

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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BMW OF NORTH AMERICA, LLC,

Petitioner

v.

STRAGENT, LLC,

Patent Owner

Case IPR2017-00676

U.S. Patent 8,209,705

**PATENT OWNER'S NOTICE OF APPEAL**  
**35 U.S.C. § 142 & 37 C.F.R. § 90.2**

Pursuant to 37 C.F.R. § 90.2(a), Patent Owner, Stragent, LLC, hereby provides notice of its appeal to the United States Court of Appeals for the Federal Circuit for review of the Final Written Decision of the United States Patent and Trademark Office (“USPTO”) Patent Trial and Appeals Board (“PTAB”) in Inter

Partes Review IPR2017-00676, concerning U.S. Patent 8,209,705 (“the ‘705 Patent”), entered on June 13, 2018, attached hereto as Appendix A.

### **ISSUES TO BE ADDRESSED ON APPEAL**

- A. Whether the PTAB erred in ruling that claims 1–6 and 20 would have been anticipated under 35 U.S.C. § 102 by the Staiger reference.
- B. Whether the PTAB erred in ruling that claims 1–6 and 20 would have been obvious under 35 U.S.C. § 103(a) over the Staiger, Millsap, and Wong references.
- C. Whether the PTAB erred in ruling that claims 1–6 and 20 would have been obvious under 35 U.S.C. § 103(a) over the OSEK/VDX references.
- D. Whether the PTAB erred in ruling that claims 1–6 and 20 would have been obvious under 35 U.S.C. § 103(a) over the OSEK/VDX, Millsap, and Wong references.
- E. Whether the PTAB erred in its construction of the claim term “sharing the information.”
- F. Whether the PTAB erred in concluding that the Staiger reference disclosed the claim limitation “utilizing at least one message format corresponding to a

second network protocol associated with a second network which is different from the first network protocol.”

- G. Whether the PTAB erred in concluding that the Staiger reference disclosed the claim limitation “first interface-related second layer part.”
- H. Whether the PTAB erred in concluding that one of ordinary skill in the art would have combined the teachings of the Staiger and Millsap references.
- I. Whether the PTAB erred in concluding that the OSEK/VDX reference disclosed the claim limitation “causing a determination as to whether a storage resource is available.”
- J. Whether the PTAB erred in concluding that the OSEK/VDX reference disclosed the claim limitation “in real-time, sharing the information utilizing at least one message format corresponding to a second network protocol associated with a second network which is different from the first network protocol.”

Simultaneous with submission of this Notice of Appeal to the Director of the United States Patent and Trademark Office, this Notice of Appeal is being filed with the Patent Trial and Appeal Board. In addition, this Notice of Appeal, along with the required docketing fees, is being filed with the United States Court of Appeals for the Federal Circuit.

Dated: August 15, 2018

Respectfully submitted,

/Thomas H. Kramer/

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## **CERTIFICATE OF SERVICE**

The undersigned certifies that in addition to being filed electronically through the Patent Trial and Appeal Board's Patent Review Processing System the foregoing PATENT OWNER'S NOTICE OF APPEAL was served on the Director of the United States Patent and Trademark Office, at the following address (in accordance with 37 C.F.R. §§ 90.2(a), 104.2):

Director of the United States Patent and Trademark Office  
c/o Office of the General Counsel  
United States Patent and Trademark Office  
P.O. Box 1450 Alexandria, Virginia 22313-1450

## **CERTIFICATE OF FILING**

The undersigned certifies that on August 15, 2018, a true and correct copy of the foregoing PATENT OWNER'S NOTICE OF APPEAL was filed with the Clerk's Office of the United States Court of Appeals for the Federal Circuit at the following address:

Clerk of Court  
United States Court of Appeals for the Federal Circuit  
717 Madison Place NW  
Washington, DC 20005

## CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. 42.6(e) and by the agreement of counsel for Petitioner, I certify that on August 15, 2018, I served a complete electronic copy of the foregoing Notice of Appeal on the Petitioner's lead and backup counsel at the following addresses:

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# Appendix A



UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BMW OF NORTH AMERICA, LLC,  
Petitioner,

v.

STRAGENT, LLC,  
Patent Owner.

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Case IPR2017-00676  
Patent 8,209,705 B2

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Before LYNNE E. PETTIGREW, PATRICK M. BOUCHER, and  
CARL L. SILVERMAN, *Administrative Patent Judges*.

BOUCHER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

In response to a Petition (Paper 2, “Pet.”) filed by BMW of North America, LLC (“Petitioner”), we instituted an *inter partes* review of claims 1–6 and 20 of U.S. Patent No. 8,209,705 B2 (“the ’705 patent”). Paper 8 (“Dec.”). During the trial, Stragent, LLC (“Patent Owner”) filed a Response (Paper 11, “PO Resp.”) to which Petitioner filed a Reply (Paper 18, “Reply”). During the trial, Petitioner filed a Motion to Exclude portions of the testimony of Patent Owner’s expert, which Patent Owner opposed, and to which Petitioner replied. Papers 20, 24, 26. An oral hearing was held on March 14, 2018, and a copy of the transcript was entered into the record. Paper 29 (“Tr.”).<sup>1</sup>

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the record before us, Petitioner has shown, by a preponderance of the evidence, that claims 1–6 and 20 are unpatentable.

## I. BACKGROUND

### A. *The ’705 Patent*

The ’705 patent describes systems and methods “for sharing information in a distributed system.” Ex. 1001, col. 1, ll. 29–30. Such systems and methods are illustrated for system architectures such as “may be

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<sup>1</sup> The hearing was a consolidated hearing for IPR2017-00676 and IPR2017-00677.

situated in automotive electronics or industrial control and monitoring systems.” *Id.* at col. 3, ll. 11–13. An example is provided in Figure 1 of the ’705 patent, which is reproduced below.

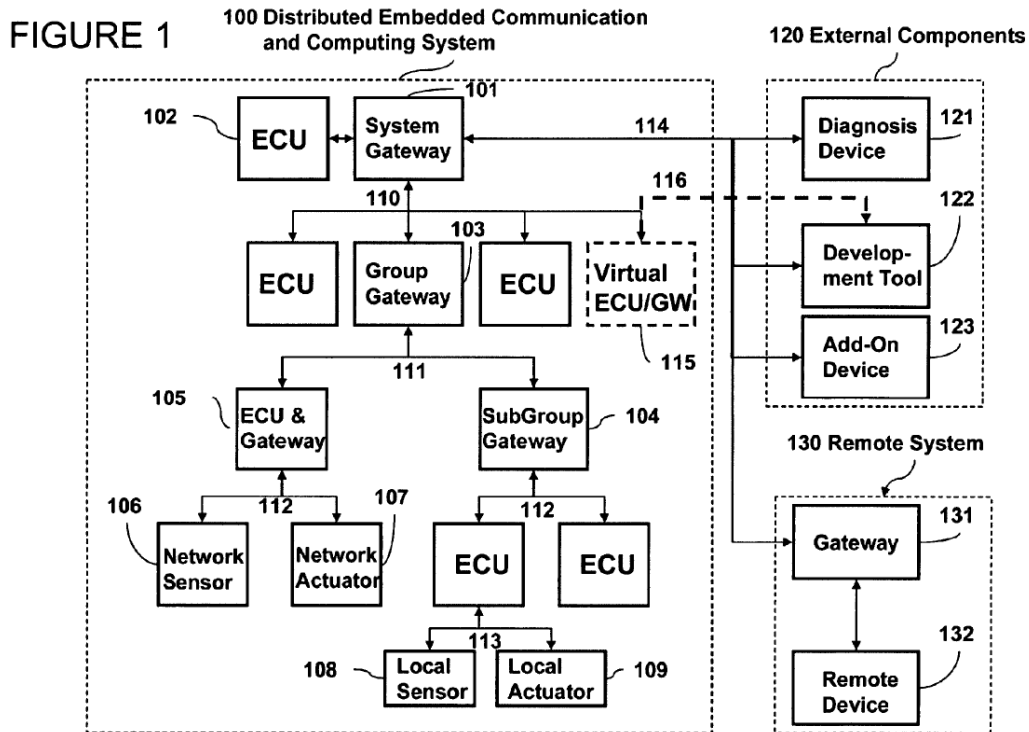


Figure 1 generally depicts elements of a distributed embedded communication and computing system. *Id.* at col. 3, ll. 9–11.

In an automotive environment, various electronic control units (“ECUs”) control such applications as engine control, brake control, or diagnostics through connections to various sensors and actuators organized into separate subnetworks. *Id.* at col. 3, ll. 13–18. Such applications are themselves grouped into backbone system functions, such as “body control, power train and chassis.” *Id.* at col. 3, ll. 19–21. With a hierarchical

organization that includes gateways 101, 103, 104, 105, messages are relayed up and down through the system layers. *Id.* at col. 3, ll. 24–26. Each layer may contain multiple ECUs connected through wired serial multiplexing bus systems, with the '705 patent noting several examples that include Controller Area Network (“CAN”), Local Interconnect Network (“LIN”), and Flexray. *Id.* at col. 3, ll. 26–33.

At the highest level in the hierarchy, “the system level,” system gateway 101 is connected via various busses to other system-level ECUs, to subsequent gateways 103, and to external components 120. *Id.* at col. 3, ll. 60–67. In addition, system gateway 101 may be connected to external gateway 131 to link the system to remote device 132. *Id.* at col. 4, ll. 1–6. “Subsequent to the system level may be several layers of groups and subgroups that are link[ed] to the higher levels via gateways (101, 103, 104, 105).” *Id.* at col. 4, ll. 7–9.

In operation, ECU 102 receives “real-time” input variables from local sensors 108 or from networked sensors 106, respectively via signal lines 113 or multiplexing bus system 112. *Id.* at col. 3, ll. 39–42. “[R]eal-time may include any response time that may be measured in milli- or microseconds, and/or is less than 1 second.” *Id.* at col. 3, ll. 36–38. ECU 102 processes the input variables and generates output variables that may be shared with other ECUs 102. *Id.* at col. 3, ll. 46–51. Two relevant modes of sharing are described.

First, ECUs 102 “typically share information with devices that are connected on the same physical multiplexing system. This method of information sharing is called horizontal information sharing in a hierarchical system.” *Id.* at col. 3, ll. 51–55.

Second, a bulletin board may be used so that “the information is shared, in real-time, among a plurality of heterogeneous processes.” *Id.* at col. 1, ll. 31–33. According to the ’705 patent, “heterogeneous networks may refer to any different communication networks with at least one aspect that is different.” *Id.* at col. 7, ll. 27–29. Figure 7 of the ’705 patent, reproduced below, illustrates a logical architecture between three heterogeneous network controllers using such a bulletin board.

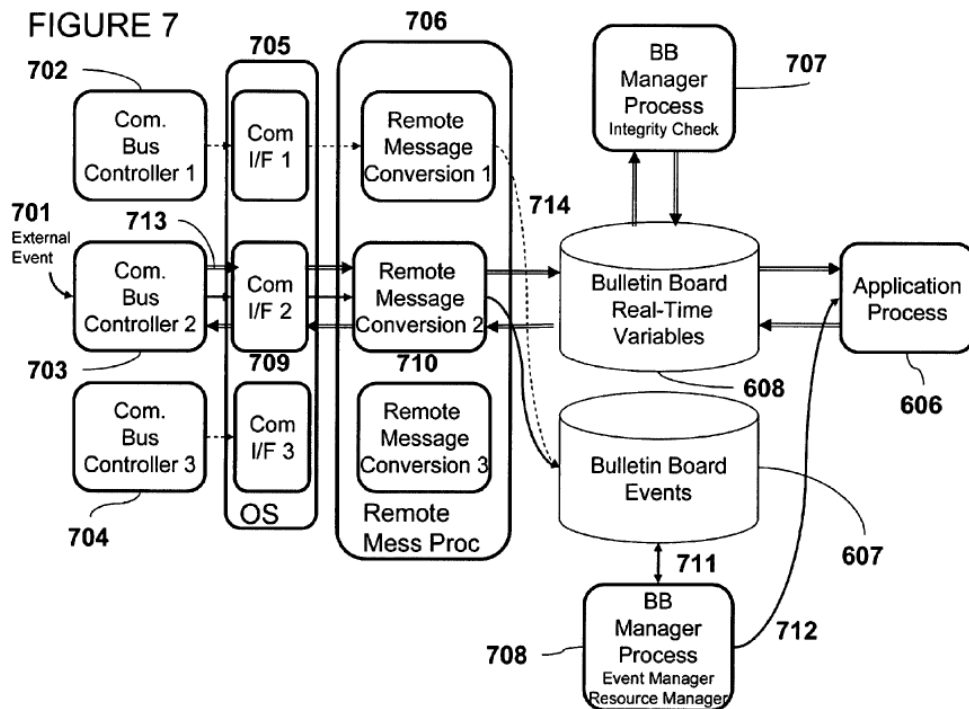


Figure 7 illustrates a system architecture in which a bulletin board acts as a shared memory interacting with multiple communication busses, with data received from one communication bus stored on the bulletin board and shared as a new message with other network types. *Id.* at col. 7, ll. 4–37.

The illustrated architecture includes four principal components: (1) network controllers 702, 703, and 704 (first column) for each of multiple heterogeneous networks; (2) associated operating system interfaces 705 for each of the heterogeneous networks (second column); (3) remote message communication processes 706 for stripping out network-specific information (third column); and (4) the bulletin board, which may contain events 607, real-time variables 608, configuration parameters, and firmware. *Id.* at col. 5, ll. 63–67, col. 6, ll. 33–37. In operation, external event 701, such as a flag indicating that data from a sensor are available, is transmitted on a network to a communication bus controller, such as network controller 703 in the drawing. *Id.* at col. 7, ll. 4–9. This causes an operating system interface (such as communication interface 709) to notify a remote message communication process (such as remote message conversion method 710) that data are available, with notification provided in turn to application process 606. *Id.* at col. 7, ll. 4–17.

### *B. Prosecution History*

The application that matured into '705 patent is a continuation of the application that matured into U.S. Patent No. 7,802,263 (“the '263 patent”),

filed December 15, 2003, and claims the benefit of the filing date of U.S. Provisional Application No. 60/434,018 (“the ’018 provisional application”), filed December 17, 2002. Ex. 1001 at [60], [63].

At the time of filing the application that matured into the ’263 patent, independent claim 1 recited the following:

1. A method for sharing information in a distributed system, comprising:
  - receiving information;
  - storing the information on a bulletin board; and
  - sharing, in real-time, the information among a plurality of heterogeneous processes.

Ex. 1011, 649. Although certain amendments were made to the claim during prosecution, allowance was secured only after an interview with the Examiner in which the applicants authorized the addition of several limitations that Petitioner characterizes as “memory-related”:

(1) “requesting a bulletin board resource of one or more bulletin boards”; (2) “determining whether the bulletin board resource is available”; (3) “in the event the bulletin board resource is not available, re-requesting the bulletin board resource until a threshold has been reached”; and (4) storing the information on the bulletin board resource “in the event the bulletin board resource is available.” *Id.* at 250–252; *see* Pet. 5–6.

Independent claim 1 was filed in the same original form at the time of filing the application that matured into the ’705 patent. Ex. 1002, 255. During prosecution, the applicants amended the claims to add what

Petitioner characterizes as “memory-related limitations similar to those in the claims of the ’263 patent”:

in the event the storage resource is not available, determining whether a timeout has been reached and causing a re-request in connection with the storage resource if the timeout has not been reached; [and]

in the event the timeout has been reached, causing an error notification to be sent.

*Id.* at 84–85 (underscoring in original to identify material added by amendment). These added limitations were among those identified by the Examiner in allowing the application as not “disclose[d] or suggest[ed]” “when taken in the context of [the] claims as a whole.” *Id.* at 98–99.

### *C. Illustrative Claim*

Challenged claim 1, which is illustrative of the challenged claims, is reproduced below with numbers added to identify specific elements of the claim in accordance with the scheme used by Petitioner. *See* Pet. 10–11.

1. [0] A method for sharing information, the method comprising:
  - [1] allowing receipt of information associated with a message, utilizing a first network protocol associated with a first network;
  - [2] causing a determination as to whether a storage resource is available;
  - [3] in the event the storage resource is not available, determining whether a timeout has been reached and causing a re-request in connection with the storage resource if the timeout has not been reached;



[4] in the event the timeout has been reached, causing an error notification to be sent;

[5] in the event the storage resource is available, causing storage of the information utilizing the storage resource; and

[6] causing the information to be shared by:

[7] in real-time, sharing the information utilizing at least one message format corresponding to a second network protocol associated with a second network which is different from the first network protocol;

[8] wherein the method is associated with an electronic control unit with at least one gateway function, and a plurality of interface portions including:

[9] a first interface portion for interfacing with the first network, the first interface portion including a first interface-related first layer part for receiving first interface-related first layer messages and a first interface-related second layer part, the first interface-related first layer messages being processed after which first interface-related second layer messages are provided, where the first network is at least one of a Controller Area Network, a Flexray network, or a Local Interconnect Network; and

[10] a second interface portion for interfacing with the second network, the second interface portion including a second interface-related first layer part for receiving second interface-related first layer messages and a second interface-related second layer part, the second interface-related first layer messages being processed after which second interface-related second layer messages are provided, where the second network is different from the first network and is at least one of the Controller Area Network, the Flexray network, or the Local Interconnect Network.

Ex. 1001, col. 12, ll. 16–59.

*D. Evidence*

Petitioner relies on the following references. Pet. 15–25.

Staiger	US 2002/0073243 A1	June 13, 2002	Ex. 1004
Millsap	US 6,484,082 B1	Nov. 19, 2002	Ex. 1015

OSEK/VDX Binding Specification, Version 1.3 (Sept. 17, 2001) (“OSEK Binding”) (Ex. 1007)

OSEK/VDX Communication Specification, Version 2.2.2 (Dec. 18, 2000) (“OSEK COM”) (Ex. 1008)

OSEK/VDX Network Management Concept and Application Programming Interface, Version 2.51 (May 31, 2000) (“OSEK NM”) (Ex. 1009)

OSEK/VDX Fault-Tolerant Communication, Version 1.0 (July 24, 2001) (“OSEK FTCom”) (Ex. 1010)<sup>2</sup>

William Wong, *Software And Hardware Standards Help, But In-Vehicle Network Growth Will Be Conservative: CAN networks and OSEK/VDX-compatible operating systems will drive tomorrow’s vehicles*, 49 Elec. Design 62 (Jan. 8, 2001) (“Wong”) (Ex. 1012).

In addition, Petitioner provides Declarations by Vijay K. Madiseti, Ph.D., Christopher Butler, and R. Benjamin Cassady, which we have also considered. Exs. 1003, 1013, 1014, 1026. No cross-examination testimony of these witnesses was filed in the proceeding, and Patent Owner explicitly confirmed that it did not cross-examine Dr. Madiseti. Tr. 41:14–16.

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<sup>2</sup> Petitioner refers to OSEK Binding, OSEK COM, OSEK NM, and OSEK FTCom collectively as “OSEK/VDX.” We sometimes use the same terminology herein.

Patent Owner provides a Declaration by Jeffrey A. Miller, Ph.D. Ex. 2001. Dr. Miller was cross-examined by Petitioner, and a transcript of his deposition was entered into the record. Ex. 1025. Dr. Miller’s Declaration is also the subject of a Motion to Exclude filed by Petitioner, to which Patent Owner responded and Petitioner replied. Papers 20, 24, 26.

*E. Grounds of Unpatentability*

Petitioner challenges claims 1–6 and 20 over the following combinations of references. Pet. 14–15.

Reference(s)	Basis
Staiger	§ 102(a)
Staiger, Millsap, and Wong	§ 103(a)
OSEK/VDX	§ 102(b)
OSEK/VDX	§ 103(a)
OSEK/VDX, Millsap, and Wong	§ 103(a)

We instituted this proceeding on all of the above-identified challenges, except the anticipation ground over OSEK/VDX. Dec. 33. Subsequent to instituting the proceeding, on April 24, 2018, the Supreme Court held that a final written decision under 35 U.S.C. § 318(a) must decide the patentability of all claims challenged in a petition for *inter partes* review. *SAS Institute, Inc. v. Iancu*, 138 S.Ct. 1348 (2018). Accordingly, we notified the parties that “[w]e modify our institution decision to institute on all of the challenged claims and all of the grounds presented in the Petition.” Paper 31, 2. Specifically, we informed the parties that, notwithstanding the original

institution on a subset of the grounds, “the Board intends to address the anticipation grounds over OSEK/VDX in its . . . final written decision[.]”  
*Id.* Neither party has requested further briefing in light of that notification.

*F. Real Parties in Interest*

Petitioner identifies BMW of North America, LLC, BMW Manufacturing Co., LLC, and Bayerische Motoren Werke, AG as real parties in interest in this proceeding. Pet. 90.

Patent Owner identifies only itself as a real party in interest. Paper 5, 1.

*G. Related Proceedings*

The parties identify the following district-court proceedings as involving the '705 patent: (1) *Stragent, LLC v. BMW of North America, LLC*, No. 6:15-cv-00446 (E.D. Tex.); (2) *Stragent, LLC v. Mercedes-Benz USA, LLC*, No. 6:15-cv-00447 (E.D. Tex.); and (3) *Stragent, LLC v. Volvo Cars of North America, LLC*, No. 6:15-cv-00448 (E.D. Tex.). Pet. 90; Paper 5, 1–2.

The parties also identify several *inter partes* review proceedings involving the '705 patent: IPR2017-00458, IPR2017-01502, IPR2017-01521, and IPR2017-01522. Paper 10, 1–2; Paper 13, 2. Patent Owner further identifies several *inter partes* review proceedings involving U.S. Patent No. 8,566,843 B2, which is a continuation of the '705 patent:

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Patent 8,209,705 B2

IPR2017-00457, IPR2017-00677, IPR2017-01503, IPR2017-01504,  
IPR2017-01519, and IPR2017-01520. Paper 13, 2.

## II. ANALYSIS

### A. *Motion to Exclude*

Petitioner moves to exclude “at least paragraphs 16-18 and 37-103” of Dr. Miller’s Declaration (Ex. 2001). Paper 20, 1. Petitioner contends that the identified paragraphs “are not the product of reliable principles and methods,” contrary to Fed. R. Evid. 702, “because both Dr. Miller’s declaration (Ex. 2001) and his deposition (Ex. 1025) show that Dr. Miller applied a wrong claim construction standard, and misunderstood a key legal concept that impacts his opinions on obviousness.” *Id.* at 2. Specifically, Petitioner observes that Dr. Miller’s Declaration “is completely silent regarding the claim construction standard applied,” and argues that Dr. Miller’s deposition testimony “exposed that he did not apply the proper standard, or at least did not apply it correctly.” *Id.* at 3. Petitioner speculates that “Dr. Miller was likely not informed of and did not follow the process outlined for construing claims in an IPR.” *Id.* at 4.

We have reviewed the relevant deposition testimony, in which Dr. Miller was asked to identify the standard he used when construing claim terms in his Declaration. Ex. 1025, 27:1–34:14. We agree with Petitioner that Dr. Miller did not provide responses sufficient to conclude that he was aware of and/or applied the correct claim-construction standard. *See id.* at

27:5–6 (“I used what is generally accepted in the field.”), 27:9–11 (“So to – for construing the claim terms is providing a definition of what the term is. So I provided a general definition for the terms.”), 30:3–6 (“Well, that’s the standard that I used for construing the claim terms in this Declaration. I don’t know if that’s the legal qualification for construing claim terms.”), 32:18–23 (“broadest reasonable interpretation” would mean “when you’re defining a term that you would define it in a way that is, first of all, reasonable, that it makes sense and that it’s broad, meaning general and that it’s interpreting the phrase or the term”).

Nevertheless, we are not persuaded that the appropriate remedy is exclusion of Dr. Miller’s testimony. As Patent Owner asserts, “[t]he role of the expert witness under the Federal Rules of Evidence is to ‘help the trier of fact to understand the *evidence* or to determine a *fact* in issue.’” Paper 24, 2–3 (quoting Fed. R. Evid. 702) (emphasis by Patent Owner). As Patent Owner further asserts, Petitioner does not “impugn[]” Dr. Miller’s credibility as an expert in the subject matter at issue. *Id.* at 3–4. We agree with Patent Owner that “Petitioner’s attack on the sufficiency of the evidence is improper in a motion to exclude.” *Id.* at 4 (citing *Microsoft Corp. v. Surfcast, Inc.*, Case IPR2013-00292 at 52–53 (Paper 93) (PTAB Oct. 14, 2014)). We accordingly deny Petitioner’s Motion to Exclude.

Petitioner alternatively argues in its Reply that “Because Dr. Miller did not apply the correct claim construction standard, his opinions on claim construction (Ex. 2001 ¶¶16-28) should be afforded no weight.” Reply 2–3.

Although we agree that the weight to be accorded to Dr. Miller’s testimony on claim construction is impacted by the uncertainty of the analytical procedure he followed, we are not persuaded that his testimony should be discounted wholesale. Dr. Miller provides relevant opinions on a number of issues, particularly including how a person of ordinary skill in the art would understand certain terms in light of the Specification, that are helpful to us as the trier of fact. “There is no more certain test for determining when experts may be used than the common sense inquiry whether the untrained layman would be qualified to determine intelligently and to the best possible degree the particular issue without enlightenment from those having a specialized understanding of the subject involved in the dispute.” Ladd, Expert Testimony, 5 Vand. L. Rev. 414, 418 (1952).

### *B. Claim Construction*

The Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S.Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

1. “*real-time*”

Independent claims 1 and 20 recite that information is caused to be shared “in real-time, sharing the information utilizing . . . .” Petitioner argues that the Specification of the ’705 patent expressly defines “real-time”: “In the context of the present description, real-time may include any response time that may be measured in milli- or microseconds, and/or is less than 1 second.” Ex. 1001, col. 3, ll. 35–38; Pet. 13. Accordingly, Petitioner proposes that “‘real-time’ should be construed as responses that occur in less than one second.” Pet. 13. Patent Owner contends that the definition from the Specification should be adopted. PO Resp. 16.

We construe “real-time” as Petitioner proposes, i.e., as including responses that occur in less than one second. The first part of the quote cited above provided in the Specification (“may be measured in milli- or microseconds”) is not limiting because *any* response time, no matter how large or small, may be *measured* in milli- or microseconds. We nevertheless agree with Petitioner that distinctions between the parties’ proposed constructions “are not material to any grounds.” Reply 7.

2. “*sharing the information*”

Each of independent claims 1 and 20 recites “in real-time, sharing the information utilizing at least one message format corresponding to a second network protocol associated with a second network which is different from the first network protocol.” Ex. 1001, col. 12, ll. 32–35, col. 14, ll. 56–59.



In its Response, Patent Owner proposes a construction of the entire limitation:

The limitation . . . can only mean that the method has received a first message in a “first network protocol associated with a first network” (element 1.1), has then delivered that “first network message” to storage, where the “first network message” is partaken of, used, experienced or occupied (that is “shared”) with a second network by way of a second network protocol which is different from the first network protocol, and that the entire process is conducted “in milli- or microseconds, and/or is less than 1 second.

PO Resp. 17. Patent Owner bases its proposal on a general-dictionary definition of “share” and its proposed construction of “real-time.” *Id.* at 16–17 (citing Exs. 2003, 2004). At the oral hearing, Patent Owner also appeared to rely on the interaction of the full limitation with other limitations of the independent claims, particularly, “in the event the storage resource is available, causing storage of the information utilizing the storage resource.” Tr. 22:11–25:7. In addition, Patent Owner cites to several quotations drawn from the Specification of the ’705 patent that relate to sharing information by its storage on a bulletin board. PO Resp. 18–20 (citing Ex. 1001, col. 1, ll. 30–33, col. 3, ll. 51–59, col. 6, ll. 27–31, col. 10, l. 67–col. 11, l. 9, col. 11, ll. 20–58).

Petitioner disputes Patent Owner’s proposed construction, noting that the limitation does not recite “receiving” a first network message, and does not recite any “storage” or “delivering” a first network message to storage. Reply 7–8. In addition, Petitioner contends that Patent Owner’s proposed

construction “contradicts the ’705 patent’s specification,” in part because of the disclosure of “horizontal information sharing,” which does not require bulletin-board storage. *Id.* at 8–9.

We find it unnecessary to construe the entire (unparsed) limitation set forth above, which includes elements such as “real-time,” for which Patent Owner has proposed an independent construction. Rather, it is sufficient to construe “sharing the information,” with the full limitation further limiting the message format used. In construing “sharing the information,” we find Patent Owner’s citation of a technical dictionary to be more probative than the general-purpose dictionary it highlights.

The language of the general-purpose dictionary that refers to “to partake of, use, experience, occupy, or enjoy with others; to have in common,” does not appear to contemplate the sharing of “information,” which the ’705 patent Specification describes as “includ[ing] data, a signal, and/or anything else capable of being stored and shared.” *See* Ex. 2003 (general definition of “share”); Ex. 1001, col. 3, ll. 56–59. Instead, the technical definition of “[t]o make files, directories, or folders accessible to other users over a network” is more relevant because it expressly contemplates the same context as the ’705 patent, i.e. sharing over a network. Ex. 2004 (technical definition of “share”).

We also agree with Petitioner that construction of “sharing the information” does not require that the information be stored. Storage of the information is addressed in other limitations of the independent claims, and

need not be read into the limitation at issue. *See* Tr. 9:18–21 (Petitioner agreeing that, if the condition of limitation 1.5 is met, “then the information has to be stored”). Furthermore, the description of “information” as “capable of being stored *and* shared” in the ’705 patent Specification is consistent with storage and sharing being distinct concepts. *See* Ex. 1001, col. 3, ll. 56–59 (emphasis added). In addition, the inclusion of an embodiment in that Specification that does not appear to require storage of the shared information reinforces our conclusion. Ex. 1001, col. 3, ll. 51–55; *see* Tr. 8:7–12, 12:1–14.

In light of these considerations, we construe “sharing the information” in parallel with the technical-dictionary definition provided by Patent Owner, i.e., as making the information accessible, but not requiring storage of the information.

### 3. “*storage resource manager*”

Claims 3 and 4, both of which depend directly from claim 1, recite a “storage resource manager.” Ex. 1001, col. 12, ll. 62–67. In the Institution Decision, we found it unnecessary to construe this term. Dec. 10.

Nevertheless, Petitioner proposes that the phrase be construed as “hardware or software that controls interaction with the storage resource.” Pet. 13; Reply 11. Patent Owner instead proposes that the phrase should be construed as “hardware or software that controls storage of information in accordance with the algorithm of Figure 10.” PO Resp. 20. At the oral

hearing, Petitioner said that it “did not see a meaningful dispute” between the parties proposed constructions. Tr. 6:19–7:3.

We adopt Petitioner’s proposed construction. The phrase does not appear in the Specification outside of its claims, but, consistent with Petitioner’s construction, the Specification describes software and hardware that controls interaction with the storage resource for “resource management.” Ex. 1001, col. 6, ll. 11–21. Patent Owner’s proposed construction improperly narrows the term to a particular embodiment appearing in the written description. *See SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (“Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.”).

#### 4. “*schedule*”

Claim 6, which depends from claim 1, recites that “the information is shared according to a schedule.” Ex. 1001, col. 13, ll. 3–4. The parties agree that “schedule” should be construed as “a procedural plan that indicates the time and sequence of each operation.” PO Resp. 22; Reply 11. We adopt the parties’ construction.

*C. Effective Filing Date*

Petitioner contends that the challenged claims are “entitled only” to the December 15, 2003, filing date of the ’263 patent as their effective filing date, and that they are not entitled to the December 17, 2002, filing date of the ’018 provisional application. Pet. 8–9. Petitioner argues that “the ’263 patent is the first instance where Patent Owner even arguably disclosed the memory-related limitations,” and that the ’018 provisional application does not disclose

at least the following limitations of claim 1: “in the event the storage resource is not available, determining whether a timeout has been reached and causing a re-request in connection with the storage resource if the timeout has not been reached”; “in the event the timeout has been reached, causing an error notification to be sent”; and “in the event the storage resource is available, causing storage of the information utilizing the storage resource. Ex. 1001, claims 1, 20; *see generally* Ex. 1005.

*Id.* at 9. Petitioner further contends that “the [’018] provisional application simply and generally states that ‘the bulletin board manager provides mechanisms for access control,’” and that “[t]his broad statement in no way discloses the claim limitations as described above.” *Id.* (citing Ex. 1005, 9).

In the Institution Decision, we determined that Petitioner had, through these contentions, satisfied its initial burden of production with respect to the issue of the challenged claims’ effective filing date. Dec. 10–11. As we noted, “Petitioner adequately identifies specific claim limitations that it contends are unsupported by the ’018 provisional application and identifies

specific disclosure in the '018 provisional application that it contends is insufficient.” *Id.* at 11 (citing *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1380 (Fed. Cir. 2015)). Patent Owner does not contest in its Response that the challenged claims are entitled only to an effective filing date of December 15, 2003. Based on the record, we accord that effective filing date to the challenged claims.

#### *D. Legal Principles*

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). While the elements must be arranged in the same way as is recited in the claim, “the reference need not satisfy an *ipsissimis verbis* test.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990). Identity of terminology between the anticipatory prior art reference and the claim is not required. Prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d at 1480.

Also, “it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” *In re Preda*, 401 F.2d 825, 826 (CCPA 1968). As the Court of Appeals for the Federal Circuit recently

explained, the dispositive question for anticipation is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference. *Eli Lilly v. Los Angeles Biomedical Research Inst.*, 849 F.3d 1073, 1074–1075 (Fed. Cir. 2017).

A claim is unpatentable for obviousness under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness, i.e., secondary considerations.<sup>3</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); see *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333

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<sup>3</sup> The parties do not address secondary considerations, which accordingly do not form part of our analysis.

(Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

To prevail on its challenges, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.* 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. See *Dynamic Drinkware*, 800 F.3d at 1378 (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner does not satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

#### *E. Level of Skill in the Art*

The parties advocate for the adoption of similar levels of ordinary skill in the art. Petitioner contends that a person of ordinary skill “would have a bachelor’s degree in electrical engineering, computer engineering, or a related engineering discipline and at least two years of industry experience in the field of distributed computing or automotive engineering, or



equivalent experience, education, or both.” Pet. 10. In addition, Petitioner contends that such a person “would also have knowledge or familiarity with in-vehicle computing.” *Id.* (citing Ex. 1003 ¶¶ 62–63). Dr. Madisetti’s testimony supports Petitioner’s proposal. Ex. 1003 ¶¶ 62–63.

Patent Owner similarly contends that a person of ordinary skill would have had at least the qualifications of or equivalent to either a master’s degree in electrical engineering, computer science, or computer engineering with course work or research in embedded networking technologies or an undergraduate degree in electrical engineering, computer science, or computer engineering with at least two years of relevant work experience in industry.

PO Resp. 22–23. Dr. Miller’s testimony supports Patent Owner’s proposal. Ex. 2001 ¶ 12. The principal difference between the levels proposed by the parties is Petitioner’s requirement that the person have knowledge or familiarity with “in-vehicle computing.” Although the Specification illustrates its systems and methods for sharing information in a distributed system in the context of vehicle applications, the claims are not so limited. We are not persuaded that familiarity with in-vehicle computing would be a characteristic of a person of ordinary skill. We therefore adopt Patent Owner’s expression of the level of skill in the art, noting that it instead requires some level of familiarity with embedded networking technologies.

*F. Anticipation by Staiger*

*1. Independent Claim 1*

Staiger, which “relates to a method and a circuit arrangement for communication within and across networks,” was filed on December 4, 2001, and published on June 13, 2002. Ex. 1004 ¶ 1, [22], [43]. Consistent with the effective filing date we accord the challenged claims, Staiger is thus prior art to the ’705 patent.

Like the ’705 patent, Staiger presents its description of communicating across networks in the context of an automotive environment, describing an ECU as follows:

An Electronic Control Unit (ECU) in a modern automobile is an example of such a [ circuit] arrangement. The ECU may be connected to a plurality of real-time networks, e.g., several individual CAN (Controller Area Network) busses or other multiple purpose networks, like multimedia-networks, such as MOST (Media Oriented Systems Transport), i.e., an optical bus system used in automobiles, or IEEE1394 (Firewire).

*Id.* ¶ 3. Staiger explains that, during operation, the ECU executes an application for controlling remote systems while also monitoring various busses and networks to select and retrieve parameters required for the application programs in progress. *Id.* ¶ 4. Staiger describes methods and systems for processing messages to communicate with remote units over at least one data network and with at least one dedicated CPU. *Id.* ¶ 15.

Figure 2 of Staiger is reproduced below.

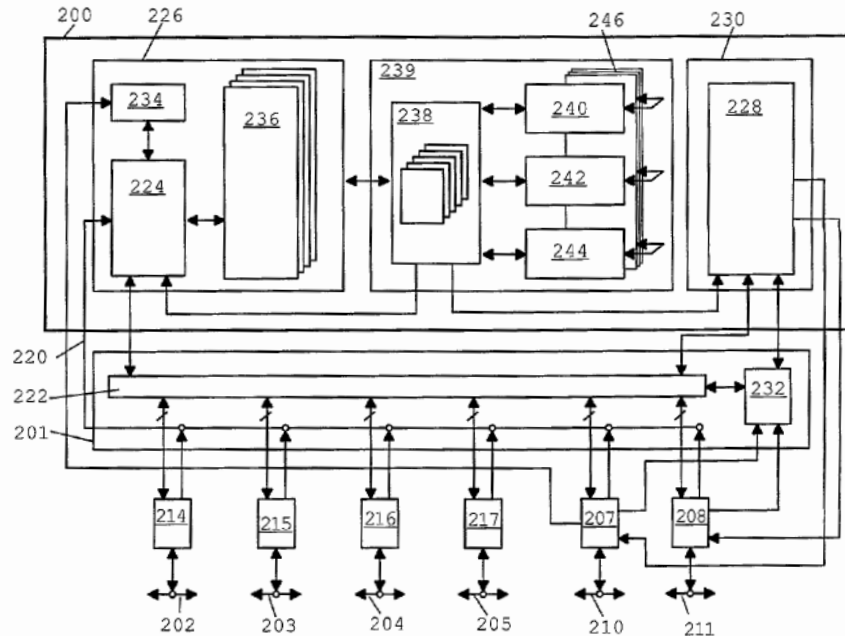


FIG. 2

Figure 2 depicts a high-level block diagram of interconnection preprocessor 200, which may be used in the message-processing methods. *Id.* ¶ 36. Preprocessor 200 is connected to switchboard 201, “which is designed to connect four individual CAN-busses 202 to 205 and in addition a first and a second independent CPU 207 and 208.” *Id.* First and second CPUs 207 and 208 provide connections to first and second additional bus systems 210 and 211, respectively. *Id.* Each of CAN busses 202–205 is connected to a respective bus adapter 214–217, which may be formed by standardized CAN controllers providing connections to the respective CAN busses 202–205. *Id.* ¶ 38.

In addition to relying on Figure 2 as illustrating an implementation of a method for sharing information as recited in the preamble of independent claim 1, Petitioner relies on the related description of an initializing process as disclosing receipt of information associated with a message and utilizing a first network protocol associated with a first network, as recited in limitation 1.1. Pet. 27–28. In addition, Petitioner relies on such disclosure for limitations 1.6–1.10, observing that Staiger “shares messages with a plurality of different destinations (e.g., CAN busses, FireWire busses, MOST busses, CPUs), and teaches that each message may be transmitted to more than one destination.” *Id.* at 34.

*a. Limitation 1.7*

For limitation 1.7, Petitioner points to Staiger’s disclosure of “receiving messages from ‘one of the CPUs 207 and 208’ and broadcasting the message ‘to several CAN busses 202 to 205 identically.’” *Id.* at 35 (quoting Ex. 1004 ¶ 51). Petitioner reasons that CPUs 207 and 208 are connected to bus systems such as FireWire or MOST (which correspond to a “first network protocol”), which are different than CAN busses 202–205 (which correspond to a “second network protocol”). *Id.* In addition, Petitioner points to disclosure in Staiger that CAN busses 202–205 “may be either CAN-C or CAN-B,” i.e., different versions of the Controller Area Network, and provides evidence those different versions are incompatible with each other. *Id.*; Ex. 1012, 6; Ex. 1003 ¶ 108. “Thus,” Petitioner

reasons, “the CAN-B and CAN-C protocols are different from each other.” Pet. 35. We agree with this reasoning. Petitioner also sufficiently addresses the “real-time” sharing requirement of limitation 1.7 by referring to Staiger’s disclosure of a response time that is “typically milliseconds or microseconds,” consistent with the construction adopted herein. *Id.* at 35–36 (citing Ex. 1004 ¶¶ 7, 51).

Patent Owner responds that “Staiger does not ‘share’ information between different ECUs operating on different protocols,” as required by limitation 1.7. PO Resp. 7, 27. Rather, according to Patent Owner, “Staiger discloses a central message processing device that *only receives, processes and distributes* messages.” *Id.* at 7 (emphasis added). There are two important aspects to Patent Owner’s argument, which we address in turn.

First, Patent Owner’s argument relies on its advocated construction of “sharing the information” as requiring that the information be stored. For the reasons expressed above, we disagree with that proposed construction. Patent Owner acknowledges that Staiger’s central device acts “to receive, process and distribute messages.” *Id.* at 27. Such distribution of messages is consistent with the adopted construction of “sharing the information” as requiring that the information be made accessible.

Second, while acknowledging that Staiger distributes information, Patent Owner argues that it “does not convert the message to a format that can be recognized and used by different ECUs using different protocols.” PO Resp. 27. Without such format conversion, “Staiger does not disclose

the heart of the claimed invention, which is to receive data or other information from one network, and then process that message so that it can be shared with a second network utilizing a second network protocol associated with the second network.” *Id.* According to Patent Owner, Staiger’s disclosure is limited to “the concept that the central device can receive CAN messages via CAN-C or CAN-B busses and physical layers, process and distribute them to a final destination.” *Id.* But Staiger is deficient, according to Patent Owner, because “information received via a CAN-B bus, using a CAN-B protocol in Staiger cannot be made available to a destination via a CAN-C protocol.” *Id.* at 27–28.

The factual disagreement over Staiger’s disclosure hinges on the following:

The switchboard 201 is a multiplexing scheme controlled either by one of the CPUs 207 and 208 or the intercommunication preprocessor 200. This allows the CPUs 207 and 208 to use the functionality of the intercommunication preprocessor 200. *For example, a message generated by one of the CPUs 207 and 208 has to be broadcasted to several CAN busses 202 to 205 identically.* In this case, the message is multiplexed by the switchboard 201 to the intercommunication preprocessor 200, then, the intercommunication preprocessor 200 processes the message and initiates immediate distribution. This procedure significantly saves time, since the intercommunication preprocessor 200, specialized to operate this tasks [*sic*], will require only a fraction of processing time in comparison to a master CPU formed by one of the CPUs 207 and 208. Furthermore, the master CPU only has to execute one single message operation, in case the message needs to be computed before forwarding, which saves processing time as well.

Ex. 1004 ¶ 51 (emphasis added). As Patent Owner emphasized at the oral hearing, “[t]he key phrase is identically.” Tr. 28:17. According to Patent Owner, “[i]dentically clearly means that all buses get the same information, the same message. There [are] no different protocols. There are no different formats. . . . Staiger doesn’t even hint or suggest that there is any conversion of any message or any data . . . from one protocol or one format to another.” *Id.* at 28:18–23.

Ultimately, the word “identically” cannot bear the weight Patent Owner places upon it to conclude that Staiger does not teach or suggest “utilizing at least one message format corresponding to a second network protocol associated with a second network which is different from the first network protocol,” as the claim requires. On cross-examination, Patent Owner’s expert, Dr. Miller, conceded several relevant points that support Petitioner’s inference regarding the teachings of Staiger. And, “in considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” *In re Preda*, 401 F.2d at 826.

On cross-examination, Dr. Miller agreed that Staiger discloses that CAN busses 202–205 connect using different network protocols from those protocols used in networks to which busses 210 and 211 connect, and that the network protocols use different message formats. Ex. 1025, 66:21–68:13. Dr. Miller also agreed that the Staiger busses 202–205, 210, and 211

can receive and send messages. *Id.* at 69:19–21. And Dr. Miller agreed that Staiger discloses that messages received from busses 210–211 can be shared with CAN busses 202–205 through bus adaptors 214–217. *Id.* at 74:3–10. In light of these concessions by Patent Owner’s expert, the most natural understanding of the single word “identically” in Staiger is that the identical *content* of the message is broadcast over the different CAN busses, not that Staiger fails to accommodate its own recognition that the *formats* used are different.

*b. Limitations 1.8–1.10*

For the specific gateway function and interface portions recited in limitations 1.8–1.10, Petitioner ties Staiger’s disclosure of an electronic control unit that performs “routing, gateway, bus bridge and filtering functions” to a plurality of real-time networks (Ex. 1004 ¶¶ 3–5) with specific components shown in Figure 2. *See* Pet. 36–39. In particular, Petitioner provides annotated versions of Figure 2 that make specific correspondences between the “first network” and CAN bus 202, and between the “second network” and CAN bus 204, as well as correspondences between the “first interface portion” and bus adapter 214, and between the “second interface portion” and bus adapter 216. *Id.* at 39. With these correspondences, Petitioner further identifies the first and second “layer parts” with the drawing’s indications of information transfer between the CAN busses and their respective bus adapters, and between the bus



adapters and the switchboard. Petitioner’s analysis is sufficient with respect to these elements.

Patent Owner argues that Petitioner makes an insufficient showing with respect to limitations 1.9 and 1.10, which require certain interface portions for interfacing with the first and second networks. PO Resp. 31–36. For limitation 1.9, Petitioner provides the following annotated version of Figure 2 from Staiger.

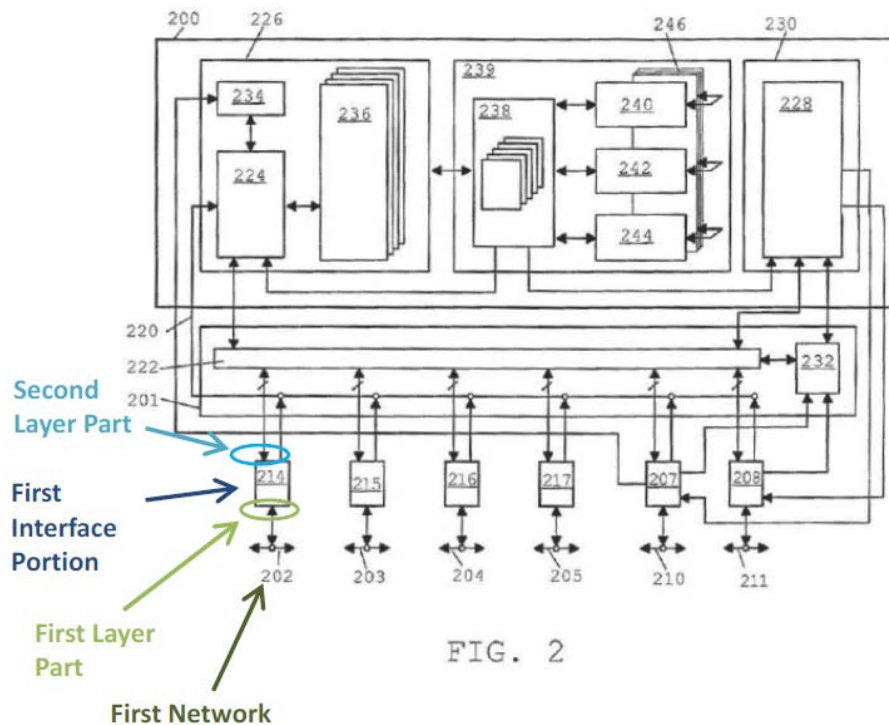


FIG. 2

Annotated Figure 2 identifies those portions of Staiger that Petitioner maps to the “first interface portion,” including the “first interface-related first layer part” and the “first interface-related second layer part.” Pet. 38. That is, Petitioner contends that bus adapter 214 is a “first interface portion for

interfacing with the first network,” that the corresponding physical CAN layer is a “first interface-related first layer part for receiving first interface-related first layer messages,” and that multiplexer 222, which forms part of switchboard 201, corresponds to the “first interface-related second layer part.” *Id.* at 36–37. Patent Owner disputes this mapping with respect to the “first interface-related second layer part” because “Petitioner still has not pointed to anything that shows a ‘second layer part,’ where the first layer messages are ‘processed’ to provide ‘second layer messages.’” PO Resp. 33.

Patent Owner’s argument is not commensurate with the scope of the claim, which only requires that the first interface-related first layer message be processed and that the first interface-related second layer message be provided afterwards. *See* Reply 15. As Petitioner replies, “[t]he claim does not specify where the first layer messages are processed, or which components provide the second layer messages.” *Id.* (citing Ex. 1026 ¶ 29; Ex. 1025, 87:6–9 (Dr. Miller cross-examination testimony: “Q. My question to you is: Does that language dictate where the messages are processed? A. I’m not sure if it says ‘where.’ It says ‘when.’”)). Patent Owner’s argument is accordingly unpersuasive; Petitioner sufficiently identifies all elements of the limitation as disclosed by Staiger. Patent Owner’s argument regarding limitation 1.10 is substantially similar, and unpersuasive for similar reasons.

*c. Limitations 1.2–1.5*

Petitioner addresses the “memory-related” limitations 1.2–1.5 by reference to Figure 5 of Staiger, which is reproduced below, and related disclosures.

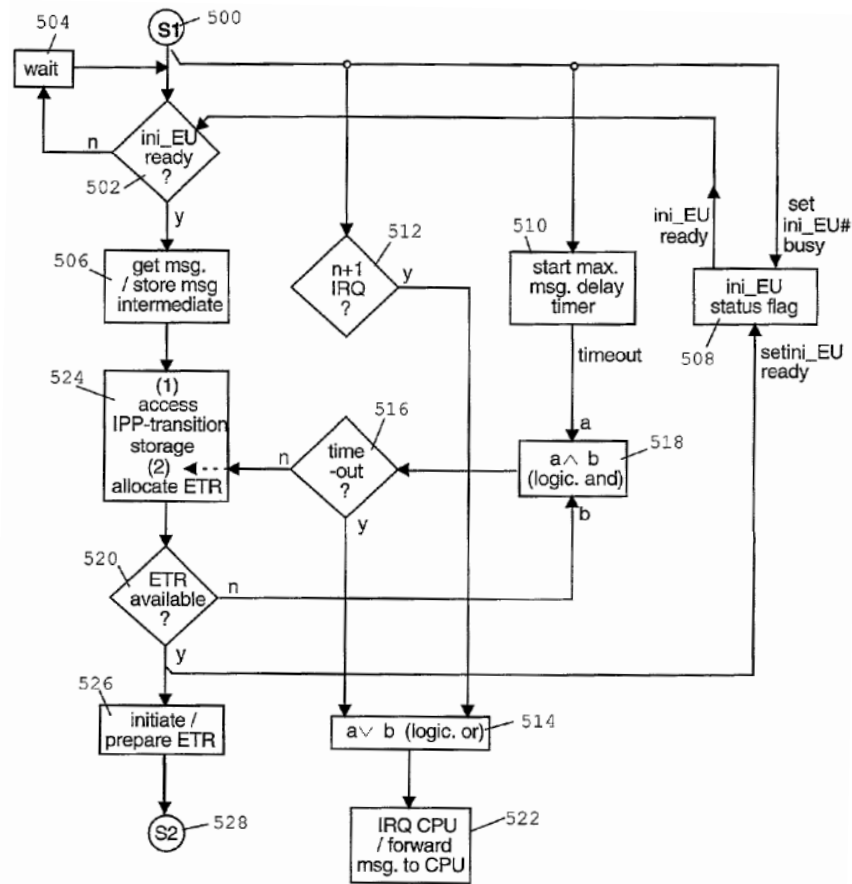


FIG. 5

Figure 5 depicts a flowchart illustration of message processing in an initializing process. Ex. 1004 ¶ 26. In explaining the relevance of this process to the claim limitations, Petitioner highlights Staiger’s disclosure of

determining whether a tag registry, which it correlates to the “storage resource” recited in claim 1, is available before a “time-out event” occurs. Pet. 29 (citing Ex. 1004 ¶ 62 (“Block 518 receives the time-out event from the delay timer of block 510 and a negative event of a determination of block 520 of whether or not an execution tag registry . . . is available.”)). As Petitioner observes, Figure 5 of Staiger addresses circumstances both when the tag registry is available and when it is not available. *Id.* at 30–34.

If the tag registry is not available, as determined at block 520, block 516 determines whether the delay time has timed out. Ex. 1004 ¶ 62. If no time-out has occurred, another determination is made whether the tag registry is available, i.e., “causing a re-request in connection with the storage resource if the timeout has not been reached,” as recited in limitation 1.3. *Id.* If a time-out has instead occurred, “the process passes to block 522,” which issues an interrupt request that Petitioner reasonably identifies as the “error notification” recited in limitation 1.4. *Id.*; Pet. 32–33. If the tag registry is available, as determined at block 520, the registry is initiated, and the message is retrieved and stored. Ex. 1004 ¶¶ 64, 66.

These steps, as identified by Petitioner from the disclosure of Staiger, track the steps recited in limitations 1.2–1.5 of claim 1 under the various circumstances when the storage resource is available or not available, and

when the timeout has been reached or not been reached. The Petition thus identifies all limitations of independent claim 1 as disclosed by Staiger.<sup>4</sup>

*d. Summary*

Based on the foregoing, we conclude that Petitioner shows, by a preponderance of the evidence, that all limitations of independent claim 1 are disclosed by Staiger, and that the claim is therefore anticipated.

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<sup>4</sup> In the Institution Decision, we observed that limitations 1.3–1.5 appear to be conditional limitations. Dec. 16 n.3. Because we find that the limitations are disclosed by Staiger, we need not address whether those limitations are entitled to patentable weight. *See Ex parte Schulhauser*, No. 2013-007847, 2016 WL 6277792, at \*9 (PTAB Apr. 28, 2016) (precedential) (holding “[t]he Examiner did not need to present evidence of the obviousness of the remaining method steps of claim 1 that are not required to be performed under a broadest reasonable interpretation of the claim (e.g., instances in which the electrocardiac signal data is not within the threshold electrocardiac criteria such that the condition precedent for the determining step and the remaining steps of claim 1 has not been met)”). *See also Ex parte Katz*, No. 2010-006083, 2011 WL 514314 (BPAI Jan. 27, 2011); *Cybersettle, Inc. v. Nat’l Arbitration Forum, Inc.*, 243 Fed. Appx. 603, 607 (Fed. Cir. 2007) (unpublished) (“It is of course true that method steps may be contingent. If the condition for performing a contingent step is not satisfied, the performance recited by the step need not be carried out in order for the claimed method to be performed.”). The parties’ arguments on this issue are moot. *See* PO Resp. 57–59; Reply 24–26.

## 2. *Dependent claims 2–6*

Claims 2–6 each depend directly from independent claim 1. Ex. 1001, col. 12, l. 60–col. 13, l. 4. Patent Owner does not respond separately to Petitioner’s arguments regarding these claims, asserting only that “Petitioner has not demonstrated that Staiger meets the limitations of claim 1, and, thus, claims 2-6 are not rendered unpatentable.” PO Resp. 36.

In addressing claim 2’s limitation that “the information is replicated among a plurality of the storage resources,” Petitioner observes that Figure 5 of Staiger (reproduced above) shows message information stored intermediately at block 506 until a register pool space is allocated, and that Figure 6 of Staiger shows retrieval of message data and storage again at block 608. Pet. 40 (citing Ex. 1004 ¶¶ 60, 66, 67). By identifying the register pool space as a “storage resource,” and supporting its conclusion that the message information is thus stored in multiple places with testimony by Dr. Madisetti, Petitioner makes a sufficient showing. *Id.* at 40–41 (citing Ex. 1003 ¶ 120, 121; Ex. 1004 ¶ 41).

With respect to the limitations of claims 3 and 4, respectively reciting extraction of the information from a message and conversion of the information from a signal by a “storage resource manager,” Petitioner identifies control engine 224 shown in Figure 2 (reproduced above). *Id.* at 41–43. Because Staiger “explains that control engine 224 . . . can extract messages from the bus adapters through multiplexer 222” and because “[t]he bus adapters include physical layers to receive signals from networks 202-

205,” as asserted by Petitioner, the Petition makes a sufficient showing. *Id.* at 42, 43.

For claim 5, which recites that “the information is shared in a single task,” Petitioner identifies disclosure in Staiger that “the master CPU only has to execute *one single message operation*” when broadcasting the message to multiple CAN busses. *Id.* at 43; Ex. 1004 ¶ 51. We agree that this teaches the limitation.

For claim 6, which recites that “the information is shared according to a schedule,” Petitioner observes that Staiger teaches transmission of messages periodically or at set times, such as in a first-in–first-out manner, or based on priority. Pet. 44 (citing Ex. 1004 ¶ 44; Ex. 1003 ¶ 129). This is consistent with the parties agreed construction of “schedule” (which we have adopted) as “a procedural plan that indicates the time and sequence of each operation.”

We conclude that Petitioner shows, by a preponderance of the evidence, that claims 2–6 are anticipated by Staiger.

### 3. *Independent claim 20*

Independent claim 20 recites a “system” for sharing information, including a processor and memory, with the memory storing various logic elements that parallel the steps of method claim 1. Ex. 1001, col. 14, l. 38–col. 16, l. 7. Patent Owner does not respond separately to Petitioner’s argument regarding this claim, asserting only that “[t]he same distinctions

drawn between Staiger and the limitations of claim 1 apply here.” PO Resp. 36.

In addressing the claim, Petitioner observes that Staiger describes a system that “can be realized in hardware, software, or a combination of hardware and software,” as well as a logical intercommunication preprocessor system architecture with “a conventional memory device.” Pet. 44; Ex. 1004 ¶¶ 34, 75, 83. These identifications in combination with Petitioner’s analysis of claim 1 and comparison of the limitations of claims 1 and 20 are sufficient. *See* Pet. 45.

We conclude that Petitioner shows, by a preponderance of the evidence, that independent claim 20 is anticipated by Staiger.

#### *4. Summary*

For the foregoing reasons, we conclude that Petitioner shows, by a preponderance of the evidence, that claims 1–6 and 20 are anticipated by Staiger.

#### *G. Obviousness over Staiger, Millsap, and Wong*

In addition to its challenge of claims 1–6 and 20 as anticipated by Staiger, Petitioner alternatively challenges those claims as unpatentable under 35 U.S.C. § 103(a) over the combination of Staiger, Millsap, and Wong. Pet. 45–55. In doing so, Petitioner relies on its analysis involving Staiger alone for limitations 1.0–1.7 of independent claim 1 (and



corresponding limitations of claim 20), but contends that the combination of Staiger, Millsap, and Wong discloses limitations 1.8–1.10 (and their counterparts in claim 20). *Id.* at 46.

Millsap “relates to networks used in vehicles to provide distributed control of various vehicle functions and, more particularly, to such networks which utilize different groupings of electronic control units (ECUs) to carry out different control tasks.” Ex. 1015, col. 1, ll. 6–10. Figure 8 of Millsap is reproduced below.

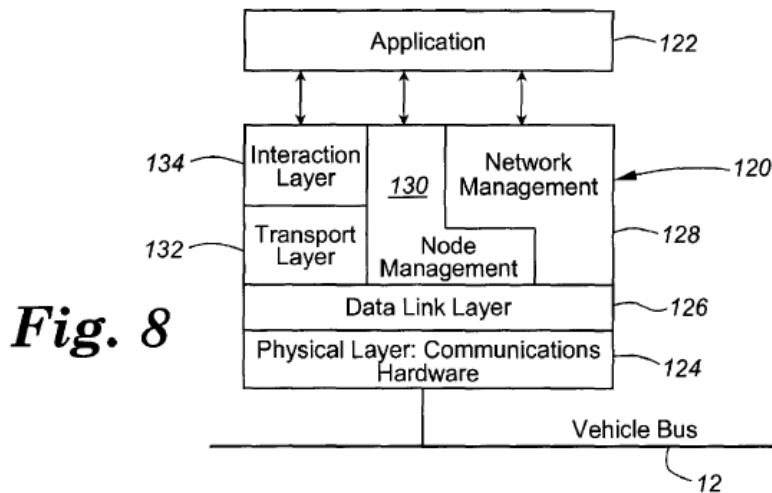
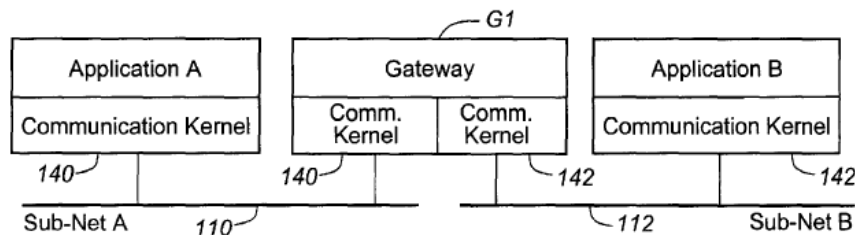


Figure 8 depicts a conceptual layout of communication kernel 120 that can be used by each of multiple ECUs in communicating with its respective bus, providing a standardized interface between the bus and application process 122 being executed by the ECU. *Id.* at col. 12, ll. 42–46.

Petitioner contends that Millsap thus discloses “an electronic control unit with at least one gateway function, and a plurality of interface portions” as recited in limitation 1.8, in light of Millsap’s disclosure of gateway

functions that include transferring wake-up requests, virtual network information, signals, and data block information to other networks. Pet. 47 (citing Ex. 1015, col. 12, ll. 20–36). This is further illustrated in Figure 9 of Millsap, reproduced below.



**Fig. 9**

Figure 9 shows that “each gateway node is connected to at least 2 [busses] and will interact with each network according to its message strategy and transmission models.” Ex. 1015, col. 13, ll. 22–25. That is, Petitioner identifies gateway G1 as performing the recited gateway function and communication kernels 140, 142 as the recited interface portions. Pet. 47 (annotated drawing).

Petitioner reasons that a person of ordinary skill in the art would have known to combine these teachings with those of Staiger because both references (1) are from the same field of endeavor, i.e., are related to real-time distributed communication and control of automotive ECUs; (2) aim to solve similar problems of improving data processing between automotive ECUs; and (3) use similar techniques to solve the problems, such as using gateway ECUs to bridge different networks to allow for communication between the networks. *Id.* at 48–49. Petitioner supports this reasoning with

testimony by Dr. Madisetti. Ex. 1003 ¶¶ 138–141. Petitioner articulates sufficient reasoning with rational underpinning to support the combination it proposes.

Patent Owner contends that “Millsap is entirely unrelated to the invention claimed in the Patent” because “Millsap does not disclose any CAN, Flexray or LIN network, and, does not disclose any concept of networks operating under different protocols.” PO Resp. 39 (citing Ex. 2001 ¶ 63). This contention does not provide a sufficient basis to discount Petitioner’s articulated reasoning for combining the teachings of the references. Although limitations 1.9 and 1.10 are expressed in a lengthy manner, the concepts they recite are relatively straightforward, requiring interfaces that process first messages to produce second messages. Petitioner provides sufficient reasoning and evidence to support its position that one of ordinary skill in the art would have combined the teachings of Staiger and Millsap in the manner it proposes because they are from the same field of endeavor, or at least reasonably pertinent to the particular problem with which the inventor of the ’705 patent was concerned. *See In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

In addressing the specific limitations for the “first interface portion” and “second interface portion” recited in limitations 1.9 and 1.10, Petitioner identifies layer 124 of Millsap’s Figure 8 as corresponding to the “first layer part” and layer 126 as corresponding to the “second layer part,” for each of communication kernels 140, 142, i.e., as “first interface-related” and

“second interface-related,” respectively. Pet. 52 (annotated drawing). Petitioner additionally relies on Wong, which “expressly describes the concurrent use of LIN and CAN,” and which “also discloses FlexRay as an alternative network with higher data rates than either CAN or LIN.” Pet. 52–53 (citing Ex. 1012, 6, 7), 55. Petitioner further reasons that the additional combination of Wong with Staiger and Millsap “would have been predictable and yielded no unexpected results” because Staiger and Millsap describe systems that allow messages to be passed between different networks and “[t]he integration of LIN and/or FlexRay with CAN in the same real-time distributed system described in *Wong* was well known to a [person of ordinary skill in the art].” *Id.* at 54–55 (citing Ex. 1003 ¶¶ 147–150).

Patent Owner challenges the use of Wong, even for this limited purpose, because “Wong is not an enabling disclosure.” PO Resp. 41. But even if Patent Owner is correct, “a non-enabling reference may qualify as prior art for the purpose of determining obviousness under § 103.” *Symbol Techs. Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991); *see also Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1357 (Fed. Cir. 2003). Petitioner articulates reasoning with rational underpinning to support its limited use of Wong in combination with Staiger and Millsap.

To support its argument that Millsap teaches the requirement of limitation 1.9 (and the corresponding limitation 20.10 of claim 20) that “first interface-related layer messages [are] processed after which first interface-

related second layer messages are provided,” Petitioner cites a portion of the following disclosure regarding Figure 8:

FIG. 8 depicts a conceptual layout of a communication kernel 120 that can be used by each of the ECUs in communicating with its respective bus. This communication kernel provides a standardized interface between the bus and the application process 122 being executed by the ECU. It includes both software and physical layers. More specifically, the communication kernel 120 includes a physical layer 124 that *provides a conversion of the digital data symbols (1's and 0's) generated by the data link layer 126 into electrical signals transmitted on the bus.*

Ex. 1015, col. 12, ll. 42–51 (emphasis added); *see* Pet. 51. That is, Petitioner relies on the disclosure of digital-to-analog conversion as satisfying the claim’s requirement that second layer messages be provided after processing first layer messages. Petitioner reiterates the argument with respect to limitation 1.10 (and corresponding limitation 20.11 of independent claim 20). Pet. 55.

Patent Owner disputes Petitioner’s argument, contending that “[m]erely converting data to voltage levels, which represent 0s and 1s, cannot possibly be considered a different type of message.” PO Resp. 40 n.4. But limitations 1.9 and 1.10 do not require “a different type of message”; they merely require that “second layer message[s]” be provided after processing “first layer message[s].” Ex. 1001, col. 12, ll. 39–59. Patent Owner improperly interweaves its argument by contending that “even if one accepted that a digital-to-analog converter provides a first interface-

related second layer message, Petitioner still has not shown the message comports with limitation 1.7.” PO Resp. 40. But Petitioner relies on Staiger, not Millsap, for limitation 1.7. For the reasons discussed above, Petitioner provides sufficient reasoning to effect the limited combination of Millsap with the teachings of Staiger, and need not also demonstrate that Millsap alone discloses limitation 1.7. Determining whether a single one of the references is deficient with respect to a particular claim element misapplies the test for obviousness, which is what the combined teachings of the prior art would have suggested to the hypothetical person of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

For dependent claims 2–6, Petitioner relies on Staiger as summarized above. We conclude that Petitioner shows, by a preponderance of the evidence, that claims 1–6 and 20 are unpatentable under 35 U.S.C. § 103(a) over Staiger, Millsap, and Wong.

#### *H. Anticipation by OSEK/VDX*

Petitioner describes OSEK/VDX as “a joint project by sixty-two automotive companies creating an open-ended architecture standard for distributed ECUs in vehicles.” Pet. 17 (citing Ex. 1007, 2). Petitioner’s expert, Dr. Madisetti, further explains that “OSEK/VDX is a standard for interfacing distributed ECUs with real-time operating systems found in automotive networks,” including “seven specifications that together describe ‘interfaces and protocols for the transfer of data . . . between and within

network stations (ECUs).’” Ex. 1003 ¶ 80 (quoting Ex. 1007, 6) (alteration by Dr. Madisetti).

Petitioner’s anticipation challenge based on OSEK/VDX relies on a combination of four references (OSEK Binding, OSEK COM, OSEK FTCom, and OSEK NM) that describe different aspects of various versions of the OSEK/VDX standard. *See* Pet. 14. Petitioner focuses its attention on version “SB3,” which OSEK Binding discloses as encompassing the specific documents relied on, i.e., including version 1.3 of the Binding specification, version 2.2.2 of the communication (“COM”) specification, version 2.5.1 of the network-management (“NM”) specification, and version 1.0 of the OSEKtime COM (“FTCom”) specification. Ex. 1007, 9.

Petitioner contends that these individual specifications “were originally available at <http://osek-vdx.org>” and were archived by The Wayback Machine on September 26, 2001, more than a year before both the effective filing date we accord the claims and more than a year before the filing date of the ’018 provisional application. Pet. 20. To support its contention that the individual documents were publicly accessible on September 26, 2001, Petitioner provides a Declaration of Christopher Butler, Office Manager at the Internet Archive, which manages The Wayback Machine, attesting to its practices regarding archival of files on the Internet. Ex. 1013. Petitioner additionally provides a Declaration of R. Benjamin Cassidy, attesting to his retrieval of certain documents, including Exhibit 1006, which Petitioner contends “confirms that OSEK FTCom was known

to a [person of ordinary skill in the art] at least by December 10, 2002.” Ex. 1014; Pet. 21. Petitioner provides sufficient evidence that each of OSEK Binding, OSEK COM, OSEK FTCom, and OSEK NM is a printed publication.

Nevertheless, we are not persuaded that the four documents are properly considered to constitute a single prior-art reference. “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, *in a single prior art reference.*” *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) (emphasis added).

Petitioner contends that “OSEK/VDX is a ‘single prior art reference’ and thus qualifies as prior art under § 102(a) and/or (b) because the standard comprises only seven specifications, all authored by the same group, and would be considered together, evidenced by their linking and cross-referencing.” Pet. 22 (citing *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 424 F.3d 1276, 1285 (Fed. Cir. 2005)). Although Petitioner correctly observes that “[t]he specifications that make up OSEK/VDX version SB3 are indexed within OSEK Binding,” Petitioner’s overall focus on what it contends is common authorship insufficiently accounts for the different dates of creation of the individual documents. Pet. 22; see *Kyocera Wireless Corp. v. Int’l Trade Comm’n*, 545 F.3d 1340, 1351–1352 (Fed. Cir. 2008) (“the GSM standard is actually several prior art references with separate dates of creation, rather than a single prior art reference”) (“the GSM standard is



simply not a coherent whole document that can be assigned a single prior art date of creation”).

First, each of the individual documents bears a different date on its face, belying any conclusion that they are properly considered as a single reference. Ex. 1007, 1 (Binding Specification dated September 17, 2001); Ex. 1008, 1 (Communication specification dated December 18, 2000); Ex. 1009, 1 (Network Management specification dated May 31, 2000); Ex. 1010, 1 (Fault-Tolerant Communication specification dated July 24, 2001). The SB3 version of the OSEK/VDX standard evidently arises from selective reference to different versions of the individual specifications as they have evolved over time. *See* Ex. 1007, 3 (“As the standardisation of requirements that are applicable to different OSEK/VDX specifications should not be replicated within the different specifications, this document is therefore set-up to collate all requirements that are owned by the different specifications.”) (italicization omitted).

Second, Petitioner’s argument that the individual documents are commonly authored is tenuous at best. Petitioner too sweepingly treats two groups responsible for creation of the documents (the “OSEK group” and the “OSEK/VDX steering committee”) as defining a single authorship, without addressing the composition of those groups and potential changes in that composition over the time period in which the individual specifications were created. *See* Pet. 23. This deficiency is particularly notable in light of the

large number of entities (sixty-two automotive companies) that “attended and contributed to the OSEK/VDX Technical Committee.” *See* Ex. 1007, 2. Accordingly, we find that OSEK Binding, OSEK COM, OSEK FTCom, and OSEK NM are not collectively a “single prior art reference,” and therefore conclude that Petitioner has not demonstrated a reasonable likelihood of prevailing on its anticipation challenge of claims 1–6 and 20 over OSEK/VDX.

*I. Obviousness over OSEK Binding, OSEK COM,  
OSEK FTCom, and OSEK NM*

As an alternative to its anticipation challenge, Petitioner contends that claims 1–6 and 20 would have been obvious over OSEK/VDX “to the extent that the combined specifications comprising OSEK/VDX are not found to be a single prior art publication.” Pet. 84. Petitioner reasons that a person of ordinary skill in the art “would naturally consider the OSEK/VDX specifications together in order to gain a complete understanding of the standard and the capabilities of ECU nodes,” supporting that reasoning with testimony by Dr. Madisetti. *Id.* (citing Ex. 1003 ¶ 197; *DyStar Textilfarben*, 464 F.3d at 1367 (Fed. Cir. 2006)). Particularly in light of OSEK Binding’s specific reference to each of the specifications in defining version SB3 (Ex. 1007, 9), we agree with that contention and conclude that Petitioner articulates sufficient reasoning to combine the teachings of the four

documents. Patent Owner does not contest Petitioner’s rationale for combining the teachings of the four documents.

*1. Independent Claim 1*

Figure 1-2 of OSEK Binding is reproduced below.

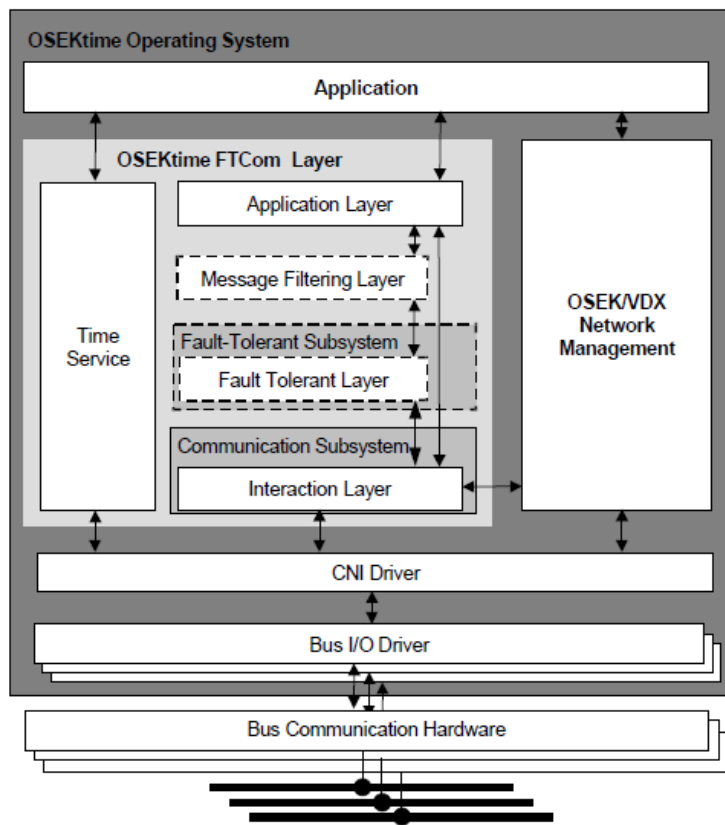


Figure 1-2 Layer model of OSEK/VDX with OSEKtime OS

Figure 1-2 illustrates a layer model of OSEK/VDX that shows interfaces to multiple networks for sending messages in “distributed fault-tolerant highly dependable real-time applications.” Ex. 1007, 7. As shown in the drawing,

each interface has multiple layers for receiving and processing messages, i.e., “sharing information,” as recited in the preamble of claim 1.

In analyzing the specific limitations of independent claim 1, the Petition focuses primarily on OSEK NM, supplementing its analysis with specific reference to portions of OSEK COM, in addressing limitations dealing with the treatment of the availability of a storage resource and real-time sharing of information, as well as in addressing the gateway functions and interface portions of an associated ECU recited in limitations 1.8–1.10. Pet. 56–77. Petitioner observes that the protocol includes transmission and receipt of information in the form of a message between ECUs with a particular type of network, such as CAN, VAN, J1850, K-BUS, and D2B, which it correlates with the “first network protocol associated with a first network,” recited in limitation 1.1 and as further illustrated in Figure 2 of OSEK NM, reproduced below. Pet. 57–58 (citing Ex. 1009, 7, 9).

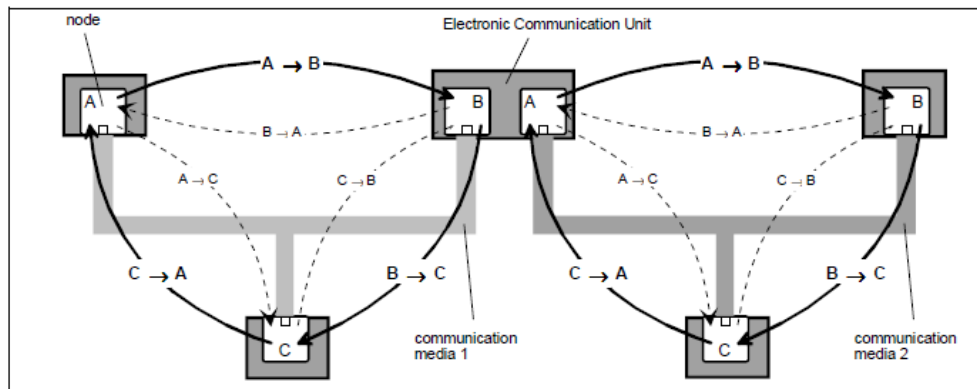


Figure 2 Infrastructure of the NM (logical ring), example with two busses

Figure 2 shows an infrastructure of a logical ring that includes an electronic communication unit and in which, for example, node A receives messages from node C. Ex. 1009, 9.

*a. Limitations 1.2–1.5*

In addressing claim 1’s treatment of a storage resource, Petitioner contends that OSEK NM discloses determining whether nodes in a network are present and able to transfer information because each node in the network has a “data buffer” and because each node is actively monitored by every other node in the network to determine whether another node is available. Pet. 58–59 (citing Ex. 1009, 8–10, 11, Fig. 4). Petitioner thus draws a correlation between such a “data buffer” and the “storage resource” recited in the claim. *Id.* at 58–59. In addition, Petitioner points to OSEK NM’s disclosure of a set of timers, i.e.,  $T_{Typ}$ ,  $T_{Max}$ , and  $T_{Error}$ , that determine when to send requests and error notifications to other network nodes. *Id.* at 60 (citing Ex. 1009, 24–25). A node is determined to be unavailable when a message is not received from that node within a specified timeframe based on such timers. Ex. 1009, 9–10.

Thus, for limitation 1.3, which is performed “in the event the storage resource is not available,” Petitioner observes that OSEK NM describes a recovery state for an unavailable node that starts the  $T_{Error}$  timer, which acts to determine whether a timeout has been reached or not. Pet. 61–62. Petitioner draws a correspondence between OSEK NM’s teachings related to

receiving another message from the unavailable node and a “re-request in connection with the storage resource if the timeout has not been reached,” with the normal mode being re-established when the message is received. *Id.* (citing Ex. 1009, 25, 26, 45, 47, 52). Conversely, if the  $T_{\text{Error}}$  times out, a “LimpHome” message is transmitted, which Petitioner identifies with the “error notification” recited in limitation 1.4. *Id.* at 62–63 (citing Ex. 1009, 25). Petitioner supports its analysis with testimony by Dr. Madisetti. Ex. 1003 ¶¶ 159–160. In the event that the node is available, the data are stored in the buffer, which Petitioner contends corresponds to limitation 1.5 requiring “causing storage of the information utilizing the storage resource.” Pet. 63–64 (citing Ex. 1009, 11, 20).

Patent Owner disputes two aspects of this portion of Petitioner’s analysis. First, Patent Owner contends that OSEK/VDX does not disclose “causing a determination as to whether a storage resource is available.” PO Resp. 45–46. This contention appears to be based on a reading of the word “causing” as imputing a requirement for direct interrogation as to the availability status of the recited storage resource:

In OSEK, transmission of a status message is a signal that the *transmitted node* – not the node receiving the status message—is “alive” on the network. Nodes in the logical ring therefore determine the status of other network nodes based on messages *received from* them, not *transmitted to* them. Unless there are only two nodes on a given network, in normal operation a “monitoring” node will never receive a response to a network message directly back from a node to which it transmits, because

there will be at least one more node present in the ring sequence, interposed in the return path.

*Id.* (citing Ex. 2001 ¶ 77). This argument, which refers to a response “directly back” from a node to which a monitoring node transmits, is not persuasive because it is not commensurate with the scope of the claim limitation. Rather, we agree with Petitioner that the limitation does not include requirements regarding “where and how the determination is made,” and that “making a determination of the availability of another node based on messages received from that node falls within the scope” of the limitation. Reply 18. That is, a node “causes” itself to make a “determination as to whether a storage resource is available” based on information it receives from other nodes.

Second, Patent Owner contends that OSEK/VDX does not disclose “in the event the storage resource is not available, determining whether a timeout has been reached and causing a re-request in connection with the storage resource if the timeout has not been reached.” PO Resp. 47–50. Patent Owner’s argument is similar to the argument it makes in connection with limitation 1.2, i.e., that “Petitioner points directly to *receiving* a message as evidence for disclosure of ‘*causing a re-request*’” and that “[r]eceiving a message is the opposite of sending one, which is what is required in order to ‘cause’ a re-request.” *Id.* at 49. This argument is unpersuasive for similar reasons, namely the claim’s silence regarding how

the “re-request” is made. As Petitioner asserts, “[t]he ‘re-request’ caused in element [1.3] is just another determination of element [1.2].” Reply 20.

Accordingly, with Petitioner’s identifications and reasoning, it makes a sufficient showing for limitations 1.2–1.5.

*b. Limitations 1.6–1.7*

For the real-time sharing limitations 1.6–1.7, Petitioner relies on OSEK NM’s disclosure of sharing message data that a node receives from a logical predecessor with a logical successor. Pet. 64–65 (citing Ex. 1009, 11, Fig. 4). Petitioner addresses the requirement of a second network using a second, different network protocol by observing that OSEK NM “describes that the several busses may be low-speed CAN and/or high-speed CAN,” which Dr. Madisetti testifies “utilize different protocols and have different network architectures.” *Id.* at 67; Ex. 1003 ¶ 167. Further, the Petition identifies an example in OSEK NM in which  $T_{Typ}$ , the time within which the sharing occurs, is described as “70ms,” consistent with the construction of “real-time” we adopt herein. Pet. 65.

Patent Owner disputes Petitioner’s argument with respect to limitation 1.7, i.e., “in real-time, sharing the information utilizing at least one message format corresponding to a second network protocol associated with a second network which is different from the first network protocol.” PO Resp. 50–54. Patent Owner contends that “the process which Petitioner deems to be ‘sharing’ is actually nothing more than transmission of data between nodes



on a logical ring confined to a single network, and, thus, amounts to no more than simple network transmission.” *Id.* at 51 (citing Ex. 2001 ¶ 88).

But Figure 2 of OSEK NM, reproduced above, provides an illustration of a logical ring with two communication media (“communication media 1” and “communication media 2”) that correspond to the “first network” and the “second network” recited in the claim. *See* Reply 21–22; Ex. 1009, 8; Ex. 1026 ¶ 47. And Patent Owner’s argument implicitly applies a construction of “sharing the same information” that we do not adopt. *See* PO Resp. 52 (“sharing in the context of the invention of the ‘705 Patent requires sharing information in real time between two networks, via a shared memory resource”).

We are also not persuaded by Patent Owner’s argument that “OSEK does not meet the real-time requirement.” PO Resp. 53. Petitioner argues persuasively that “OSEK/VDX discloses sharing message data that a node receives from a logical predecessor with a logical successor within predetermined time  $T_{Typ}$ ,” which is disclosed as being 70 ms. Reply 23 (citing Ex. 1009, 20–22, 60).

With its identifications and reasoning, Petitioner thus makes a sufficient showing with respect to limitations 1.6 and 1.7.

*c. Limitations 1.8–1.10*

Petitioner’s analysis of the remaining limitations includes identification of the electronic communication unit shown in Figure 2 of

OSEK NM, reproduced above, as having the “gateway function” recited in limitation 1.8. *Id.* at 68–69. Petitioner contends that such an ECU has a “plurality of interface portions” that are illustrated in Figure 1 of OSEK NM, reproduced below. *Id.* at 69–70.

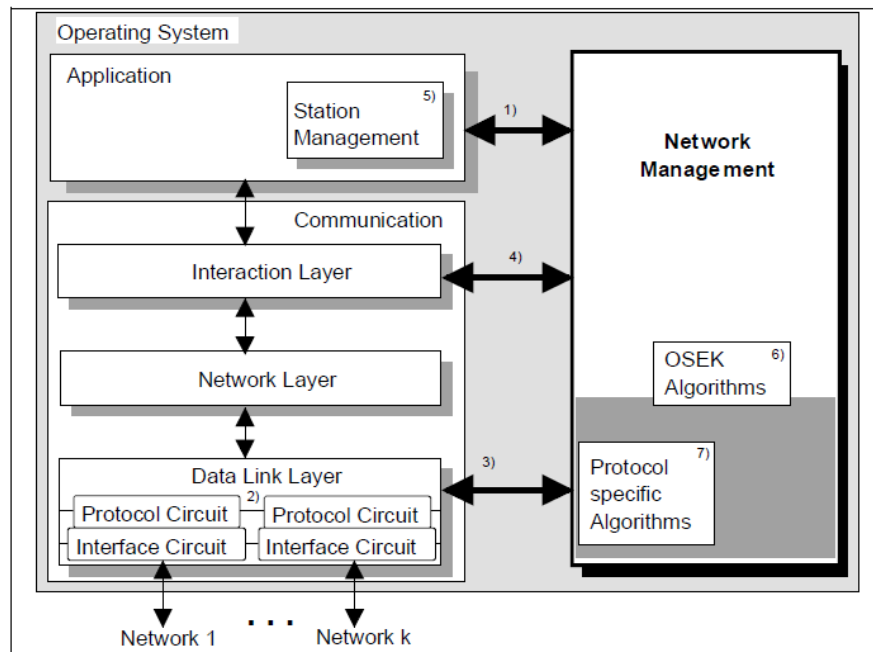


Figure 1 interface and algorithms responsibility

Figure 1 illustrates “interface and algorithms responsibility” of an ECU microcontroller with multiple interfaces shown in the “Data Link Layer” in the lower left of the drawing Ex. 1009, 7–8. To address the specific structure for the interface portions recited in limitations 1.9 and 1.10, Petitioner provides an annotated drawing that makes correspondences between the “first interface portion” and communication to “Network 1,” and similarly between the “second interface portion” and communication to “Network k.” Pet. 74–76. The respective “first layer part” and “second

layer part” for each interface portion are further identified by Petitioner as corresponding to the “Interface Circuit” and “Protocol Circuit” for each network. *Id.* In making these correspondences, Petitioner again relies on low-speed CAN and high-speed CAN being different networks, a point on which we credit the testimony of Dr. Madisetti. *See* Ex. 1003 ¶ 177. With these identifications, Petitioner makes a sufficient showing with respect to limitations 1.8–1.10.

*d. Summary*

We conclude that Petitioner shows, by a preponderance of the evidence, that independent claim 1 is unpatentable under 35 U.S.C. § 103(a) over OSEK Binding, OSEK COM, OSEK FTCom, and OSEK NM.

*2. Dependent Claims 2–6*

Petitioner also makes a sufficient showing with respect to dependent claims 2–6, to which Patent Owner does not respond separately. *See* PO Resp. 54 (“Petitioner has not demonstrated that OSEK meets the limitations of claim 1, and, thus, claims 2-6 are not rendered unpatentable.”).

In addressing claim 2’s requirement of information replication among a plurality of storage resources, Petitioner identifies disclosure in OSEK COM that “a message may only have a single sender in a system, but it may have any number of receivers.” Pet. 77 (citing Ex. 1008, 17). With respect to the “storage resource manager” limitations of claims 3 and 4, Petitioner

identifies the OSEKtime FTCom Layer shown in Figure 1-2 of OSEK Binding, reproduced above, as meeting these limitations by extracting information from a message received by that layer and by converting information from a signal received by that layer. *Id.* at 78–81. For the limitations of claims 5 and 6, requiring sharing in a “single task” and “according to a schedule,” Petitioner provides sufficient identification of different transmission modes as corresponding to these requirements. *Id.* at 81–82.

We conclude that Petitioner shows, by a preponderance of the evidence, that claims 2–6 are unpatentable under 35 U.S.C. § 103(a) over OSEK Binding, OSEK COM, OSEK FTCom, and OSEK NM.

### *3. Independent claim 20*

As noted above, independent claim 20 differs from claim 1 principally in that it is directed to a system, rather than a method, with the system including a processor and a memory that stores various logic elements in parallel with the steps of claim 1. Ex. 1001, col. 14, l. 38–col. 16, l. 7. Petitioner provides sufficient identification that the OSEK/VDX system includes a processor and memory with logic for implementing the disclosed methods, and draws adequate comparison of the limitations in claims 1 and 20. Pet. 83. In particular, we find OSEK Binding’s disclosure of “an open-ended architecture for distributed control units in vehicles” and OSEK NM’s disclosure of microcontrollers to implement the standard sufficient to

support Petitioner’s position. Pet. 83; Ex. 1007, 2; Ex. 1009, 7–8; Ex. 1003 ¶ 193 (Dr. Madisetti testifying that “[i]t was well known at the time of the invention that  $\mu$ Controllers and microprocessors either included memory or were interfaced with a memory in order to execute code to implement methods”).

Patent Owner does not respond separately to Petitioner’s arguments. *See* PO Resp. 54 (“The distinctions drawn between OSEK and the limitations of claim[]1 apply here, and, thus, claim 20 is not unpatentable.”).

We conclude that Petitioner shows, by a preponderance of the evidence, that independent claim 20 is unpatentable under 35 U.S.C. § 103(a) over OSEK Binding, OSEK COM, OSEK FTCom, and OSEK NM.

#### *4. Summary*

For the foregoing reasons, we conclude that Petitioner shows, by a preponderance of the evidence, that claims 1–6 and 20 are unpatentable under 35 U.S.C. § 103(a) over OSEK Binding, OSEK COM, OSEK FTCom, and OSEK NM.

#### *J. Obviousness over OSEK Binding, OSEK COM, OSEK FTCom, OSEK NM, Millsap, and Wong*

Petitioner alternatively challenges claims 1–6 and 20 as unpatentable under 35 U.S.C. § 103(a) over OSEK Binding, OSEK COM, OSEK FTCom, OSEK NM, Millsap, and Wong. Pet. 84–90. Similar to its analysis

challenging those claims over Staiger, Millsap, and Wong, Petitioner applies further disclosures of Millsap and Wong “[t]o the extent that OSEK/VDX alone does not disclose limitations 1.8-1.10,” but otherwise relies on its previous analysis. *Id.* at 85. Similar to the reasons we express above, Petitioner identifies sufficient disclosures in Millsap and Wong to support its position at this stage. Petitioner also provides sufficient reasons to combine the teachings of Millsap and Wong with those of OSEK Binding, OSEK COM, OSEK FTCom, and OSEK NM that generally parallel its reasoning for combining Millsap and Wong with Staiger. *Id.* at 86, 88–89.

For reasons similar to those expressed above in our analysis of the challenged claims over Staiger, Millsap, and Wong, Petitioner makes a sufficient showing. Although Patent Owner contends that Petitioner’s reasoning for combining the references is “very generic,” it concedes that “[t]he issue . . . is less whether a skilled artisan would combine the references [than] that the references, as combined, still do not show all the ‘705 Patent limitations.” PO Resp. 55 (citing Ex. 2001 ¶ 100). Indeed, Patent Owner “incorporate[s]” its “prior analysis of Millsap and Wong,” while reiterating arguments that attack the references individually rather than considering the combination. *Id.* at 55–57.

We conclude that Petitioner shows, by a preponderance of the evidence, that claims 1–6 and 20 are unpatentable over OSEK Binding, OSEK COM, OSEK FTCom, OSEK NM, Millsap, and Wong.

*K. Constitutionality of Inter Partes Review Proceedings*

Patent Owner contends that “this IPR should be terminated and the petition dismissed because the IPR system is unconstitutional.” PO Resp. 59–60. This argument is foreclosed by the Supreme Court’s determination otherwise. *Oil States Energy Services, LLC v. Greene’s Energy Group, LLC*, 138 S.Ct. 1365 (2018) (“In this case, we address whether inter partes review violates Article III or the Seventh Amendment of the Constitution. We hold that it violates neither.”).

III. ORDER

It is

ORDERED that Petitioner’s Motion to Exclude (Paper 20) is *denied*;  
FURTHER ORDERED that, based on a preponderance of the evidence, claims 1–6 and 20 of U.S. Patent No. 8,209,705 B2 are held to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2017-00676  
Patent 8,209,705 B2

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