

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FARMERS EDGE, INC., FARMERS EDGE (US), INC.,
Petitioner,

v.

AGI SURETRACK, LLC¹,
Patent Owner.

IPR2023-00166
Patent 11,107,017 B2

Before FRANCES L. IPPOLITO, ROBERT L. KINDER, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

KINDER, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

¹ We note that Patent Owner's Updated Mandatory Notice filed on February 24, 2023 indicates now that "[t]he real-party-in-interest is AGI SureTrack, LLC, the owner of U.S. Patent No. 11,107,017." Paper 7, 1. Previously, Farmobile LLC was identified as the owner. Paper 4, 2.

I. INTRODUCTION

Farmers Edge Inc. and Farmers Edge (US) Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–10 of U.S. Patent No. 11,107,017 B2 (Ex. 1001, “the ’017 patent”). AGI Suretrack LLC (“Patent Owner”) filed a Preliminary Response to the Petition (Paper 6, “Prelim. Resp.”). Pursuant to the Board’s authorization, Petitioner filed a Preliminary Reply to the Preliminary Response (Paper 8, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 9, “Prelim. Sur-reply”).

To institute an *inter partes* review, we must determine that the information presented in the Petition shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). For the reasons set forth below, upon considering the Petition, Preliminary Response, Preliminary Reply, Preliminary Sur-reply, and evidence of record, we determine that the information presented in the Petition does not establish a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. Accordingly, we do not institute *inter partes* review.

A. *Related Proceedings*

As to related proceedings, the parties identify that the ’017 patent is asserted in the District Court case: *Farmobile LLC v. Farmers Edge Inc. et al.*, Case No. 8:22-cv-00275 (D.Neb.), filed November 2, 2021. Pet. 63, Paper 7.

Additionally, patents related to the ’017 patent are the subject of petitions in IPR2022-00158 (U.S. Patent No. 11,126,937 B2), IPR2022-

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00159 (U.S. Patent No. 11,151,485 B2), IPR2023-00164 (U.S. Patent No. 11,164,116 B2), and IPR2022-00165 (U.S. Patent No. 10,963,825 B2).
Papers 4, 7.

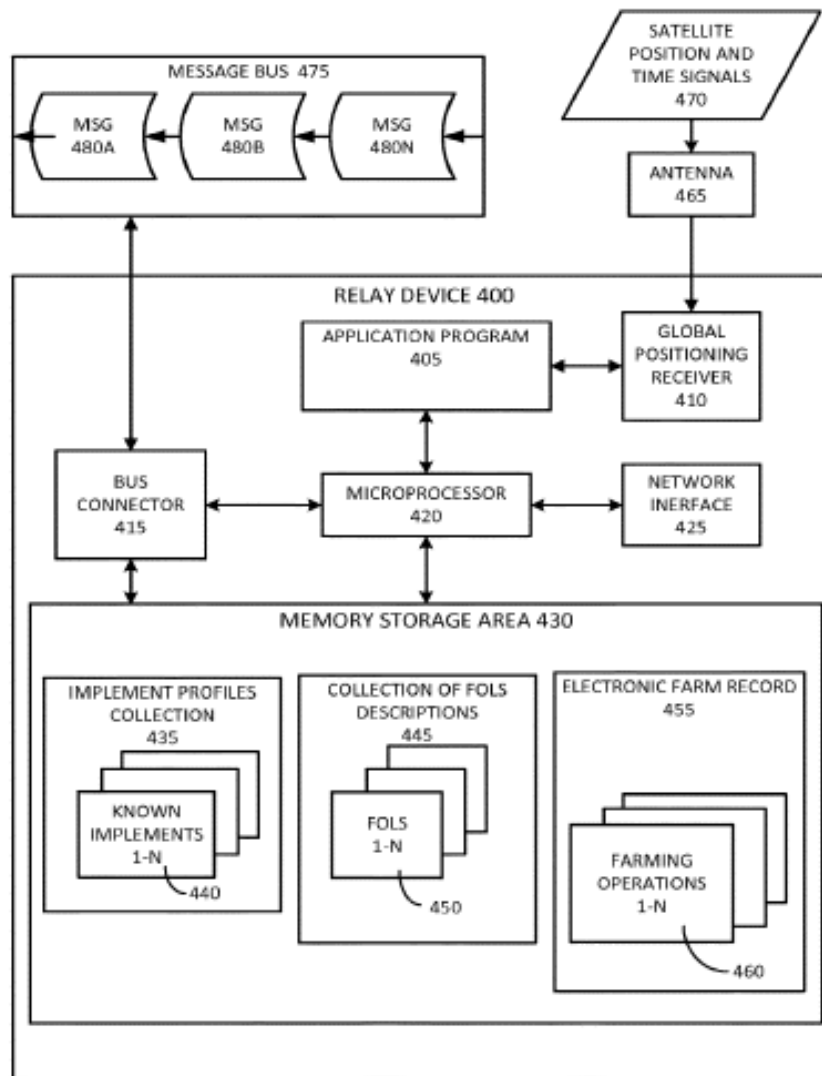
B. The '017 Patent (Ex. 1001)

The '017 patent, titled “FARMING DATA COLLECTION AND EXCHANGE SYSTEM,” is directed to “automated systems and methods for capturing, processing and sharing farming data, and more particularly to systems and methods for capturing farming operation data in real time using passive data collection devices attached to farming equipment.” Ex. 1001, code (54), 1:23–31.

The Specification states that the “invention provide[s] a passive relay device for farming vehicles and implements, as well as an online farming data exchange, which together enable capturing, processing and sharing farming operation data generated during combined use of the farming vehicle and farming implement at a farming business.” *Id.* at code (57). The invention describes a relay device including “a microprocessor, a bus connector, a global positioning receiver, a memory storage area, a cellular radio and an application program.” *Id.* at 3:52–54. “The memory storage area in the relay device stores (i) an electronic farm record for the farming business, (ii) descriptive information about one or more farming operation land segments associated with the farming business, and (iii) a collection of implement profiles.” *Id.* at 3:63–67. The collection of implement profiles “defin[e], for a collection of known farming implements, a known manufacturer code, a known device class, a known version and a known communication protocol.” *Id.* at 3:66–4:3.

Figure 4, reproduced below, is a block diagram of “the primary physical and logical components of a relay device 400” together with certain other components. *Id.* at 13:52–56.

FIG. 4



As shown in Figure 4, above, the block diagram includes relay device 400, message bus 475, and antenna 465. The relay includes microprocessor 420, bus connector 415, global positioning receiver 410, memory storage area 430, application program 405, and network interface 425. Message bus 475 can be positioned on a farming vehicle or farming implement and can send

messages to relay 400 through the relay's bus connector 415. *Id.* at 13:65–14:4. The relay's global positioning receiver 410 is connected to antenna 465 which is configured “to receive position and time signals 470 generated by space-based satellites.” *Id.* at 14:4–8.

Memory storage area 430 stores electronic farm record 455, descriptive information about one or more farming operation land segments associated with the farming business 445, and a collection of implement profiles 435. *Id.* at 14:9–17, 14:38–50. The “collection 435 of implement profiles [can] defin[e], for a collection of known farming implements 440, a known manufacturer code, a known device class, a known version and a known communication protocol.” *Id.* at 14:9–13.

Application program 405 includes programming instructions for microprocessor 420 to cause the microprocessor to automatically extract content from one or more messages transmitted on the message bus, and then use the extracted content to automatically determine whether there is a match between the farming implement used to perform the farming operation and a known farming implement 440 in the collection of implement profiles 435. *Id.* at 14:62–15:4. When there is a match, the system “knows” which farming implement is being used, and can rely on the stored communication protocol in the profile to communicate with the farming implement over the message bus according to this communication protocol. *Id.* at 15:4–24.

Application program 405 can also use the extracted content, the position and time signals from the GPS receiver, and the known communication protocol defined by the implement profile for the known farming implement to determine a set of operating events that occur during

performance of the farming operation. *Id.* at 15:18–31. Application program 405 can also record other information about the farming operations, farming operation land segments, etc. *Id.* at 15:31–53.

Figure 5, reproduced below, shows a high-level block diagram for a farming data exchange system:

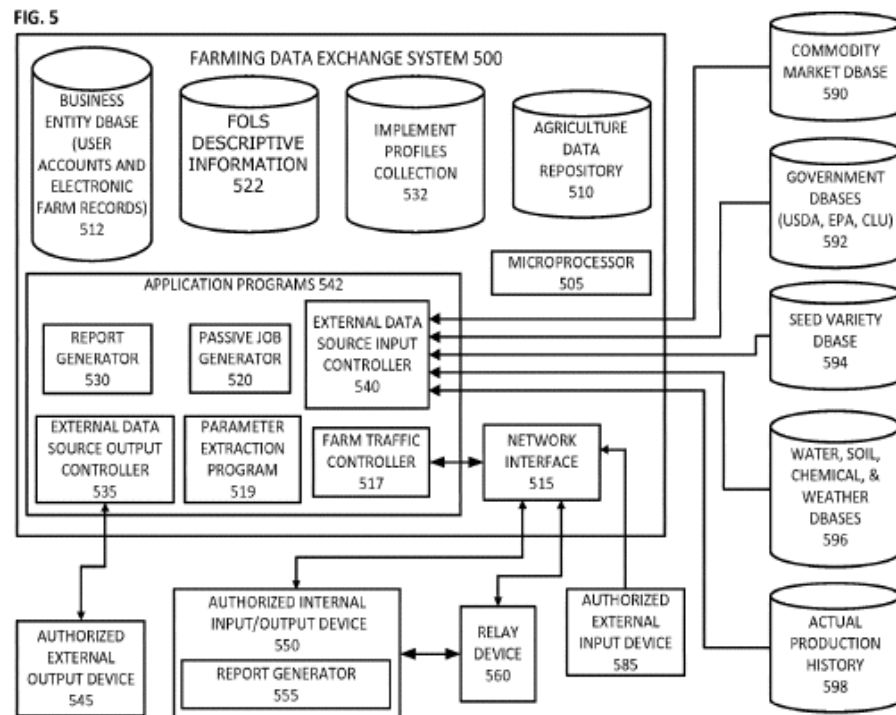


Figure 5 shows a high-level block diagram for a farming data exchange system contemplated by the '017 patent. *Id.* at 7:43–45. As shown, farming data exchange system 500 includes microprocessor 505, first data store 512 for storing a business entity database comprising user account and an electronic farming record for a farming business. *Id.* at 15:56–60. Data exchange system 500 further includes second data store 522 for storing descriptive information about a farming operation land segment associated with the farming business, and third data store 532 for storing an implement profile defining the known manufacturer codes, known device classes,

known versions and known communication protocols for a collection of known farming implements. Ex. 1001, 15:60–66.

The '017 patent describes that application programs 542 include software programs that automatically extract implement information, such as the manufacturer code and device class, from an address claim message in the message data received from relay device 560 and determine if they match a known manufacturer code and a known device defined by one of the implement profiles in implement profiles collection data store 532. *Id.* at 16:21–29. In operation, the '017 discloses that

application program 542 will next extract an object pool version from an object pool message in the messages received from the relay device 560 via the network interface 515 and determine whether it matches the known object pool version in the implement profile. If the object pool version matches the known object pool version, then the application program will use the known communication protocol defined by the selected matching implement profile to parse and interpret the content of subsequently transmitted messages. *The extracted content, the position data, the time data and the known communication protocol defined by the implement profile for the known farming implement are then used by the application program 542 to determine a set of operating events and a travel path for the farming operation that generated the messages captured by the relay device 560.*

Id. at 16:29–44 (emphases added).

C. Illustrative Claims

Petitioner challenges claims 1–10 (“challenged claims”), which are all of the claims of the '017 patent. Pet. 1. Claim 1 is the sole independent claim and claims 2–10 depend from claim 1. Claim 1 is reproduced below.

1. A farming data exchange system, comprising:
 - (a) a microprocessor;

(b) a memory storage area for storing a user account, an electronic farming record for a farming business, a defined filtering set for message data, descriptive information about a farming operation land segment associated with the farming business, and a plurality of implement profiles each defining, for a known farming implement, a known manufacturer code, a known device class, a known version and a known communication protocol;

(c) a network interface configured to receive the message data, position data and time data acquired by a remote relay device connected to a farming vehicle or farming implement while the farming vehicle or farming implement is used to perform a farming operation at the farming business; and

(d) an application program having programming instructions that, when executed by the microprocessor, will cause the microprocessor to automatically:

(i) extract content from the message data based on the defined filtering set and use the extracted content to determine that there is a match between the farming implement used to perform the farming operation and the known farming implement corresponding to one of the plurality of implement profiles,

(ii) use the extracted content, the position data, the time data and the known communication protocol defined by said one of the plurality of implement profiles to determine a set of operating events for the farming operation,

(iii) determine, based on the set of operating events, that at least one section of the farming implement was in a deactivated state during at least part of the farming operation,

(iv) determine a travel path for the farming operation based on the deactivated state and the position and time data, and

(v) record in the electronic farm record a travel path description for the farming operation;

(e) wherein the travel path includes only areas of land on the farming operation land segment where the farming vehicle and farming implement traveled while the farming implement was not in the deactivated state, and does not include any areas of land on the farming operation land segment where the farming vehicle and the farming implement either (i) traveled while the farming implement was in the deactivated state, or (ii) did not travel during the farming operation.

Ex. 1001, 25:37–26:18.

D. The Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–10 would have been unpatentable on the following grounds:

Reference(s)/Basis	35 U.S.C. §	Claim(s) Challenged
Nadison 610, ² Johnson, ³ ISO11783 ⁴	103	1–10

Pet. 11. In support of its unpatentability arguments, Petitioner relies on the declaration testimony of Aaron Ault (Ex. 1002, the “Ault Declaration”). *Id.* Patent Owner relies on the declaration testimony of George Edwards (Ex. 2001, the “Edwards Declaration”).

² EP 2 529 610 A1, Dec. 5, 2012 (Ex. 1006).

³ US 2013/0173321 A1, July 4, 2013 (Ex. 1019).

⁴ ISO 11783-1:2007 (June 15, 2007) (Ex. 1008, “Part 1”); ISO 11783-3:2007 (Oct. 1, 2007) (Ex. 1009, “Part 3”); ISO 11783-5:2001 (May 1, 2001) (Ex. 1010, “Part 5”); ISO 11783-6:2004 (June 15, 2004) (Ex. 1011, “Part 6”); ISO 11783-7:2002 (Sept. 1, 2002) (Ex. 1012, “Part 7”); ISO/ISO/FDIS 11783-10:2007 (Ex. 1013, “Part 10”); ISO 11783-13:2007 (May 15, 2007) (Ex. 1029, “Part 13”); ISO 11783-11:2007 (April 1, 2007) (Ex. 1032, “Part 11”); ISO 11783-4:2001 (May 1, 2001) (Ex. 1039, “Part 4”).

II. ANALYSIS

A. *Principles of Law*

In *Graham v. John Deere Co.*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.” *Id.* at 17–18. “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the Federal Circuit has “repeatedly emphasized that an obviousness inquiry requires examination of all four *Graham* factors and that an obviousness determination can be made only after consideration of each factor.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016) (“A determination of whether a patent claim is invalid as obvious under § 103 requires consideration of all four *Graham* factors, and it is error to reach a conclusion of obviousness until all those factors are considered.”).

B. *Level of Ordinary Skill in the Art*

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner contends that a person of ordinary skill in the art at the time of the invention of the '017 patent would have had:

a bachelor's degree in either electrical, computer, mechanical, or agricultural engineering or a similar degree and have at least 2 years of experience in heavy machinery telematics, and agricultural practice (including modern farming machinery and precision agriculture devices and systems), as well as networking and communications protocols specific to modern farming machinery and software development.

Pet. 11. Patent Owner does not dispute this level of skill.

See Prelim. Resp. 14. For purposes of this Decision, we adopt Petitioner's proposal as reasonable.

C. Claim Construction

For petitions filed on or after November 13, 2018, the “broadest reasonable interpretation” standard has been replaced with the federal court claim construction standard that is used to construe a claim in a civil action under 35 U.S.C. § 282(b). This is the same claim construction standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny.

Petitioner asserts “[n]o terms need construction for this IPR” but “reserves the right to identify terms for construction as may become necessary in . . . ‘the District Court case’[] and to respond to any constructions that Patent Owner submits.” Pet. 20. Patent Owner “agrees with Petitioner that no terms require construction” and also “reserves the right to identify terms for construction as may become necessary in the parallel district court litigation . . . and to respond to any construction that Petitioner may submit.” Prelim. Resp. 15.

On this record, we determine that no claim term requires an express construction for the purpose of determining whether to institute *inter partes* review. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Prior Art

1. Overview of Nadison 610 (Ex. 1006)

Nadison 610 is titled “Method for harvest monitoring.” Ex. 1006, code (54). Nadison 610’s “invention relates to a method for monitoring agricultural work, in particular for monitoring the amount of product harvested[, and] further concerns a computer program, a processing unit and an agricultural machine for performing the method.” *Id.* ¶ 1. Nadison 610 explains that “harvest control allows for optimization of harvesting logistics, storage management, processing and packaging logistics and for adjustments of supply opposite demand.” *Id.* ¶ 6. Nadison 610 identifies “yield monitoring systems,” but further explains that for some harvesters, the sensors built into the machinery are unreliable or absent. *See id.* ¶ 7 (stating that “for most specialty harvesters (e.g. vegetable, potato) such systems are either not available or not reliable enough.”). Nadison 610 notes that “the large variation of size, shape, density and sensitivity of the various crops requires very specific designs for each yield monitoring system,” and “other material such as soil or other plant parts (leaves) moved through the harvester together with the product create additional challenges.” *Id.*

Nadison 610 proposes a solution for monitoring the amount of product harvested. *Id.* ¶ 11. Nadison 610 uses “a predetermined yield map” with “positional data and sensor data” that conveys location of the agricultural machine and information on the state of the equipment of the agricultural machine. *Id.* The amount of product harvested is calculated based on the positional data, the sensor data, and the predetermined yield map. *Id.* Nadison 610 further explains that “the amount of product harvested is calculated on basis of the length of the path harvested as determined from the positional data, the yield map and the working width of the machine.” *Id.* ¶ 27. Nadison 610 describes that “the sensor data comprises information on a state of the equipment, wherein the state of the equipment includes information whether the equipment is active, *i.e.* engaged and/or running, and whether product is flowing through the equipment.” *Id.* ¶ 35.

2. *Overview of Johnson (Ex. 1019)*

Johnson is generally directed to “methods, graphical user interfaces (GUI), computer-readable media, data, and systems for dynamically generating, updating, and executing a crop-harvesting plan.” *Id.* ¶ 1. Johnson’s Figure 1, reproduced below, illustrates a block diagram of such an “exemplary system” contemplated. *Id.* ¶ 29.

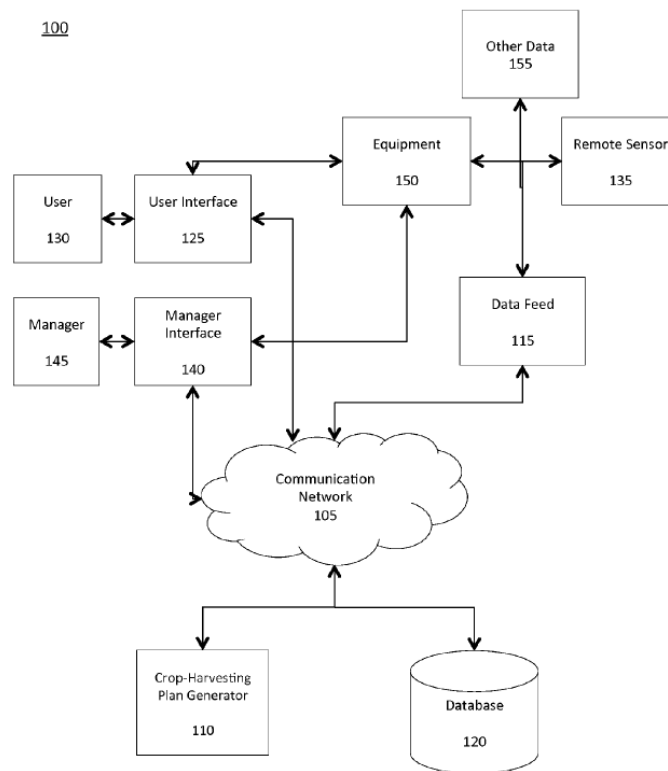


Figure 1

According to Figure 1, system 100 includes communication network 105, crop-harvesting plan generator 110, data feed 115, database 120, user interface 125, user 130, remote sensor 135, manager interface 140, manager 145, one or more pieces of equipment used to execute the plan 150, and other data sources 155. *Id.* Johnson further teaches that “[c]rop-harvesting plan generator 110 may be configured to generate a crop-harvesting plan by receiving input from user 130, data feed 115, manager 145, remote sensor 135, accessing data stored in database 120 and/or equipment 150.” *Id.* ¶ 32. Additionally, equipment 150 may be connected to system 100 via network 105, database 120, remote sensor 135, data feed 115, manager 145, user 130, and/or crop-harvesting plan generator 110. *Id.* ¶ 42.

3. *Overview of ISO11783*
(Exs. 1008–1013, 1029, 1032, 1039)⁵

The ISO11783 is generally titled “Tractors and machinery for agriculture and forestry–Serial control and communications data network.” *See, e.g.*, Exs. 1008–1013. Petitioner asserts, and Patent Owner does not dispute, that ISO11783 “is comprised of thirteen parts that were first published between 2001 and 2009[,]” and is “prior art under 35 U.S.C. §102(a).” Pet. 9; *see also generally* Prelim. Resp. Though ISO11783 includes thirteen parts, Petitioner only relies on, or has placed in evidence, parts 1, 3–7, 10, 11, and 13. *See* Exs. 1008–1013, 1029, 1032; Pet. 19–20, 33–34. Thus, for the purposes of this Decision, ISO11783 is limited to the noted parts, and we do not rely on or consider the other parts.

Generally, the ISO11783 specifies a communications system for agricultural equipment based on the CAN 2.0 B protocol and Society of Automotive Engineers (“SAE”) J 1939 documents developed jointly for use in truck and bus applications and for construction and agriculture applications. Ex. 1008, 5. “The purpose of ISO 11783 is to provide an open, interconnected system for on-board electronic systems. It is intended to enable electronic control units (ECUs) to communicate with each other, providing a standardized system.” *Id.*

To this end, ISO11783 teaches that “device description data” specifies device-related properties that can be supplied by the device manufacturer as

⁵ Exhibits 1008–1013, 1029, 1032, 1039 contain two sets of page numbers. The Petition refers to the page numbers in bold, which are not the same numbers as the stamped exhibit page numbers. For clarity, we refer to the exhibit page numbers and reference the citation in the Petition when needed.

a set of XML definitions. Ex. 1013, 28. As an example, ISO11783 teaches that

a device description for a sprayer contains the geometry of the sections or nozzles, the number of tanks and their volumes, and supported process data variables. This information shall be specified by DeviceElement, DeviceProperty, and DeviceProcessData XML elements in the file.

The first element of DeviceElements represents the device itself and gets ElementNumber = 0. For this DeviceElement, the ParentIdRef refers to the XML element device.

Id. Additionally, ISO11783 discloses that each device is defined by at least one XML element 'DeviceElement' and the optional device-element-related XML elements 'DeviceProcessData', 'DeviceProperty' and 'ValuePresentation'. *Id.* at 32. ISO11783 further teaches that “[b]y defining these device descriptions of XML elements as objects similar to how objects are used inside an object-pool definition of ISO 11783-6, all device-related data can be transferred to the task controller by means of the ISO 11783 transport protocol and/or extended transport protocol.” *Id.* ISO11783 further teaches that “DeviceObject” is the object definition of the XML element device. Table A.1 is reproduced below and further describes attributes of ISO11783’s DeviceObject.

Table A.1 — DeviceObject definition

Attribute Name	Type	Size (bytes)	Range or Value	Record Byte	Description
Table ID	String	3	DVC	1-3	XML element namespace for Device.
Object ID	Integer	2	0	4-5	Unique object identifier inside this object pool. Device Object ID = 0.
Number of designator chars (N)	Byte	1	0 .. 32	6	Length of following designator string.
Device Designator	String	0 .. 32		7	Descriptive text to identify this device. This text can be displayed to the operator.
Number of Software version chars (M)	Byte	1	0 .. 32	7+N	Length of following software version string.
Device Software Version	String	0 .. 32		8+N	Software version indicating text.
WorkingSet MasterNAME	Double Integer	8		8+N+M	NAME of Working-set master. The NAME structure is defined in ISO 11783-5
Number of DeviceSerial-Number chars (Q)	Byte	1	0 .. 32	16+N+M	Length of following DeviceSerialNumber string.
DeviceSerial Number	String	0 .. 32		17+N+M	Device and manufacturer-specific serial number.
Device Structure Label	String	7		17+N+M+Q	Label given by Device to identify the Device Description Structure. This label allows the device to identify the current version of the Device Description Object Pool present in a Task Controller and to determine whether an update is needed.
Device Localization Label	Byte Array	7		24+N+M+Q	Label given by Device to identify the Device Description Localization. Bytes 1 to 6 are defined by the Language Command PGN (see ISO 11783-7). Byte 7 is reserved and set to FF ₁₆ .

Id. at 33.

4. Claim 1

Petitioner asserts that each limitation of independent claim 1 is taught by the combination of Nadison 610, Johnson, and ISO11783, and that a person of ordinary skill in the art would have been motivated to combine Nadison 610’s real-time collection of data with Johnson’s database and ISO11783’s ability to communicate between farming implements to reach the claimed invention with a reasonable expectation of success. Pet. 21–48.

Patent Owner disagrees, arguing, among other things, that Petitioner fails to show that the cited references teach or suggest “a plurality of implement profiles . . . each defining . . . a known communication

protocol” with a reasonable expectation of success, as required by claim 1. Prelim. Resp. 16–35; Ex. 1001, 25:43–47.

We agree with Patent Owner.

Claim 1 requires, in pertinent part, that “*a plurality of implement profiles each defining, for a known farming implement, a known manufacturer code, a known device class, a known version and a known communication protocol.*” Ex. 1001, 25:37–26:18 (emphases added).

Petitioner asserts that “Nadison 610 in view ISO11783 renders obvious storing ‘a plurality of implement profiles each defining, for a known farming implement, . . . and a known communication protocol.’” Pet. 35. (citing Ex. 1002 ¶ 162). Petitioner contends that

[a] POSITA would have understood in view of ISO11783 that the NAME field of the address claim procedure is used to identify a machine, including its ISO11783-defined manufacturer code, device class, and version. Ex. 1002 ¶¶163–65. *A POSITA would have also understood that part 10 of ISO11783 teaches to identify a device description object pool [(“DDOP”)] (i.e., a “communication protocol”) using the NAME field. Id.*

Pet. 36 (emphasis added); *see id.* at 37 (“Part 5 of ISO11783 states that ‘[e]very ECU transmitting messages on an ISO11783 network shall have a NAME,’ which ‘describes its function and place in the network.’”). In other words, Petitioner argues that because ISO11783 teaches identifying a known communication protocol using the NAME field of an implement profile, a POSITA would find it obvious in view of ISO11783 that each implement profile in a plurality of implement profiles would define a known communication protocol in that same field. *Id.*

However, the portions of ISO11783 cited in the Petition do not support Petitioner’s arguments or Mr. Ault’s testimony in this regard. For example, Petitioner argues that ISO11783, Part 10 teaches “objects containing the device description data” for the implements include manufacturing code, device class, and device software version. Pet. 35–36. Even assuming Petitioner is correct, missing from this disclosure is any mention of a “communication protocol” required by claim 1. *See also* Ex. 1013, 33 (cited as page 27 in the Petition).

As another example, page 28 of ISO11783, Part 10 (cited as page 22 in the Petition) teaches that the task controller stores the device description for transfer back to the FMIS (farm management information system), but *does not* teach the NAME field or device description includes a communication protocol. *Id.* at 28; *See* Pet. 35–36 (citing Ex. 1013, 28, 33). Rather, ISO11783 teaches that “[t]he task controller shall also store the device description for transfer back to the FMIS. For this transfer of the device description data over the ISO 11783 CAN network, a set of objects is defined. The objects containing the device description data are described in Annex A.” Ex. 1013, 28.

Turning to ISO117783 Table A.1 (reproduced below) Annex A describes attributes of ISO11783's DeviceObjects.

Table A.1 — DeviceObject definition

Attribute Name	Type	Size (bytes)	Range or Value	Record Byte	Description
Table ID	String	3	DVC	1-3	XML element namespace for Device.
Object ID	Integer	2	0	4-5	Unique object identifier inside this object pool. Device Object ID = 0.
Number of designator chars (N)	Byte	1	0 .. 32	6	Length of following designator string.
Device Designator	String	0 .. 32		7	Descriptive text to identify this device. This text can be displayed to the operator.
Number of Software version chars (M)	Byte	1	0 .. 32	7+N	Length of following software version string.
Device Software Version	String	0 .. 32		8+N	Software version indicating text.
WorkingSet MasterNAME	Double Integer	8		8+N+M	NAME of Working-set master. The NAME structure is defined in ISO 11783-5
Number of DeviceSerial-Number chars (Q)	Byte	1	0 .. 32	16+N+M	Length of following DeviceSerialNumber string.
DeviceSerial Number	String	0 .. 32		17+N+M	Device and manufacturer-specific serial number.
Device Structure Label	String	7		17+N+M+Q	Label given by Device to identify the Device Description Structure. This label allows the device to identify the current version of the Device Description Object Pool present in a Task Controller and to determine whether an update is needed.
Device Localization Label	Byte Array	7		24+N+M+Q	Label given by Device to identify the Device Description Localization. Bytes 1 to 6 are defined by the Language Command PGN (see ISO 11783-7). Byte 7 is reserved and set to FF ₁₆ .

Table A.1 labeled “DeviceObject definition” lists attribute names in a far-left column with descriptions for each attribute name in a far-right column. *Id.* at 28. While Annex A provides several definitions for the DeviceObject, Petitioner has not explained persuasively how any of these fields is or includes a “communication protocol.” Indeed, Petitioner has not explained sufficiently how the ISO11783 teaches that that communication protocol is part of the DeviceObject, device descriptions, or NAME field. As shown, Annex A does not discuss or mention a communication protocol for any of these definitions.

Likewise, ISO11783, Table 1-NAME fields (reproduced below), also does not mention a communication protocol.

Table 1 — NAME fields

Field	Definition	No. of bits	Byte no.	Byte ordering ^a	
Self-configurable address	Indicates whether an ECU is self-configurable (1) or not (0); needs always to be known and set to the appropriate value	1	8	Bit 8: Self-configurable address	
Industry group	Defined and assigned by ISO, identifies NAMEs associated with industries (e.g. agricultural equipment)	3		Bit 7 to bit 5: Industry group (most significant at bit 7)	
Device class instance	Indicates occurrence of a particular device class in a connected network; definition depends on industry group field contents (see Figure 1)	4		Bit 4 to bit 1: Device class instance (most significant at bit 4) ^b	
Device class	Defined and assigned by ISO, provides a common NAME for a group of functions within a connected network; when combined with an industry group can be correlated to a common NAME, e.g. "planter" with "agricultural equipment"	7	7	Bit 8 to bit 2: Device class (most significant at bit 8)	
Reserved	Reserved for future definition by ISO	1		Bit 1: Reserved	
Function	Defined and assigned by ISO: when value between 0 and 127, independent of any other field for definition; when > 127 and < 254, definition depends on device class; when combined with industry group and device class, can be correlated to a common NAME for specific hardware, though not implying any specific capabilities	8	6	Bit 8 to bit 1: Function (most significant at bit 8)	
Function instance	Indicates specific occurrence of a function on a particular device system of a network ^a	5		5	Bit 8 to bit 4: Function instance (most significant at bit 8)
ECU instance	Indicates which of a group of ECUs associated with a given function is referenced ^c	3			Bit 3 to bit 1: ECU (most significant at bit 3)
Manufacturer code	Assigned by committee (see ISO 11783-1), indicates manufacturer of ECU for which the NAME is being referenced; independent of any other NAME field	11	4	Bit 8 to bit 1: Most significant 8 bits of manufacturer code (most significant at bit 8)	
				3	Bit 8 to bit 6: Least significant 3 bits of manufacturer code (most significant at bit 8)
			Identity number	Assigned by the ECU manufacturer, necessary where the NAME is not unique (i.e. two identical NAMEs on the same network)	21
1	Bit 8 to bit 1: Second byte of identity number code (most significant at bit 8)				
NOTE See 11783-1 for numerical values of industry groups, device classes, functions and manufacturer codes.					
^a The byte ordering of the NAME fields is arranged so that the NAME can be treated as a number, consistent with ISO 11783-7 ^[3] .					
^b Bit 1 is the last of the data bits sent and closest to the cyclic redundancy code (CRC) in the message.					
^c Bit 8 is the bit closest to the data link control (DLC) in the message.					

Table 1 labeled “NAME fields” lists a “Field” in a far-left column with a “Definition” for each Field in a column adjacent. Ex. 1010, 10. ISO11783 explains that “[e]ach ECU on a network shall have at least one NAME, identifying the ECU by its primary function. Network integrators and ECU manufacturers shall ensure that each ECU on a particular network has a

unique NAME not possessed by another ECU on that network.” Ex. 1010, 9. Thus, the purpose of the NAME field is to describe an ECU’s “function and place in the network, and any function on a network can be designated by a NAME.” *Id.* Missing, however, from this disclosure is any teaching regarding communication protocols. More importantly, Petitioner has not explained sufficiently why a POSITA would have defined a known communication protocol in the NAME field when the NAME field is directed to identifying the ECU’s *function* and *place*.

The testimony from Petitioner’s expert, Mr. Ault, is not persuasive in this regard. *See* Ex. 1002 ¶¶ 115–120, 162–165. For example, in paragraph 162 of his declaration, he refers to the same citations of ISO11783 presented in the Petition. *Id.* ¶ 162. Mr. Ault testifies that

[t]he POSITA would have understood in light of the ISO11783 standard that the NAME field of the address claim procedure is used by ISO11783 for the purposes of identifying a machine, including its ISO11783-defined manufacturer code, device class, and version. Further, the POSITA would have understood that the ISO11783 standard part 10 teaches the POSITA to identify a device description object pool (a “communication protocol” in the language of the ’017 patent) using the NAME field (as WorkingSetMasterNAME) as well as other items such as a “Device Software Version” in table A-1 on page 27.

Id. Initially, we note that a citation to the entirety of ISO11783, Part 10 is hardly helpful. We decline to speculate on the specific disclosure the Petitioner relies upon in these 100 pages. Still, we observe that ISO11783 teaches that the NAME field describes the NAME of Working-set master, but does not describe a communication protocol. *See* Ex. 1013, 33. Similarly, the Device Software Version is described as “Software version

indicating text;” not a communication protocol. *Id.* In other words, neither field includes a communication protocol.

Additionally, in paragraph 163, Mr. Ault states, “ISO11783 standard explicitly recognizes that ‘device description data’ used to specify ‘device-related properties’ must be ‘known’ by the ‘farm management information system’ in order to perform tasks with the implement.” Ex. 1002 ¶ 163 (footnote omitted). Later, in paragraph 165, Mr. Ault asserts that the ISO11783 NAME field identifies an electronic control unit’s function and place on the network. *Id.* ¶ 165 (“[T]he NAME field includes a device class, manufacturer code, and identity number . . . [and] ISO11783 Part 5 on page 4 explains the device class ‘provides a common NAME for a group of functions . . . e.g. ‘planter’ with ‘agricultural equipment.’”). We agree that ISO11783 teaches how an ECU identifies itself to other ECUs in the network. Nevertheless, Mr. Ault does not explain how ISO11783 teaches that that identification must include a communication protocol in the NAME field.

Mr. Ault’s testimony in paragraphs 114–125, 167 of his declaration do not persuade us otherwise. We note first that much of Mr. Ault’s testimony in paragraphs 114–125, 167 is cited without any corresponding explanation or discussion in the Petition. *See* Pet. 19, 36–37. For example, in paragraph 124, Mr. Ault testifies that there are four places in an ISO11783 message to discover information about a machine’s communication compatibility.

These are:

- (a) First, information can be obtained from messages with a standard defined PGN and a standard-defined format (i.e. a fully standardized message). In this instance, the meaning of a message is already known because the standard specifies it

precisely, one just has to read that message when it is transmitted over the message bus according to the known meaning (e.g. fully standardized message “X” provides engine rpm).

(b) Second, information can be obtained from standard-defined Task Controller messages with standard-defined formats, units, and meanings. Task Controller messages are sent in Task Controller-specific PGNs (i.e. Task Controller-specific message types). While the PGN alone is not enough to know what the particular message means, Task Controller messages follow a format defined in ISO11783. Using the standard, skilled persons would have known that Task Controller messages could be easily parsed into useful information because the Task Controller part of the standard requires the machine to be able to tell any connected devices how to interpret the data it is sending via its “device description object pool (DDOP)”.

(c) Third, information can be obtained from standard-defined Virtual Terminal Object ID messages being sent by an implement to the monitor in “Virtual Terminal” mode in order to instruct the monitor what to display for an operator. In this instance, a Virtual Terminal message instructs the monitor in “Virtual Terminal” mode what object to display on the screen from its Object Pool (the collection of possible images, numbers, and text to be displayed) using an identifier for the object known as the Object ID. When viewed onscreen, the meaning of a given object is apparent to an operator. For example, the number “1000” might get displayed on screen to the right of the text “Engine RPM:”, and the operator would interpret that to mean the engine is operating at 1000 revolutions per minute. However, when looking through a stream of messages, it is less clear what a message means that says, in effect, “Object 17 should now have the value 1000”. One must actually look at the screen to discern that “Object 17” represents current engine speed in rpms to understand that the value “1000” represents an engine speed of 1000 rpm. To make use of this information, skilled persons would have identified messages intended for the Virtual Terminal, read the messages as they are transmitted over the message bus, and look up how to interpret the values contained in the message.

(d) Finally, information can be obtained from messages with one of the PGNs defined for proprietary messages with a proprietary format. This is the most difficult because, initially, the developer knows nothing about the message other than the bits they have gathered in the log file. A developer has the option to license the documentation from the manufacturer about what their proprietary messages mean, or they can reverse engineer the meaning of the messages from trial and error experimentation.

Ex. 1002 ¶ 124. In paragraph 125, Mr. Ault adds that

[o]nce the POSITA worked out the details of how to communicate with each machine targeted for compatibility, they would then use the NAME field of the address claim procedure to identify which type of machine it was talking to and use the appropriate communication details that work for that machine.

Id. ¶ 125.

We note that none of these statements are presented in the Petition except by bare citation. *See* Pet. 19, 36–37. As stated in the Consolidated Trial Practice Guide⁶, “parties that incorporate expert testimony by reference in their petitions, motions, or replies without providing explanation of such testimony risk having the testimony not considered by the Board.” TPG 35–36 (citing *Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 (PTAB Aug. 29, 2014) (informative)); *see also* 37 C.F.R. § 42.6(a)(3) (2022) (“*Arguments* must not be incorporated by reference from one document into another document.” (emphasis added)). On this basis, we need not consider Mr. Ault’s testimony, in paragraphs 124–125 of his declaration, that is improperly incorporated by reference (without

⁶ Consolidated Trial Practice Guide 40 (Nov. 2019), <https://www.uspto.gov/TrialPracticeGuideConsolidated> (“TPG”)

discussion) into the Petition. Thus, we do not consider these arguments because they are not included in the Petition.

Moreover, these statements are largely conclusory, lacking any citation to the underlying facts or data upon which the testimony is based. *See* 37 C.F.R. § 42.65(a) (2022) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *Upjohn Co. v. Mova Pharm. Corp.*, 225 F.3d 1306, 1311 (Fed. Cir. 2000) (“Lack of factual support for expert opinion going to factual determinations, however, may render the testimony of little probative value in a validity determination.”) (quoting *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985)); *Carella v. Starlight Archery & Pro Line Co.*, 804 F.2d 135, 138 (Fed. Cir. 1986) (“Although in some circumstances unsupported oral testimony can be sufficient to prove prior knowledge or use, it must be regarded with suspicion and subjected to close scrutiny.” (citations omitted)).

Nevertheless, even if we consider Mr. Ault’s testimony in paragraphs 114–125, we do not find this testimony persuasive. For example, in paragraph 123, Mr. Ault asserts that ISO11783 allows manufacturers to use proprietary message types, and they often do. Therefore, *all devices that interact on an ISO11783 message bus must know how to identify which kind of machine they are connected to and adjust their communications appropriately to match the machine they discovered at each startup.* Ex. 1002 ¶ 123 (emphasis added). As noted, Mr. Ault asserts that a POSITA could look for communication information in a message stream and that once that information was obtained, a POSITA would use the “NAME field of the address claim procedure to identify which type of machine it was

talking to and use the appropriate communication details that work for that machine.” *Id.* ¶¶ 124–125. Further, in paragraph 122, Mr. Ault adds that section 6.4.1 and 6.4.2 of ISO11783 part 10 teaches that

[t]he machine starts up, announces its NAME field on the bus, and then recognizes that a task controller exists on the bus. The machine then asks the task controller device if it already knows how to communicate with that machine as determined by the machine’s NAME field and a few other parameters from a previously-stored copy of the communication protocol known as a “device description object pool.” *If the task controller has not seen this machine before, the machine will send its communication protocol to the task controller to be stored and re-used on subsequent start-up.*

Id. ¶ 122 (emphasis added).

We agree with Petitioner that the ISO11783 requires a device to have a NAME field in order for the task controller to identify the device. *See* Ex. 1013, 12. However, we are not persuaded by Mr. Ault’s testimony or Petitioner’s arguments that the communication protocol *must* be defined in an *implement profile* such as the NAME field even if manufacturers use systems beyond those directly supported in the ISO11783. *See* Pet. 27–48; Ex. 1013, 28, 33; Ex. 1002 ¶¶ 64, 114–125, 162–167; Ex. 1014, 5, 9. The NAME field specifies ECU function and place in a network. *See* Ex. 1010, 9–10. However, it is not clear why any communication protocol would identify the function or place of an ECU in a network, which is the purpose of the NAME field. *See* Pet. 37–38 (“The NAME field includes a device class, manufacturer code, and identity number among other fields.”). Petitioner has not explained sufficiently otherwise.

We further observe that Mr. Ault alludes that ISO11783 provides a standardized, and thus known, communication protocol that supports the use

of proprietary communications simultaneous with standardized messages. *Id.* ¶ 64. Mr. Ault later surmises that “it would have been obvious to a POSITA to store proprietary message formats for manufacturers that use proprietary message format.” *Id.* ¶ 167. We observe that in paragraphs 63 and 64 of his declaration, Mr. Ault relies on Exhibit 1014, titled “An Electronic Communication Protocol for Agricultural Equipment,” for the proposition that ISO11783 “supports the use of proprietary communications simultaneous with standardized messages” and “[m]anufacturers are free to implement enhanced control and information systems beyond those directly supported in the standard.” *Id.* ¶ 64 (citing Ex. 1014, 7)⁷ (alteration in original). We understand this cited disclosure in Exhibit 1014 acknowledges that proprietary communications are *beyond those directly supported* in the ISO11783 and that enhanced control and information systems are required for proprietary communications. *Id.* Said another way, these statements are consistent with our understanding that ISO11783 does not, by default, teach proprietary communication protocols defined in the device description fields, e.g., NAME field. Ex. 1014, 7 (“ISO11783 does not provide a complete design that can be implemented without further considerations on agricultural equipment.”). That being the case, we agree with Patent Owner’s position that the ISO11783 does not itself “identify different proprietary formats (i.e., the communication protocol) used by a given implement from a stored collection of implement profiles.” Prelim. Resp. 21.

⁷ Petitioner cites to page 9, however, we use the stamped page numbers for the exhibit.

Even assuming for the moment that proprietary message formats “indicate” communication protocols, Petitioner has still not explained sufficiently why a POSITA would store those proprietary message formats in the NAME field. As noted above, the NAME field specifies ECU function and place in a network. *See* Ex. 1010, 9–10. However, it is not clear why proprietary message formats would identify the function or place of an ECU in a network. *See id.*; *see also* Pet. 37 (“The NAME field includes a device class, manufacturer code, and identity number among other fields.”).

On the whole, upon reviewing the parties’ evidence and arguments, including Patent Owner’s preliminary evidence of secondary considerations (Prelim. Resp. 31–35) which we do not rely upon for this Decision, we find that Petitioner’s arguments are incomplete as discussed in detail above. Thus, we determine that Petitioner has not established a reasonable likelihood of prevailing in its contention that claim 1 would have been obvious over the combination of Nadison 610, Johnson, and ISO11783.

5. *Dependent Claims 2–10*

Dependent claims 2–10 each depend from independent claim 1. Ex. 1001, 26:19–28:29. Petitioner asserts that the combination of Nadison 610, Johnson, and ISO11783 discloses each of the additional limitations of these dependent claims. Pet. 48–59.

For the reasons discussed with respect to claim 1, we determine that Petitioner has not established a reasonable likelihood of prevailing in its contention that claims 2–10 would have been obvious over the combination of Nadison 610, Johnson, and ISO11783.

III. 35 U.S.C. § 314(a) DISCRETION

In view of our determination on the merits to deny institution of *inter partes* review, we need not consider the parties' arguments regarding exercising our discretion under § 314(a) to deny institution of *inter partes* review.

IV. 35 U.S.C. § 325(d)

In view of our determination on the merits to deny institution of *inter partes* review, we need not consider the parties' arguments regarding exercising our discretion under § 325(d) to deny institution of *inter partes* review.

V. CONCLUSION

After considering the evidence and arguments presented in the Petition, we determine that Petitioner has not demonstrated a reasonable likelihood of success in proving that at least one claim of the '017 patent is unpatentable.

Therefore, we do not institute an *inter partes* review on the asserted grounds as to any of the challenged claims

VI. ORDER

Upon consideration of the record before us, it is:

ORDERED that the Petition is *denied* as to all challenged claims of the '017 patent and no *inter partes* review is instituted.

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