” (Mot. Excl. at 4).

The Board has found that “[t]o testify as an expert under FRE 702, a person need not be a person of ordinary skill in the art, but rather may be ‘qualified in the pertinent art.’” *Nestlé Healthcare Nutrition, Inc. v. Steuben Foods, Inc.*, IPR2015-00249, Paper 76 at 23-24 (PTAB June 2, 2016) (citing *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1363–64 (Fed. Cir. 2008)). The Board has also held that “complete overlap between a witness’s technical qualifications and the field of the invention is not necessary for the witness’s testimony to be admissible under Federal Rule of Evidence 702.” *Carefusion Corp. v. Baxter Intl., Inc.*, IPR2016-01463, Paper 38 at 18-19 (PTAB January 2, 2018) (citing *SEB S.A. v. Montgomery Ward & Co., Inc.*, 594 F.3d 1360, 1372-73 (Fed. Cir. 2010)). Even where an expert concedes that he or she is not skilled in the art, it is permissible to admit the opinion of such an expert into evidence. *See Mytee Prods., Inc. v. Harris Research, Inc.*, 439 F. App’x 882, 886-87 (Fed. Cir. 2011) (non-precedential) (upholding admission of the testimony of an expert who “had experience relevant to the field of the invention,” despite admission that he was not a person of ordinary skill in the art).

Dr. Pullen has extensive experience in transportation control systems and has focused on train control systems specifically for the past few years. (Ex. 1002 at ¶¶7-17). In a prior deposition for a related IPR, Dr. Pullen explained that he has

“more than six years of experience related to *transportation control*, of which train control is a subset, and it’s more than sufficient to understand the train control involved in the prior art.” (Ex. 1020 at 47:4-8) (emphasis added). As Dr. Pullen explained in his deposition in the present proceeding, train control systems were relevant to his prior work in avionics “in connection with automatic flight control, and as an independent -- really more as an independent means of using differential GPS in an automated system to operate safely.” (Ex. 2006 at 86:9-16). Dr. Pullen’s CV indicates that he “started working specifically on train control in 2011.” (Ex. 1020 at 48:15-17; *see also* 47:14-17). Dr. Pullen’s proposed definition of a POSA and Petitioner’s proposed definition of a POSA only required three (3) years of experience, which was why Dr. Pullen specifically outlined that amount of experience in his declaration. Furthermore, the ‘195 Patent itself defines each term that has domain-specific meaning such as “main line track,” “yard,” “circulation authority,” and “track warrant.” (*See* Ex. 1001 at 1:15-17, 1:31-40, 9:15-45). To the extent that train-specific terminology is required, the ‘195 Patent informs the reader how those terms should be interpreted.

Patent Owner argues that Dr. Pullen’s experience “in general terms” with train control systems prior to 2002, and his experience with transportation control systems over the past twenty years, are irrelevant to “*train control*” and “*train-related technology*” because they are technical matters that require “requisite skill



in the art.” (Mot. Excl. at 4). As discussed above, Dr. Pullen has been specifically working with train control systems since 2011 and has more than 20 years of experience with transportation control systems having substantially more degrees of freedom than the relatively simple train control systems (and their one degree of freedom) at issue here. And he had no trouble understanding the pertinent concepts at issue in this proceeding. Indeed, Dr. Pullen reviewed the ‘195 Patent itself, which provides explanation of the specific authorities addressed in the claims, as well as numerous references from 2002 and earlier for this IPR and other related IPRs, including *RSAC*, which describes the state of the art in 1999 and gives an overview of known train control systems. (*See generally* Ex. 1005). Dr. Pullen also reviewed and analyzed *GCOR* which contains the operating rules for railroads in the United States and is dated April 2, 2000. (Ex. 1013, 1). Finally, given that Mr. Loud concedes that each of the claimed authorities was known in the prior art, the dispute is around combinability of references, not the existence of the claim limitations in the art. (Reply at 14; Ex. 1018, 9:8-10:1, 11:1-9; *see also* 43:15-44:1). Dr. Pullen’s years of experience with transportation control systems makes him more than capable to interpret the rules of *GCOR* and apply the information in the prior art references and combinations, even if Patent Owner’s definition of “skill in the art” is adopted. (*See e.g.*, Ex. 1002 at ¶¶58-68, 87).

Patent Owner believes an expert must have “specialized knowledge” of

“railroad technologies existing as of July 2, 2002,” and that knowledge of *transportation* control systems, which encompasses the narrower area of train control systems, is not sufficient. (Mot. Excl. at 4-5). Patent Owner’s reliance on *Sundance* for this proposition is misguided. In *Sundance*, the Court excluded an expert in patent law who had no technical experience whatsoever. *See Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361-62 (Fed. Cir. 2008) (“Unless a patent lawyer is also a qualified technical expert, his testimony on these kinds of technical issues is improper and thus inadmissible.”). Dr. Pullen has a Ph.D. in Aeronautics and Astronautics, many years of experience with transportation control systems, and more recently, experience with train safety and control systems. (Ex. 1002 at ¶7). His technical experience is relevant to the “*pertinent art*.”

Patent Owner argues that “the authorities governing movement of trains referred to in the ’195 Patent claims are uniquely railroad-specific.” (Mot. Excl. at 8). As discussed above, Dr. Pullen has recent experience with railroad-specific applications. He has also reviewed *GCOR* in detail, which is a set of operating rules for railroads in the United States dated April 2, 2000, and has applied those operating rules to his vast knowledge of control systems in this proceeding. (*See* Ex. 1002 at ¶¶58-68, 87). Furthermore, Dr. Pullen was not asked to give fact testimony or opinions about systems *known to him* in 2002; he was asked to

review the prior art references and give an opinion on what was disclosed based on his experience with transportation control systems. (Ex. 1002 at ¶¶3-5, 92, 108). And last, as noted above, Mr. Loud does not dispute that the governing authorities were part of the prior art, so Patent Owner's analysis misses the mark.

Patent Owner previously objected to Dr. Pullen in a related proceeding, so Petitioner preemptively addressed why Dr. Pullen's testimony was relevant in its Reply to Patent Owner Response. (Paper 23, Reply at 7). Patent Owner inaccurately interpreted Petitioner's comments regarding the construction of "circulation authority" as an admission that Dr. Pullen's testimony is to be disregarded. (*See* Mot. Excl. at 10 *citing* Reply at 7). The key point, which remains, is that Patent Owner has failed to demonstrate where Dr. Pullen's opinions are called into doubt or why Dr. Pullen's vast experience with transportation control systems is insufficient to give opinions on circulation authorities which are part of the prior art. (Reply at 7).

Dr. Pullen is qualified to give expert testimony in this proceeding, and Patent Owner's arguments to the contrary are incorrect. Patent Owner has therefore failed to carry its burden.

**B. Exhibit 1002 Is Relevant Under FRE 402/403**

Patent Owner seeks to exclude Dr. Pullen's declaration under FRE 402/403 because Patent Owner claims that "the limited probative value of Dr. Pullen's

testimony, if any, is outweighed by the danger of confusion of the issues to be determined in this proceeding.” (Mot. Excl. at 1). Patent Owner further argues that the factfinder could be confused by Dr. Pullen’s testimony and that allowing it in would “effectively allow speculation to masquerade as expert testimony.” (Mot. Excl. at 9).

Patent Owner is incorrect that Dr. Pullen’s testimony is improper expert testimony. As discussed above, Dr. Pullen has years of experience with transportation control systems including most recently train control systems. Patent Owner argues that Dr. Pullen’s testimony regarding the state of the art and the knowledge of a POSA is “necessarily infected with impermissible hindsight.” (Mot. Excl. at 9). Patent Owner ignores Dr. Pullen’s numerous citations to the background of the ‘195 Patent which describes the known prior art. (Ex. 1002 at ¶¶40-41, 44). The Board has correctly relied upon those admissions regarding the state of the art in its Intuition Decision. (See Paper 11, Decision at 12-13, 18-19). As stated above, Dr. Pullen is not testifying as to his personal knowledge in 2002 and his declaration includes numerous citations to documentary evidence.

Even if the Board concludes that Dr. Pullen’s testimony should be accorded less than full weight, the probative value of Dr. Pullen’s testimony in explaining the prior art to the Board substantially outweighs any risk that the Board will be confused by the issues. For example, Dr. Pullen describes how *GCOR* discloses

the use of different authorities to coordinate train movement in different areas of track. (Ex. 1002 at ¶¶94-95, 99). Dr. Pullen also gives a detailed explanation as to why and how a POSA would combine the teachings in *Burns* and *Monfalcone* regarding the communication of authority and requiring receipt before movement is allowed. (Ex. 1002 at ¶¶112-114). These explanations by Dr. Pullen aid the Board in determining that all the ‘195 Patent’s claim elements are disclosed by the teachings of the printed prior art references. Thus, the probative value is high and the danger of confusion is nonexistent, so Patent Owner’s arguments fail.

Patent Owner gives this panel far too little credit. The Board is more than capable of determining the appropriate weight to give to Dr. Pullen’s testimony and will not be confused by the issues presented. *See Mobotix Corp., v. Comcam International, Inc.*, IPR2015-00093, Paper 22 at 3 (PTAB Apr. 28, 2016) (“Similar to a district court in a bench trial, the Board, sitting as a non-jury tribunal with administrative expertise, is well-positioned to determine and assign appropriate weight to evidence presented.”); *see also Laird Techs., Inc. v. GrafTech Int’l Holdings, Inc.*, IPR2014-00025, Paper 45 at 42 (PTAB March 25, 2015) (citing *Donnelly Garment Co. v. NLRB*, 123 F.2d 215, 224 (8th Cir. 1941) (“One who is capable of ruling accurately upon the admissibility of evidence is equally capable of sifting it accurately after it has been received ....”); *Primera Tech., Inc., v. Automatic Mfg. Sys., Inc.*, IPR2013-00196, Paper 50 at 30 (PTAB July 17, 2014)

(The Board held that “[w]e are capable of discerning from the testimony, and the evidence presented, whether the witness’ testimony should be entitled to any weight, either as a whole or with regard to specific issues.”). Accordingly, FRE 403 provides no obligation to exclude Dr. Pullen’s testimony.

Thus, Patent Owner’s arguments pertaining to the alleged inadmissibility of Exhibit 1002 under FRE 402/403 are unavailing.

### **III. CONCLUSION**

Patent Owner’s arguments are an attempt to end-around a finding of invalidity on a patent whose claims are plainly nothing more than a combination of elements Patent Owner’s expert himself admits were in the prior art long before the filing of the ‘195 Patent. The Board should see Patent Owner’s attempt for what it is, and should deny Patent Owner’s Motion to Exclude Exhibit 1002.

Respectfully submitted,

Dated: July 27, 2018

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## **CERTIFICATE OF SERVICE**

I hereby certify that on July 27, 2018, a true and correct copy of the foregoing was caused to be served electronically on the following counsel of record for Patent Owner at the following email addresses:

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