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Paper 12
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WESTINGHOUSE AIR BRAKE TECHNOLOGIES CORPORATION
(d/b/a WABTEC CORPORATION),
Petitioner,

v.

SIEMENS INDUSTRY, INC.,
Patent Owner.

Case IPR2017-00584
Patent 8,714,494 B2

Before KRISTEN L. DROESCH, MEREDITH C. PETRAVICK, and TIMOTHY J. GOODSON, *Administrative Patent Judges.*

DROESCH, *Administrative Patent Judge.*

DECISION

Denying Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

Westinghouse Air Brake Technologies Corporation (d/b/a Wabtec) ("Petitioner") filed a Petition (Paper 2, "Pet.") for *inter partes* review of claims 1, 2, 5, 10, 11, 14, 17, and 18 ("the challenged claims") of U.S. Patent No. 8,714,494 B2 ("the '494 Patent"). *See* 35 U.S.C. §§ 311–312. Siemens Industry, Inc. ("Patent Owner") timely filed a Preliminary Response (Paper 10, "Prelim. Resp.").

We have authority under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. An *inter partes* review may not be instituted unless it is determined that "the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a).

After considering the Petition, for the reasons provided below, we determine, based on the record before us, there is not a reasonable likelihood Petitioner would prevail in showing claims 1, 2, 5, 10, 11, 14, 17, and 18 are unpatentable.

B. Related Matters

The parties indicate the '494 Patent is asserted in *Siemens Industry, Inc. v. Westinghouse Air Brake Technologies Corporation et al*., Case No. 1:16-cv-00284 (D. Del.). Pet. 15; Paper 4, 2; Paper 6, 2.

Petitioner indicates two petitions for *inter partes* review were filed for related U.S. Patent No. 9,233,698, Case Nos. IPR2017-00580 and IPR2017-00581. Paper 4, 2; Paper 6, 2.

C. The ’494 Patent (Ex. 1001)

The ’494 Patent discloses a railway vital application system and method that substitutes commercial off-the-shelf (COTS) hardware and/or software for railway-domain specific product components, yet validated to conform with railway vital system failure-free standards. Ex. 1001, Abstract, 2:46–52.

Figure 4 of the ’494 Patent is reproduced below:

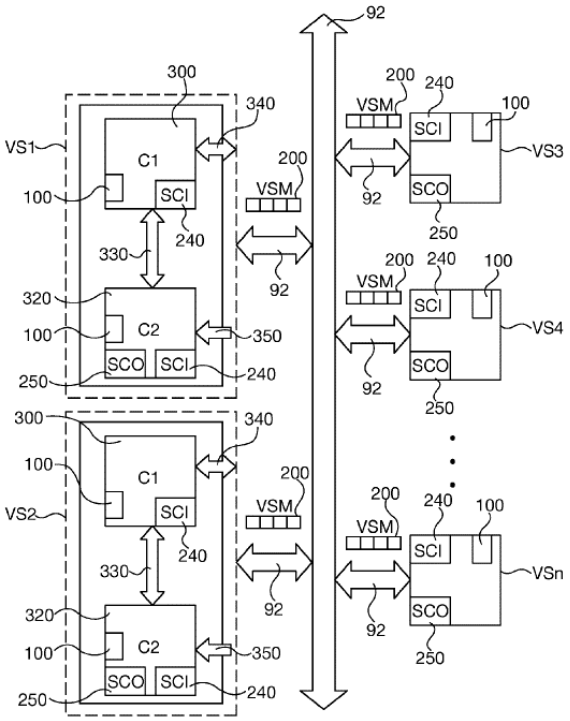

Figure 4 depicts a schematic diagram of computer controllers for train vital system control systems. *See* Ex. 1001, 4:19–21. Vital system controllers VS1 and VS2 each comprise paired set of controllers C1 300 and C2 320 in bilateral communication with each other via intercontroller data bus 330. *See id*. at 7:11–14. Controller C1 300 is capable of bilateral communication with critical system data bus 92 through communications pathway 340. *See id*. at 7:34–36. Controller C1 300 has incoming security code verification module 240 enabled to verify data integrity of incoming

input vital systems message (VSMI). *See id*. at 7:38–40. VSMIs include critical input data (DI) and an input security code (SCI) generated by known check-sum, hash, etc., protocols. *See id*. at 6:51–62. Controller C1 300 does not have the capability to generate an output vital systems message (VSMO) output security code (SCO). *See id*. at 7:40–41. Controller C2 320 has an enabled SCO generator module 250, but is incapable of transmitting SCO and critical output data (DO) directly to critical system data bus 92. *See id*. at 7:42–45. Controller C2 320 is only capable of transmitting the SCO to controller C1 300 via intercontroller data bus 330. *See id*. at 7:45–46. Controller C2 320 is only capable of receiving VSMI through unilateral incoming communications pathway 350 and can verify data integrity with SCI verification module 240. *See id*. at 7:46–49.

Figure 6 of the ’494 Patent is reproduced below:

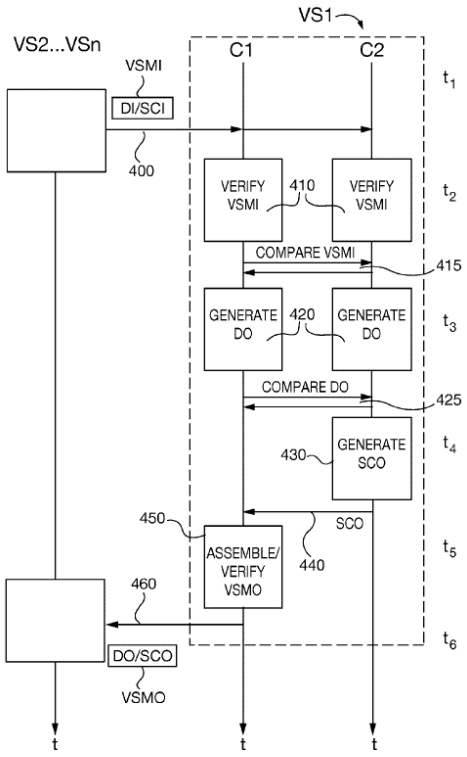

Figure 6 depicts a timing diagram showing processing steps performed by the vital systems control system. *See* Ex. 1001, 4:22–27. In step 400 at time t1, one of vital systems VS2–VSn sends VSMI to VS1 comprising DI and SCI to controllers C1 and C2. *See id*. at 7:61–63. In step 410 at time t2, both C1 and C2 verify the VSMI data integrity, and in step 415 C1 and C2 compare verification results. *See id*. at 7:63–64. In step 420 at time t3, C1 and C2 both generate DO in response to DI. *See id*. at 7:63–65. In step 425, C1 and C2 compare DO. *See id*. at 8:15–17. In step 430 at time t4, C2 generates SCO, and in step 440, C2 sends SCO to C1. *See id*. at 7:65–67. In step 450 at time t5, C1 assembles and optionally verifies DO provided by C2 with its own generated DO before transmitting VSMO through critical systems data bus 92 to other vital systems in step 460 at time t6. *See id*. at 7:67–8:4.

D. Illustrative Claim

Of the challenged claims, claims 1, 10, and 17 are independent, with claims 2 and 5 dependent from claim 1, claims 11 and 14 dependent from claim 10, and claim 18 dependent from claim 17. Claim 1 is illustrative and is reproduced below:

> 1. A control system for a railway vital application system, comprising:
>
> a first controller having an external bilateral communications interface capable of sending and receiving a vital systems message within a railway vital application system, the message including a security code and vital data;
>
> a second controller having an external communications interface capable of receiving a vital systems message, but incapable of sending a vital systems message that is generated within the second controller, the second controller having a security code generator; and

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