Trials@uspto.gov
571.272.7822

Paper 61
Entered: November 12, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORPORATION,
Petitioner,

v.

AMERICAN VEHICULAR SCIENCES LLC,
Patent Owner.

Case IPR2013-00415
Patent 7,650,210 B2

Before JAMESON LEE, BARBARA A. PARVIS, and GREGG I. ANDERSON, *Administrative Patent Judges.*

PARVIS, *Administrative Patent Judge.*

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

I. BACKGROUND

A. Introduction

On July 8, 2013, Toyota Motor Corporation ("Toyota") filed a Petition ("Pet.") requesting an *inter partes* review of claims 1, 2, 5, 7, 9, 13, 15, and 18 of U.S. Patent No. 7,650,210 B2 (Ex. 1001, "the '210 patent"). Paper 1. On January 13, 2014, we granted the Petition and instituted trial for all challenged claims 1, 2, 5, 7, 9, 13, 15, and 18 of the '210 patent on

certain grounds of unpatentability alleged in the Petition. Paper 15 ("Decision" or "Dec.").

After institution of trial, American Vehicular Sciences LLC ("AVS") filed a Patent Owner Response ("PO Resp."). Paper 28. AVS also filed a Motion to Amend Claims (Paper 29), which was withdrawn on August 7, 2014 (Paper 52). Toyota filed a Reply. Paper 36 ("Reply").

A consolidated oral hearing for IPR2013-00414, IPR2013-00415, IPR2013-00416, and IPR2013-00417, each involving the same Petitioner and the same Patent Owner, was held on August 14, 2014. The transcript of the consolidated hearing has been entered into the record. Paper 60 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a).

Toyota has shown by a preponderance of the evidence that claims 1, 2, 5, 7, 9, 13, 15, and 18 of the '210 patent are unpatentable.

B. Related Proceedings

Toyota indicates that the '210 patent has been asserted in the following co-pending district court case: *American Vehicular Sciences LLC v. Toyota Motor Corp.*, No. 6:12-CV-405 (E.D. Tex. filed June 25, 2012).[1] Pet. 1.

C. The '210 Patent

The '210 patent relates to arrangements and techniques for managing vehicle diagnostic information. Ex. 1001, 2:55–57. One embodiment is

[1] Toyota states that the '210 patent is the subject of additional litigation proceedings pending in the Eastern District of Texas, none of which name Toyota as a defendant. Pet. 1.

described in the ’210 patent with respect to Figure 20C of the ’210 patent, which is reproduced below:

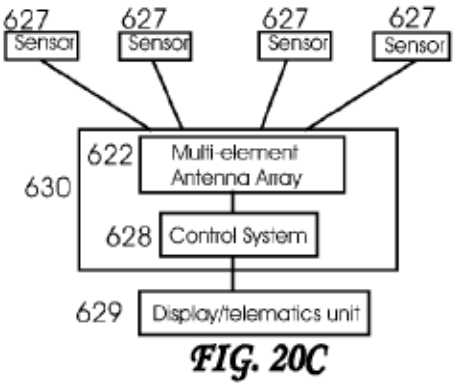


FIG. 20C

Figure 20C of the ’210 patent illustrates an embodiment of a system for collecting and processing data about a vehicle. Ex. 1001, 57:46–47. Sensors 627 shown in Figure 20C are arranged throughout the vehicle to collect data. *Id.* at 57:48–52. Antenna array 622 is mounted on the vehicle to receive wireless signals from sensors 627. *Id.* at 57:55–59. Antenna array 622 is within housing 630 along with control system 628, which controls antenna array 622. *Id.* at 57:60–58:13. Control system 628 also processes sensor return signals to provide information about the vehicle or component. *Id.* at 58:7–8. Control system 628 directs the processed vehicle information to display/telematics unit 629 via an electrical circuit for display and/or transmission to a remote location. *Id.* at 58:14–20.

Figure 3 of the ’210 patent illustrates an embodiment of the sensors of the onboard diagnostic system and is reproduced below:

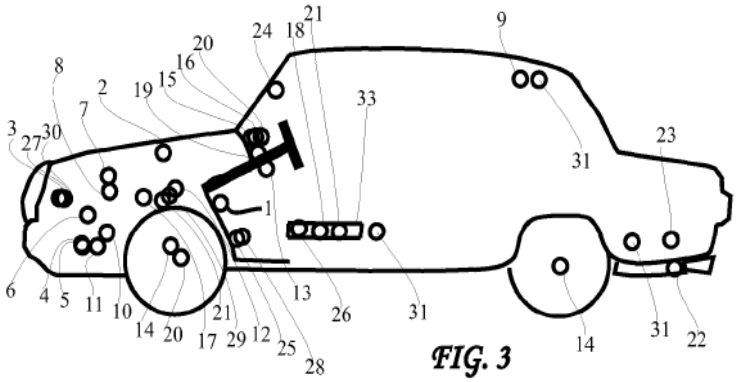


FIG. 3

Figure 3 is a schematic of a vehicle illustrating about thirty sensors shown in their approximate locations on the vehicle. Ex. 1001, 21:35–37. Most of the sensors are mounted on components within the engine of the vehicle, including the following: microphone 2, coolant thermometer 3, oil pressure sensor 4, oil level sensor 5, air flow meter 6, voltmeter 7, ammeter 8, engine knock sensor 10, oil turbidity sensor 11, throttle position sensor 12, oxygen sensor 17, transmission fluid level sensor 25, coolant level sensor 27, transmission fluid turbidity sensor 28, brake pressure sensor 29, and coolant pressure sensor 30. *Id.* at 21:62–22:13, Figs. 3, 4. The following sensors are mounted within the passenger compartment: crash sensor 1, humidity sensor 9, steering torque sensor 13, tachometer 15, speedometer 16, pitch and roll sensor 18, clock 19, odometer 20, power steering pressure sensor 21, cabin thermometer 24, and yaw sensor 26. *Id.* Pollution sensor 22 and fuel gage 23 are mounted near the tailpipe, and wheel speed sensor 14 is mounted on the wheel. *Id.*

D. Illustrative Claims

Claims 1 and 15, the two independent claims challenged, are reproduced below:

> 1. A vehicle, *comprising*:
> a plurality of components;
> *a diagnostic system arranged on the vehicle to determine whether any of said components is operating non-optimally, is expected to fail or has failed and generate an output indicative or representative of the determination* of the non-optimal operation, expected failure or actual failure of any of said components; and
> a communications device coupled to said diagnostic system and arranged to direct a transmission of the output of said diagnostic system to a remote location such that the output indicative or representative of the determination of the non-optimal operation, expected failure or actual failure of any of said components generated by said diagnostic system is transmitted to the remote location.
>
> 15. A method for monitoring components of a vehicle, *comprising*:
> mounting sensors on the vehicle, each sensor providing a measurement related to a state of the sensor or a measurement related to a state of a mounting location of the sensor;
> processing data from the sensors *using a processor to generate output indicative or representative of failure or expected failure of any of the components*; and
> directing the output indicative or representative of the failure or expected failure of any of the components to a remote location using a transmission device.

(Emphases added).

E. The Prior Art References Supporting Alleged Unpatentability

Reference	Patent No.	Issued Date	Exhibit No.
Scholl	Patent 5,400,018	Mar. 21, 1995	Ex. 1002
Asano	Patent 5,157,610	Oct. 20, 1992	Ex. 1003
Corwin	Patent 4,675,675	June 23, 1987	Ex. 1006
Windle	Patent 4,926,331	May 15, 1990	Ex. 1008

F. The Pending Grounds of Unpatentability

Reference[s]	Basis	Claims Challenged
Asano	§ 102(b)	1, 2, 5, 7, 9, 13, and 15
Scholl	§§ 102(a) and 102(e)	1, 2, 5, 13, and 15
Corwin	§ 102(b)	15 and 18
Scholl and Windle	§ 103(a)	7, 9, and 18

II. ANALYSIS

A. Claim Construction

1. Principles of Law

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). The terms also are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the disclosure. *In re Translogic Tech., Inc*., 504 F.3d 1249, 1257 (Fed. Cir. 2007). For an inventor to act as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). Also, when an inventor chooses to be his own lexicographer so as to give a term an uncommon meaning, he must set out his uncommon definition in a manner within the patent disclosure, sufficient to give one of ordinary skill in the art notice of the change. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

An extraneous limitation should not be read into the claims from the specification. *E.g., E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988). An extraneous limitation is unnecessary for the purpose of making sense of the claim. *See, e.g., In re Paulsen*, 30 F.3d at 1480; *Renishaw PLC*, 158 F.3d at 1249. The construction that stays true to the claim language and most naturally aligns with the inventor's description is likely the correct interpretation. *See Renishaw PLC*, 158 F.3d at 1250.

"Comprising" is a term of art used in claim language, which means that the named elements are essential, but other elements also may be included to constitute additional components within the scope of the claim. *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997).

2. "automatically"

Dependent claim 2 recites the term "automatically." According to AVS, "automatically" means without human intervention and as appropriate in response to receiving the output from the diagnostic system arranged on the vehicle. PO Resp. 15. According to Toyota, "automatically" means without manual intervention. Reply 2.

Although AVS agrees with Toyota that "automatically" encompasses without manual intervention, AVS contends that Toyota's construction is incomplete. PO Resp. 14–15. In particular, AVS contends that Toyota's construction of the term "automatically" is unreasonably broad because it would encompass situations involving transmissions five and ten years after detection of a component that is operating non-optimally. PO Resp. 18. AVS states that its construction is consistent with the specification of the '210 patent, citing the following:

> As envisioned when the diagnostic module 33 detects a potential failure it not only notifies the driver through a display 34 (as shown in FIGS. 3 and 4), but also automatically notifies the dealer through a vehicle cellular phone 32 or other telematics communication link such as the internet via satellite or Wi-Fi. The dealer can thus contact the vehicle owner, possibly using the same telecommunications link established between the vehicle's on-board communications unit and the dealer's facility, and schedule an appointment to undertake the necessary repair at each party's mutual convenience. . . . Bidirectional communications can therefore be established and optimally used to enable the dealer to provide improved service

> to the vehicle owner and [] to enable the vehicle owner to have peace of mind that his vehicle's problems are known to the dealer and steps are being taken to address them. The customer or vehicle owner is pleased since a potential vehicle breakdown has been avoided and the dealer is pleased since he is likely to perform the repair work.

Id. at 16 (citing Ex. 1001, 112:15–31) (emphasis omitted).

AVS does not contend that the named inventor of the '210 patent acted as his own lexicographer and coined a new meaning for the term "automatically" different from the ordinary and customary meaning as would be understood by one with ordinary skill in the art. Regarding the portion of the '210 patent specification cited by AVS, as an initial matter, AVS misquoted the text of the '210 patent specification at column 112, lines 24 through 31. *See* Ex. 1001, 112:24–31. Nevertheless, AVS's quoted '210 patent language, both as quoted by AVS and as it is in the '210 patent, does not appear to be in the form of a definition. Rather, the text is a portion of the description of preferred embodiments.

AVS contends that AVS's construction is consistent with the purpose of the invention of the '210 patent, which is to notify the dealer so that corrective action may be taken to prevent vehicle breakdown. PO Resp. 16–17. However, "[t]he name of the game is the claim." *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998). Stated objectives and preferred embodiments are not read automatically into claims.

AVS, nonetheless, does not explain persuasively how its construction is consistent with the stated objective AVS cites to in the '210 patent specification. For instance, even applying AVS's construction, claim 2 does not require that the transmission is directed such that the dealer is notified within a particular time after the output is generated by the diagnostic

system. Transmission "in response" does not import a time constraint. AVS also does not describe persuasively how one of ordinary skill in the art would understand what types of transmissions meet the criteria of "as appropriate" in the context of the claim and the '210 patent specification.

Contrary to AVS's assertions, the cited '210 patent language uses the term "automatically" consistent with its ordinary and customary meaning by describing the automatic notification as occurring via a vehicle cellular phone or similar communication link, i.e., without manual intervention. Ex. 1001, 112:17–21 ("[D]iagnostic module 33 . . . automatically notifies the dealer through a vehicle cellular phone 32 or other telematics communication link such as the internet via satellite or Wi-Fi.").

Additionally, we note that the term "automatically" as recited in claim 2 is limited to describing one function performed by the communication device. In particular, claim 2 recites "wherein said communications device is arranged to *automatically direct the transmission of the output of said diagnostic system to the remote location without manual intervention*" (emphasis added). We do not exclude the possibility that functions performed by the communications device other than directing the output of the diagnostic system are performed with human intervention, such as powering on and powering off the communications device.

In light of the record and arguments submitted by the parties, we determine that the broadest reasonable interpretation of "automatically" is without manual intervention.

3. "output indicative or representative"

Independent claim 1 recites, "an output indicative or representative of the determination of the non-optimal operation, expected failure or actual

failure of any of said components." Independent claim 15 similarly recites, "output indicative or representative of failure or expected failure of any of the components." Neither party proposes express constructions for these recitations. AVS, however, contends that the prior art of record does not disclose either limitation. *See e.g.*, PO Resp. 2. Additionally, both AVS (*id*.) and Toyota (Reply 6) discuss whether "output indicative or representative" encompasses a fault code. To evaluate the parties' contentions, therefore, we construe "output indicative or representative."

The specification of the '210 patent does not provide an express construction for "output." A communications dictionary defines output as follows: (1) "[d]ata that has been processed," (2) "[t]he state or sequence of states occurring on a specified output channel," (3) "[t]he device or collective set of devices used for taking data out of a device," (4) "[a] channel for expressing the state of a device or logic element," (5) "[t]he process of transferring data from an internal storage to an external storage device." *Output Definition*, *Dictionary of Communications Technology: Terms, Definitions, and Abbreviations* (1998) *available at* http://search.credoreference.com/content/entry/wileycommtech/output/0 (last visited Sept. 2, 2014) (Ex. 3001). The specification of the '210 patent uses the term "output" consistent with the first of these definitions by stating "[t]he processor thus receives data or signals from the sensors and generates an output indicative or representative of the operating conditions of the vehicle or its component[s]." Ex. 1001, 9:65–10:1.

We turn to the requirement that the output be "indicative or representative," as recited in claims 1 and 15. The term "or" recited in each of claims 1 and 15 may be used to connect alternatives or alternative words

for the same thing. *Or Definition*, *The American Heritage Dictionary of the English Language* (2011) *available at* http://search.credoreference.com/content/entry/hmdictenglang/or_1/0 (last visited Oct. 16, 2014) (Ex. 3002); *see also The Random House Dictionary* 631 (Jess Stein ed., 1978) (hereinafter *The Random House Dictionary*) (Ex. 3005). In either case, under the broadest reasonable interpretation output may either be indicative or representative, but need not be both.

The specification of the ’210 patent does not define expressly “indicative.” A dictionary defines “indicate” as (1) “[t]o show the way to or the direction of; point out” and (2) “[t]o serve as a sign, symptom, or token of; signify.” *Indicate Definition*, *The American Heritage Dictionary of the English Language* (2011) *available at* http://search.credoreference.com/content/entry/hmdictenglang/indicate/0 (last visited Sept. 17, 2014) (Ex. 3003); *see also The Random House Dictionary*, 458 (Ex. 3005) (defining “indicative” as “serving to point out” and defining “indicate” as “to be a sign or index of.”)

The specification of the ’210 patent also does not construe expressly “representative.” A dictionary defines “representative” as “[r]epresenting, depicting, or portraying or able to do so.” *Representative Definition*, *The American Heritage Dictionary of the English Language* (2011) *available at* http://search.credoreference.com/content/entry/hmdictenglang/representative/0 (last visited Sept. 17, 2014) (Ex. 3004); *see also The Random House Dictionary*, 762 (Ex. 3005) (defining “represent” as “5. to portray or depict.”).

The ’210 patent specification is consistent with the dictionaries noted above that define “indicate” as signify and “representative” as depicting.

Additionally, the ’210 patent specification is consistent with Toyota’s contention (Reply 6) that “output indicative or representative” encompasses a fault code. In particular, the ’210 patent specification describes the output as “a *fault code relating to* the non-optimal operation” (Ex. 1001, 3:56–57 (emphasis added)) and “[a] *signal*” that could be generated that is “indicative of an under-inflated tire, or an overheating engine” (*id*. at 10:1–3 (emphasis added)). Additionally, the ’210 patent specification describes “transmit[ting] . . . a *fault signal* to the main monitoring circuit which now needs only to turn on a warning light, and perhaps record the fault” (*id*. at 119:57–59 (emphasis added)) and “send[ing] a *fault code* if a failure in any component being monitored has been detected” (*id*. at 121:54–55 (emphasis added)). Furthermore, as noted by Toyota (Reply 6), claim 13 is specifically directed to a “fault code,” and claim 13 depends from claim 1.

During oral argument, AVS stated that claim 13 recites a fault code that is transmitted in addition to the output of claim 1. Tr. 129:24–130:9. AVS’s basis is that claim 13 does not recite wherein said output is a fault code. *Id*. We are not persuaded that the simple omission of the word “wherein” imports a requirement that the fault code be additional data that is transmitted.

AVS further contends that fault code detection is “rudimentary in nature” whereas the invention of the ’210 patent is “more comprehensive” and “detailed enough” so that breakdowns can be substantially eliminated. PO Resp. 5–7 (citing Ex. 1001, 9:43–47, 12:16–24:54, 111:63–112:31; Ex. 2002 ¶ 24). AVS again has not pointed to disclosure in the ’210 patent that persuasively shows that the named inventor of the ’210 patent acted as his own lexicographer and coined a new meaning for “output indicative or

representative" different from the ordinary and customary meaning as would be understood by one with ordinary skill in the art. AVS, additionally, does not point to disclosure that shows persuasively that a fault code would be considered rudimentary or how one of ordinary skill in the art would understand what types of outputs meet the criteria of "more comprehensive" and "detailed enough" in the context of the claim and the '210 patent specification, if a fault code is not sufficient.

In light of the record and arguments submitted by the parties, we determine that the broadest reasonable interpretation of "output indicative or representative" is processed data that signifies or depicts. We further determine that "output indicative or representative" may encompass a fault code, as described in the specification of the '210 patent (Ex. 1001, 3:56–57).

4. Other Terms

In the Decision on Institution, we construed "component" as a part of an assembly of parts, less than the whole. Dec. 10. AVS states that for the purposes of this *inter partes* review, AVS does not contest our construction of "component." PO Resp. 13.

In the Decision on Institution, we said the term "sensor" possesses its ordinary and customary meaning, as would be understood by one with ordinary skill, and does not require an express construction. Dec. 11. We also explained that the term "sensor" includes each of the sensors particularly identified in the specification of the '210 patent. *Id.* AVS states that for the purposes of this *inter partes* review, AVS does not contest our understanding of the term "sensor." PO Resp. 14.

B. Alleged Anticipation of Claims 1, 2, 5, 7, 9, 13, and 15 by Asano

Toyota contends that claims 1, 2, 5, 7, 9, 13, and 15 of the '210 patent are unpatentable as anticipated, under 35 U.S.C. § 102(b), by Asano. Pet. 18; Reply 3. We have reviewed Toyota's anticipation argument and supporting evidence, including Asano's disclosure, the Declaration of Dr. Ralph Wilhelm, Jr. (Ex. 1011), and the detailed claim chart appearing on pages 21–27 of the Petition.

The claim chart persuasively reads all elements of each of claims 1, 2, 5, 7, 9, 13, and 15 onto the disclosure of Asano. Despite the counter-arguments in AVS's Patent Owner Response, and the evidence cited therein, which we also have considered, Toyota has shown, by a preponderance of the evidence, that each of claims 1, 2, 5, 7, 9, 13, and 15 is unpatentable as anticipated by Asano.

1. Principles of Law

To establish anticipation, each and every element in a claim, arranged as is 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).

2. Asano

Asano discloses computer 105 on the vehicle. Ex. 1003, 6:14–15. Computer 105 has central processing unit (CPU) 7 that receives operating signals from sensors by way of bus line 30. *Id*. at 6:14–28. Sensors, including engine cooling water temperature sensor (TWS) 32 and air/fuel ratio sensor (O_2S) 34, sense the engine operating conditions. *Id.* CPU 7

carries out computations in accordance with programs stored in memory 21 on computer 105 based on the engine operating conditions. *Id.* at 6:43–47.

Asano provides further disclosure of failure diagnosis on a vehicle. In that connection, Figure 6 is reproduced below:

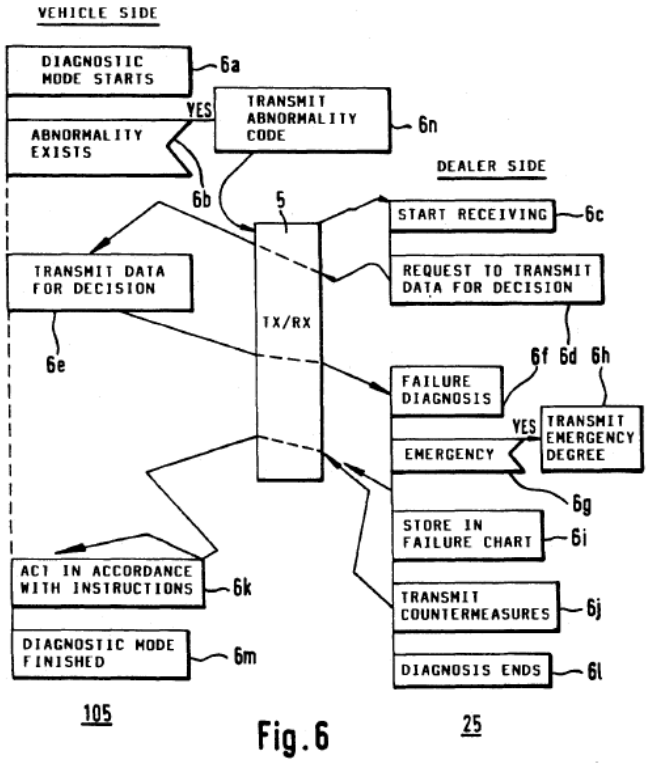


Fig. 6

Figure 6 illustrates a functional block diagram of failure diagnosis processing. Ex. 1003, 5:23. Computations for failure diagnosis are carried out at predetermined intervals. *Id.* at 9:1–3. The period of each interval can be about 60 milliseconds. *Id.* at 9:10–13. At step 6a shown in Figure 6, a diagnostic mode starts onboard the vehicle. *Id*. at 9:10. Next, in step 6b, a decision is made on the vehicle of whether an abnormality exists based on the results of the diagnosis. *Id.* at 9:13–14. This embodiment is based on the concept of having the vehicle-mounted computer make a basic abnormal diagnosis. *Id*. at 9:4–6. If no abnormality exists, the process ends. *Id.* at

9:14–15. When a decision is made at step 6b, on the vehicle side, that an abnormality exists, then an abnormality code is transmitted, in step 6n, to the host computer at a dealer, through transmitter-receivers. *Id.* at 9:15–18, Fig. 6.

3. Whether Asano Meets the Limitations of Claims 1, 5, 9, 13, and 15

AVS acknowledges that Asano discloses a vehicle-mounted computer that makes a basic abnormal diagnosis and can generate an abnormal code. PO Resp. 21 (citing Ex. 1003, 9:4–16). AVS, however, contends that the basic abnormal diagnosis made by Asano's vehicle-mounted computer is not a determination of whether any of the components is operating non-optimally, is expected to fail, or has failed. *Id*. at 21–22 (citing Ex. 2002 ¶¶ 65–72). In particular, AVS contends that Asano's abnormal diagnosis "could be nothing more than an indication that a parameter on the vehicle is outside a preset range." PO Resp. 21 (citing Ex. 2002 ¶ 68) (emphasis omitted).

AVS's contention raises two inter-related issues for us to consider: (1) does Asano describe a determination, and (2) if so, is the determination of whether any of said components is operating non-optimally, is expected to fail, or has failed?

We are persuaded that Toyota has shown by a preponderance of the evidence that Asano describes a determination (Pet. 21–23 (citing Ex. 1003, 2:12–15, 2:25–30, 3:10–11, 5:41–46, 6:14–47, 8:65–9:14, Figs. 1, 6)). Asano describes that the vehicle mounted computer "make[s] a basic abnormal diagnosis." Ex. 1003, 9:4–6. Asano further states, referring to above-reproduced Figure 6:

> In step 6b, a decision on whether any abnormality exists is made based on the *diagnosis results*. When no abnormality exists, the process ends. When an abnormality exists, the abnormal code is transmitted to the host computer on the dealer side through the transmitter-receivers 5 and 11.

Id at 9:13–18 (emphasis added).

Despite AVS's argument, we are not persuaded that the disclosure Toyota points to in Asano (Pet. 21–23 (citing Ex. 1003, 2:12–15, 2:25–30, 3:10–11, 5:41–46, 6:14–47, 8:65–9:14, Figs. 1, 6)) is not disclosure of a determination of whether any component "is operating non-optimally, is expected to fail, or has failed," as recited in claim 1. Asano describes that CPU 7 of vehicle mounted computer 105 "carries out computations based on the above mentioned operating condition signals in accordance with multiple programs stored in ROM 21." Ex. 1003, 6:43–47. The operating condition signals referred to by Asano are received from sensors, which sense "engine operating conditions." *Id*. at 6:20–21. Asano describes exemplary sensors that sense operating conditions of the engine and other components of a vehicle including "engine cooling water temperature (TWS) 32," "air/fuel ratio (O_2S) 34," "[b]attery voltage," and "throttle valve opening and rotation speed." *Id*. at 6:20–24; *see also id*. at 2:25–30 ("the vehicle mounted station detected operating conditions are performed . . . to detect at least one of water temperature, air flow ratio air fuel quantity, battery voltage, throttle valve opening angle, engine speed, transmission gear position and suspension setting.").

AVS does not focus on that part of Asano's disclosure, identified and explained in the Petition, which describes a basic diagnosis performed onboard a vehicle using engine operating conditions such as the temperature of the engine cooling water, the ratio of air to fuel, the battery voltage, and

the rotation speed of the engine. Pet. 21–23 (citing Ex. 1003, 2:12–15, 2:25–30, 3:10–11, 5:41–46, 6:14–47, 8:65–9:14, Figs. 1, 6). Rather, AVS acknowledges that Asano discloses a "basic abnormal diagnosis" and "abnormal codes" and then AVS discusses what these "could be" (PO Resp. 21–22) in absence of Asano's description of performing computations using engine operating conditions (Ex. 1003, 6:14–47). Nonetheless, even if AVS is correct that Asano's engine operating conditions could be considered to be parameters and Asano's computations are to see if these parameters are outside a preset range, determining that a parameter, such as one of those disclosed in Asano relating to engine operating conditions, is outside of a preset normal range is at least a determination of whether any of the components is operating non-optimally, as recited in claim 1.

AVS cites to the Declaration of Mr. Lawrence Kennedy (Ex. 2002). Mr. Kennedy states that Asano's basic abnormal diagnosis "could mean that the sensor is picking up some abnormality in the system that it is sensing." *Id*. ¶ 67. Mr. Kennedy further states, for example, if a vehicle hits ice and its wheels spin faster, the vehicle speed sensor may detect an abnormal speed. *Id*. ¶ 68. Mr. Kennedy, however, does not explain persuasively why in his example he concludes that determining that the wheels of a vehicle are spinning abnormally fast is not an indication that the wheels are operating non-optimally. Mr. Kennedy also does not explain persuasively how he arrives at his opinion in light of the computations performed by CPU 7 based on the engine operating condition signals disclosed in Asano (Ex. 1003, 6:14–47).

Notwithstanding the counter-arguments in AVS's Patent Owner Response, which we have considered fully, we are persuaded that Toyota

has shown, by a preponderance of the evidence, that Asano discloses, "a diagnostic system arranged on the vehicle to determine whether any of said components is operating non-optimally, is expected to fail or has failed and generate an output indicative or representative of the determination of the non-optimal operation, expected failure or actual failure of any of said components," as recited in claim 1. We additionally are persuaded that Toyota has shown, by a preponderance of the evidence, that claim 1 is unpatentable as anticipated by Asano.

AVS contends that for the same reasons described with respect to claim 1, Asano also does not anticipate independent claim 15. PO Resp. 36. Claim 15, however, does not recite "a diagnostic system arranged on the vehicle to determine whether any of said components is operating non-optimally, is expected to fail or has failed." Instead, claim 15 recites "processing data from the sensors using a processor to generate output indicative or representative of failure or expected failure of any of said components."

For claim 15, Toyota points to the same description in Asano (Pet. 27) discussed above with respect to claim 1. *See* Pet. 21–23 (citing Ex. 1003, 2:12–15, 2:25–30, 3:10–11, 5:41–46, 6:14–47, 8:65–9:14, Figs. 1, 6). As discussed above, Asano describes processing by CPU 7 of vehicle mounted computer 105, which "carries out computations based on the above mentioned operating condition signals in accordance with multiple programs stored in ROM 21." Ex. 1003, 6:43–47. The operating condition signals referred to by Asano are received from sensors, which sense "engine operating conditions." *Id*. at 6:20–24. We, therefore, are persuaded that

Toyota has shown by a preponderance of the evidence that Asano discloses processing data from the sensors using a processor, as recited in claim 15.

Regarding "to generate output indicative or representative of failure or expected failure of any of said components," as further recited in claim 15, as discussed above with respect to claim construction, we determine that the broadest reasonable interpretation of "output indicative or representative" is processed data that signifies or depicts. Asano describes that CPU 7 generates processed output by explaining that CPU 7 "outputs its computation results into respective control circuits through [] bus lines 30." Ex. 1003, 6:43–47. Asano further describes the processing performed on the vehicle, "[i]n step 6b, a decision on whether any abnormality exists is made based on the diagnosis results." *Id*. at 9:13–14. When an abnormality exists, an "abnormality code" is transmitted. *Id*. at Fig. 6.

AVS argues that Asano does not disclose what specific information is contained in the abnormality code of Asano. PO Resp. 22. As discussed above with respect to claim construction, we are not persuaded by AVS's contentions that fault code detection is "rudimentary in nature" (*id*. at 5) and instead we determine, in light of the specification of the '210 patent, that "output indicative or representative," as recited in claim 15, encompasses a fault code. Additionally, Asano discloses that the code is an "*abnormality* code" and is transmitted when the decision made on the vehicle is that an abnormality exists. Ex. 1003, 9:13–18, Fig. 6 (emphasis added). As further evidence that the abnormality code transmitted from the vehicle signifies or depicts "failure or expected failure" of a component, as recited in claim 15, Asano describes making a comprehensive failure diagnosis using the output data from the vehicle processed onboard the vehicle. Ex. 1003, 9:24–37. In

particular, Asano describes that the transmission includes "data for decision" used in the comprehensive diagnosis. *Id*. at 9:27–29. The comprehensive failure diagnosis described in Asano includes determining that emergency measures are needed. *Id*. at 9:32–37.

Claim 15 further requires that the output be directed to a remote location. Asano describes that processed data are transmitted to a remote location by stating "[i]n step 6b [on vehicle side], a decision on whether any abnormality exists is made based on the diagnosis results [and] [w]hen an abnormality exists, the abnormal code is transmitted to the host computer on the dealer side through [] transmitter-receivers 5 and 11." Ex. 1003, 9:13–17.

We, therefore, are persuaded that Toyota has shown, by a preponderance of the evidence, that independent claim 15 is unpatentable, as anticipated by Asano.

Regarding dependent claims 5, 9, and 13, which depend directly from claim 1, we have reviewed Toyota's anticipation argument, supporting evidence, and the detailed claim chart, which reads persuasively all elements of each of claims 5, 9, and 13 onto the disclosure of Asano. Pet. 24–26 (citing Ex. 1003, 2:12–15, 2:25–30, 3:10–11, 3:15–17, 6:14–47, 7:18–20, 8:65–9:18, Figs. 1, 6). AVS has not argued that limitations of dependent claims 5, 9, and 13 further distinguish over Asano (PO Resp. 17). We are persuaded that Toyota has shown, by a preponderance of the evidence, that each of claims 5, 9, and 13 is unpatentable as anticipated by Asano.

4. Whether Asano Meets the Limitations of Claim 2

Claim 2 depends directly from claim 1 and further recites, "wherein said communications device is arranged to *automatically* direct the

transmission of the output of said diagnostic system to the remote location without manual intervention" (emphasis added). We have reviewed Toyota's anticipation argument, supporting evidence, and the detailed claim chart, which reads persuasively all elements of claim 2 onto the disclosure of Asano. Pet. 23 (citing Ex. 1003, 9:15–18, Fig. 6). AVS's contentions are based on AVS's construction for "automatically." PO Resp. 26–28. As discussed in our claim construction analysis, we found AVS's contentions regarding the construction of "automatically" unpersuasive. We, therefore, are persuaded that Toyota has shown, by a preponderance of the evidence, that claim 2 is unpatentable, as anticipated by Asano.

5. Whether Asano Meets the Limitations of Claim 7

Claim 7 recites "said display being coupled to said diagnostic system and arranged to display *an* indication of *the* determination of the non-optimal operation, failure, or expected failure of any of said components" (emphasis added). The "indication" is separate from the onboard determination and need not be produced onboard. Display, therefore, of the instructions that are given based on the diagnosis made using operating condition data is sufficient to satisfy the recited limitation.

AVS acknowledges that Asano describes display 90 that is used to display instructions to the driver, but AVS contends that Asano does not disclose expressly the exact content of instructions, so Asano does not disclose an indication of the determination. PO Resp. 31–32. Asano describes display of operating conditions "in dependence upon received evaluated signals." Ex. 1003, 4:12–13; *see also id*. at 6:14–7:22 (describing CPU 7 of vehicle side computer 105 outputting its "computation results" and display 90 displaying instructions determined based on output from vehicle

side computer 105). AVS's argument is not commensurate with the scope of claim 7.

We, therefore, are persuaded that Toyota has shown, by a preponderance of the evidence, that claim 7 is unpatentable, as anticipated by Asano.

C. Alleged Anticipation of Claims 1, 2, 5, 13, and 15 by Scholl

Toyota contends that claims 1, 2, 5, 13, and 15 of the '210 patent are anticipated, under 35 U.S.C. § 102(a) and (e), by Scholl. Pet. 8–18. We have reviewed Toyota's anticipation argument and supporting evidence, including Scholl's disclosure, Dr. Wilhelm's Declaration (Ex. 1011), and the detailed claim chart appearing on pages 12–18 of the Petition.

The claim chart persuasively reads all elements of each of claims 1, 2, 5, 13, and 15 onto the disclosure of Scholl. Despite the counter-arguments in AVS's Patent Owner Response, and the evidence cited therein, which we also have considered, Toyota has shown, by a preponderance of the evidence, that each of claims 1, 2, 5, 13, and 15 is unpatentable as anticipated by Scholl.

1. Scholl

Scholl describes generating, by a vehicle, a set of data relating to the vehicle's operation. Ex. 1002, 2:58–59. An embodiment is illustrated in Figure 3, reproduced below:

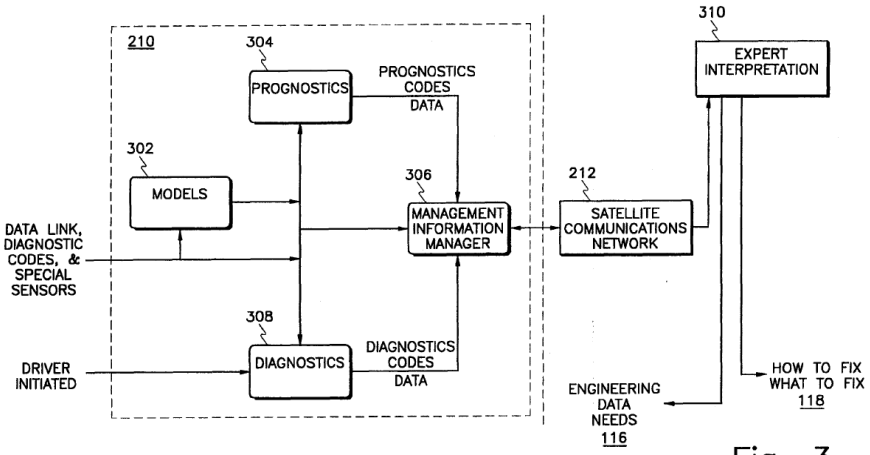


Fig. 3

As shown in Figure 3, diagnostics 308, prognostics 304, and models 302 are implemented on monitor 210 on the vehicle. Ex. 1002, 3:47–53. Monitor 210 is microprocessor based. *Id.* at 3:18–20. Data is generated on the vehicle by sources including sensors and electronic control modules (ECM). *Id.* at 3:20–22. That data is received by models 302, prognostics 304, and diagnostics 308. *Id.* at col. 3:20–21, Fig. 3. Management Information Manager 306 is connected to the data sources, as well as prognostics 304 and diagnostics 308, to receive the prognostics code data, diagnostics codes data, and model data and prepare it for transmission via satellite communication network 212 for expert interpretation 310. *Id.* at 3:58–60, Fig. 3.

2. Assertion of Scholl as Prior Art Under 35 U.S.C. § 102(a) or, Alternatively, Under 35 U.S.C. § 102(e)

Regarding Toyota's assertion of Scholl as prior art under 35 U.S.C. § 102(a) or, alternatively, under 35 U.S.C. § 102(e), on the face of Scholl is an issue date of March 21, 1995. Ex. 1002. Scholl also indicates that the patent was granted from an application that was filed in the United

States on December 22, 1992. *Id*. AVS claims a priority date of June 7, 1995 for the '210 patent. Prelim. Resp. 2. AVS has not submitted evidence of conception earlier than June 7, 1995. Based on this record, Toyota has established by a preponderance of the evidence that Scholl issued in the United States before the invention by AVS and, therefore, is prior art under 35 U.S.C. § 102(a). Additionally, based on this record, Toyota has established by a preponderance of the evidence that Scholl was granted on an application filed in the United States before the invention by AVS and, therefore, is prior art under 35 U.S.C. § 102(e).

3. Whether Scholl Meets the Limitations of Claims 1, 5, 13, and 15

AVS's contentions relating to Scholl are similar to those discussed with respect to Asano. AVS acknowledges that Scholl discloses vehicles with monitors having microprocessors that receive input from sensors. PO Resp. 37. AVS also acknowledges that the monitor on the vehicle of Scholl produces a fault code in response to predetermined conditions in diagnostics and prognostics on the vehicle. *Id*. AVS, however, contends that Scholl's diagnostics and prognostics do not expressly or inherently determine that a component is operating non-optimally, is expected to fail, or has failed. *Id*. at 38. In particular, AVS, relying on its expert, Mr. Kennedy, contends that Scholl's diagnostics and prognostics are limited to measuring whether a parameter is outside of a preset range or is changing at an unusual rate, which "could be attributable to numerous causes." *Id*. at 37–38 (citing Ex. 2002 ¶ 110).

Mr. Kennedy provides an example, not from Scholl, of a parameter being out of range causing a speed sensor to register that a car is going faster than it actually is because the wheels are spinning due to ice. Ex. 2002

¶ 110. Mr. Kennedy states that the processor will generate a fault code due to excessive wheel speed although no monitored component is operating non-optimally, is expected to fail, or has failed. *Id*. Mr. Kennedy does not explain persuasively why his example of wheels skidding on ice is not an illustration of the wheels of the vehicle, which are components, operating non-optimally.

AVS, furthermore, does not discuss the part of Scholl's disclosure, identified and explained in the Petition (Pet. 13 (citing Ex. 1002, 2:58–59, 3:18–22, 3:52–53, 4:5–25, Figs. 2, 3)), that describes diagnostics 308 and prognostics 304 analyzing data onboard a vehicle and determining if "a particular fault" has occurred or is "about to happen" (Ex. 1002, 4:8–23). For instance, Scholl describes diagnostics 308 comparing measured or actual values to preset operating ranges and prognostics 304 analyzing data to detect conditions that may lead to future problems. Ex. 1002, 4:5–25. As explained in the Petition (Pet. 12–13 (citing Ex. 1002, 3:18–25, 5:5–21)), the data analyzed is gathered onboard the vehicle including, for example, engine speed, fuel rate, engine timing, boost pressure, coolant temperature, other pressure and temperature readings, and other parameters (Ex. 1002, 5:5–21). Scholl additionally describes an exemplary low power code produced onboard the vehicle and transmitting a set of data taken in response to this fault code, including average fuel pressure, average exhaust temperature, and average boost pressure. *Id*. at 5:62–6:10.

AVS states that for the same reasons described with respect to claim 1, Scholl also does not anticipate independent claim 15. PO Resp. 39. As discussed with respect to Asano, claim 15 does not recite the determination referred to by AVS in its contentions. Rather claim 15 recites "processing

data from the sensors using a processor to generate output indicative or representative of failure or expected failure of any of the components." As discussed with respect to claim construction, "output indicative or representative" encompasses a fault code. As Toyota correctly points out (Pet. 13–14 (citing Ex. 1002, 2:40–42, 2:58–59, 3:18–22, 3:39–41, 3:52–53, 4:5–25, 6:16–22, Figs. 2, 3, 8)), Scholl describes that "monitor 210 produces a fault code in response to predetermined conditions in the diagnostics [or] the prognotics" (Ex. 1002, 4:5–7). Scholl describes that "[t]he fault code gives an indication of the conditions of the fault." *Id*. at 6:18–19. Additionally, as shown, for example, in Figure 3, Scholl describes determining "WHAT TO FIX" using the output generated onboard the vehicle. Pet. 10 (citing Ex. 1002, Fig. 3).

For the foregoing reasons, we are persuaded that Toyota has established by a preponderance of the evidence that independent claims 1 and 15 are unpatentable as anticipated by Scholl.

Regarding dependent claims 2, 5, and 13, which depend directly from claim 1, we have reviewed Toyota's anticipation argument, supporting evidence, and the detailed claim chart, which reads persuasively all elements of each of claims 2, 5, and 13 onto the disclosure of Scholl. Pet. 8–17. AVS has not argued that limitations of those dependent claims further distinguish over Scholl (PO Resp. 36–39). We, therefore, are persuaded that Toyota has established by a preponderance of the evidence that dependent claims 2, 5, and 13 are unpatentable as anticipated by Scholl.

D. Alleged Anticipation of Claims 15 and 18 by Corwin

Toyota contends that claims 15 and 18 are unpatentable as anticipated, under 35 U.S.C. § 102(b), by Corwin. Pet. 38–47. We have reviewed

Toyota's anticipation argument and supporting evidence, including Corwin's disclosure, Dr. Wilhelm's Declaration (Ex. 1011), and the detailed claim chart appearing on pages 46–48 of the Petition.

The claim chart persuasively reads all elements of claim 15 onto the disclosure of Corwin. Despite the counter-arguments in AVS's Patent Owner Response, and the evidence cited therein, which we also have considered, Toyota has shown, by a preponderance of the evidence, that claim 15 is unpatentable as anticipated by Corwin. As explained further below, however, the claim chart does not persuasively read all elements of claim 18 onto the disclosure of Corwin.

1. Corwin

Corwin describes monitoring aircraft components during flight and supplying data to an Automatic Fault Reporting System (AFRS) when failures are detected. Ex. 1006, Abstract. AFRS detects a fault condition, determines a most likely cause, and assigns a fault code. *Id.* at 2:43–57. Failure outputs are provided to ground personnel when faults or excessive differences are detected. *Id.* at 7:28–32.

2. Whether Corwin Meets the Limitations of Claim 15

AVS contends that the system described by Corwin does not "process[] data from the sensors," as recited in claim 15. PO Resp. 41. AVS relies on a Declaration from its expert, Dr. Young. PO Resp. 41 (citing Ex. 2007 ¶¶40–46). In particular, AVS contends that "[b]ecause of how systems are set up on an airplane," data from sensors is interpreted in a box and the "standard avionics data bus [] merely transmits messages from the boxes, not data from sensors." *Id*. (citing Ex. 2007 ¶¶ 42–43).

Dr. Young acknowledges "[t]he message sent outside of the box might including information regarding, for example, engine oil temperature." Ex. 2007 ¶ 42. Dr. Young also acknowledges that "voltage or current level" output from an engine oil temperature sensor is processed. *Id.* AVS relies (PO Resp. 41) on Dr. Young's indication that "[t]he sensor data itself, such as voltage or current level" output from an engine oil temperature sensor is not sent to AFRS prior to processing within the box (*Id.*).

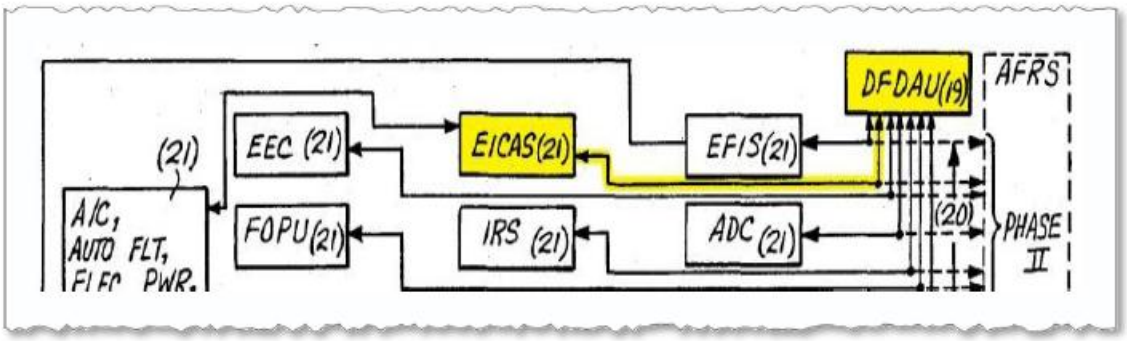
AVS's argument is not commensurate with the scope of claim 15. Claim 15 does not require that a voltage, current level, or raw sensor data be sent to AFRS. Claim 15 recites "*processing data from the sensors using a processor* to generate output indicative or representative of failure or expected failure of any of the components" (emphasis added). Even in AVS's example, temperature determined by processing a voltage or current level is from the temperature sensor. Independent claim 15 uses the term "comprising," which is a term of art meaning that the named elements are essential, but other elements also may be included to constitute additional components within the scope of the claim. *See Genentech, Inc.*, 112 F.3d at 501. AVS has not offered a construction that prohibits processing performed by more than one processor, and we see nothing in claim 15 that could be read as requiring this prohibition.

AVS, furthermore, does not discuss Corwin's disclosure, explained in the Petition (Pet. 46 (citing Ex. 1006, 2:43–52, 5:41–43, 6:47–68, 7:47–50, 8:5–37)), of AFRS using data from sensors mounted on the airplane. For instance, Corwin discloses transmitting the following exemplary inputs to AFRS: "HYD PWR," "fuel," "PNEU PWR," "Brake Temp.," and "Cabin Press." Ex. 1006, 8:5–37.

For the foregoing reasons, Toyota has established by a preponderance of the evidence that independent claim 15 is anticipated by Corwin.

3. Whether Corwin Meets the Limitations of Claim 18

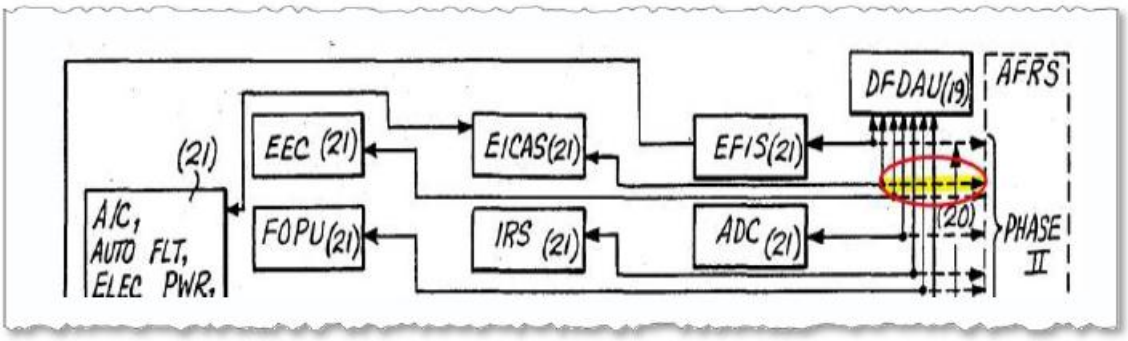
AVS contends that Corwin does not disclose a display that "displays the output from the processor that is indicative or representative of the failure or expected failure of any of the components." PO Resp. 42 (emphasis omitted). The display is arranged in the vehicle in a position to be visible from the passenger compartment, as recited in claim 18. AVS's contention can be understood with respect to Figure 3 of Corwin, reproduced[2] in part below:



Corwin describes EICAS 21 as an "Engine Indicating and Crew Alerting System" system, which is the primary caution, warning, and status "displaying system." Ex. 1006, 4:26–28. AVS acknowledges that Corwin discloses that EICAS is located on an airplane. PO Resp. 45. AVS also acknowledges that Figure 3 illustrates a solid bi-directional arrow between EICAS 21 and DFDAU 19, which is highlighted above. PO Resp. 46.

[2] Highlighting was added by AVS.

AVS's contention relates more particularly to the connection between EICAS and AFRS, as is highlighted in the partial reproduction of Figure 3[3] below.



AVS contends (PO Resp. 47) that the dotted line above is uni-directional, by relying on the Declaration of Dr. Young (Ex. 2007). Dr. Young states that the dot immediately left of the dotted line represents a connector, which is a tap into the communications line so that AFRS can listen to messages. Ex. 2007 ¶ 57.

Toyota states that Figure 3 "shows that the EICAS display is connected to the AFRS, and nothing in Corwin explicitly states that the connection is uni-directional." Reply 14. In addition to citing to EICAS, Toyota also cites to Corwin's description of a Warning Electronics Unit, which is not a display, and a description of sending "AFRS fault warn output, and / or an appropriate data fault or annunciator output." Pet. 44, 45, 47 (citing Ex. 1006, 4:26–28, 4:56–57, 9:35–37). Corwin, however, describes AFRS providing its output to ACARS for transmission to ground-based maintenance operations. Ex. 1006, 5:41–44. Toyota's expert states "[o]ne of ordinary skill in the art would have understood that this AFRS fault warn output would be directed to and displayed by the EICAS display,

[3] Highlighting was added by AVS.

or relayed to the flight crew via the WEA warning lights and aural warnings." Ex. 1011 ¶ 109.

Toyota's statement that nothing in Corwin states that the connection is uni-directional is not sufficient to show that Corwin discloses the limitation of claim 18. Additionally, the description of the "AFRS fault warn output," which Toyota and Toyota's expert rely on, does not describe displaying the AFRS output or sending it to EICAS 21 or another display.

Toyota argues that the EICAS display is "intended to provide information to the pilot and crew" and depriving the crew of this information would be "silly." Reply 14. Toyota and Toyota's expert, however, acknowledge two possibilities: displaying information and relaying it to the crew by warning lights and aural warnings. *Id.*; Ex. 1011 ¶ 109. Toyota has not shown that the AFRS fault output necessarily would be displayed on a display in the vehicle in a position to be visible from the passenger compartment, as recited in claim 18.

Toyota states that AVS presents a convoluted argument regarding Figure 3 of Corwin. Reply 14. The statements of AVS's expert, however, are consistent with Corwin's description of the benefits of transmitting data to the ground. For instance, Corwin describes the invention as follows, "[t]he invention relates to fault reporting and, more particularly to an aircraft maintenance scheduling system by which fault-related data onboard an operational aircraft is processed through a communications channel to a ground terminal." Ex. 1006, 1:4–8; *see also id.* at 5:40–45 ("Purpose of Equipment" is to "suppl[y] fault outputs when failures are detected to the ACARS for transmission to ground-based maintenance operations.").

In light of the Declaration by AVS's expert, Dr. Young, we cannot determine that Toyota has shown by a preponderance of the evidence that Figure 3 of Corwin illustrates bi-directional communication including transmission from AFRS to EICAS for display. Toyota's expert does not specifically refer to Figure 3. Toyota's expert, additionally, does not explain sufficiently his evidentiary basis for saying one of ordinary skill in the art would have understood that the AFRS fault output would have been displayed, in light of the disclosure of Corwin. *See* 37 C.F.R. § 42.65(a). We, therefore, conclude that Toyota has not provided sufficient evidence showing that Corwin describes "arranging a display in the vehicle in a position to be visible from the passenger compartment; and displaying the output indicative or representative of the failure or expected failure of any of the components on the display," as recited in claim 18.

For the foregoing reasons, Toyota has not established by a preponderance of the evidence that claim 18 is anticipated by Corwin.

E. Alleged Obviousness of Claims 7, 9, and 18 Over Scholl and Windle

Toyota contends that claims 7, 9, and 18 are unpatentable, under 35 U.S.C. § 103(a), over Scholl and Windle. Pet. 57–60. We have reviewed Toyota's obviousness argument and supporting evidence, including the disclosures of Scholl and Windle, Dr. Wilhelm's Declaration (Ex. 1011), and the detailed analysis appearing on pages 57–60 of the Petition.

Windle describes a truck operation monitoring system mounted in a truck cab. Ex. 1008, Abstract. Windle's truck monitoring system comprises sensors positioned to sense an operating parameter of the truck and an

instrument panel mounted in the cab. *Id.* The instrument panel of Windle has a liquid crystal display (LCD). *Id*. at Fig. 3.

Toyota contends that it would have been obvious for one of ordinary skill in the art to combine the teachings of Scholl with the teachings of Windle to provide the display or warning device recited in claims 7, 9, and 18. Pet. 59. Claims 7 and 9 depend directly from claim 1 and claim 18 depends directly from claim 15. As explained above, we are persuaded that Toyota has established by a preponderance of the evidence that independent claims 1 and 15 are unpatentable as anticipated by Scholl.

The analysis provided by Toyota persuasively reads all additional elements of claims 7, 9, and 18 onto the combined disclosure of Scholl and Windle. Pet. 57–60. Additionally, Dr. Wilhelm provides sufficient rationale for combining Scholl and Windle by explaining, for example, that one of ordinary skill in the art would have known of displays and warning devices and would have readily applied these devices to Scholl's diagnostic system to increase the amount of information available to vehicle occupants. Ex. 1011 ¶¶ 147–49.

AVS relies on its arguments that Scholl does not anticipate independent claims 1 and 15. PO Resp. 50. For the reasons discussed above, we are not persuaded by these arguments. We, therefore, are persuaded that Toyota has shown, by a preponderance of the evidence, that each of claims 7, 9, and 18 would have been obvious in view of Scholl and Windle.

III. CONCLUSION

We conclude that Toyota has demonstrated by a preponderance of the evidence that (1) claims 1, 2, 5, 7, 9, 13, and 15 are unpatentable, under 35

U.S.C. § 102(b), as anticipated by Asano, (2) claims 1, 2, 5, 13, and 15 are unpatentable, under 35 U.S.C. § 102(a) and (e), as anticipated by Scholl, (3) claim 15 is unpatentable, under 35 U.S.C. § 102(b), as anticipated by Corwin, and (4) claims 7, 9, and 18 are unpatentable, under 35 U.S.C. § 103(a), as obvious over Scholl and Windle.

This is a final written decision of the Board under 35 U.S.C. § 318(a). Parties to the proceeding seeking judicial review of this decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IV. ORDER

For the reasons given, it is

ORDERED that claims 1, 2, 5, 7, 9, 13, 15, and 18 of U.S. Patent No. 7,650,210 are determined by a preponderance of the evidence to be unpatentable; and

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

.

For PETITIONER:

A. Antony Pfeffer
Matt Berkowitz
Thomas R. Makin
KENYON & KENYON LLP
apfeffer@kenyon.com
mberkowitz@kenyon.com
tmakin@kenyon.com

For PATENT OWNER:

Thomas J. Wimbiscus
Scott P. McBride
Stephanie Samz
MCANDREWS HELD & MALLOY, LTD.
twimbiscus@mcandrews-ip.com
smcbride@mcandrews-ip.com
ssamz@mcandrews-ip.com