IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
SAN ANTONIO DIVISION

MICROPAIRING TECHNOLOGIES LLC, *Plaintiff,*	§	SA-21-CV-00940-XR
v.	§	
TOYOTA MOTOR MANUFACTURING TEXAS INC., *Defendant.*	§	

ORDER

On this date, the Court considered Plaintiff's opening claim construction brief (ECF No. 30), Defendant's responsive claim construction brief (ECF No. 32), Plaintiff's reply claim construction brief (ECF No. 34), Defendant's surreply claim construction brief (ECF No. 38), the parties' joint claim construction brief (ECF No. 46), Plaintiff's notice concerning claim construction (ECF No. 55), Defendant's supplemental claim construction brief (ECF No. 56), and the parties' oral argument on claim construction (ECF No. 59). After careful consideration, the Court issues the following order construing thirteen disputed claim terms.

BACKGROUND

On October 28, 2020, Plaintiff MicroPairing Technologies LLC ("MicroPairing") filed suit against Defendant Toyota Motor Manufacturing Texas Inc. ("Toyota") for patent infringement. ECF No. 1. MicroPairing alleges that Toyota has directly infringed upon its U.S. Patent Nos. 6,629,033 ("'033 Patent"), 6,778,073 ("'073 Patent"), 7,793,136 ("'136 Patent"), 8,380,383 ("'383 Patent"), 8,953,816 ("'816 Patent"), 9,697,015 ("'015 Patent"), and 8,583,292 ("'292 Patent"). *Id.* ¶¶ 48, 57, 65, 74, 83, 96, 109. MicroPairing also alleges that Toyota has indirectly infringed upon its '816 and '015 Patents. *Id.* ¶¶ 87, 100.

MicroPairing's asserted patents allegedly disclose novel technology, software, and methods for operating a vehicle's audio system. *See, e.g.*, *id.* ¶¶ 10–16. MicroPairing alleges that Toyota infringes upon one or more of its asserted patents whenever Toyota makes, uses, sells, or offers to sell a Toyota Tundra or Tacoma with a vehicle audio system called an "infotainment system." *Id.* ¶ 3. MicroPairing, therefore, seeks damages and a judgment against Toyota for directly and indirectly infringing upon one or more of its asserted patents. *Id.* at 29–30.

MicroPairing initiated this suit in the Waco Division of the Western District of Texas. *See* ECF No. 4. On February 8, 2021, Toyota filed a motion to transfer venue to the San Antonio Division. ECF No. 24. On October 1, 2021, United States District Judge Alan D. Albright granted Toyota's motion to transfer venue, ECF No. 48, and the undersigned was assigned to this case.

On June 4, 2021, MicroPairing filed its opening claim construction brief. ECF No. 30. On June 25, 2021, Toyota filed its responsive claim construction brief. ECF No. 32. MicroPairing filed a reply brief, and Toyota filed a surreply brief. ECF Nos. 34, 38. On November 9, 2021, MicroPairing filed a notice concerning claim construction, and Toyota filed a supplemental claim construction brief. ECF Nos. 55, 56. On November 16, 2021, the Court held a hearing and heard argument on the contested claim terms.[1] *See* ECF No. 59.

DISCUSSION

I. Legal Standard

Claim construction is a matter of law. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996). "The purpose of claim construction is to 'determine the meaning and scope of the patent claims asserted to be infringed.'" *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) (quoting *Markman v. Westview Instruments, Inc.,* 52 F.3d

[1] At the hearing, the Court also heard argument on Toyota's motion to dismiss, which the Court granted in part and denied in part. *See* ECF Nos. 15, 60.

967, 976 (Fed. Cir. 1995) (en banc), *aff'd* 517 U.S. 370 (1996)). "When the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it." *O2*, 521 F.3d at 1362; *cf. Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 806 (Fed. Cir. 2007) ("[A] sound claim construction need not always purge every shred of ambiguity").

Claim terms "are generally given their ordinary and customary meaning." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The ordinary and customary meaning of a term "is the meaning that the term would have to a person of ordinary skill in the art in question at the time of invention[.]" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent[.]" *Id.* at 1314. "[C]laim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* If the ordinary meaning of claim language is not readily apparent, the Court looks to "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence[.]" *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004).

General principles of claim construction also apply to allegations of indefiniteness. *HZNO Medicines LLC v. Actavis Laby's UT, Inc.*, 940 F.3d 680, 688 (Fed. Cir. 2019), *cert. denied sub nom. HZNP Fin. Ltd. v. Actavis Laby's UT, Inc.*, 141 S. Ct. 662 (2020). "[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). "Indefiniteness must be proven by clear and convincing evidence." *Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

Although earlier Federal Circuit decisions have *stare decisis* effect, *see Key Pharms. v. Hercon Labs. Corp.,* 161 F.3d 709, 716 (Fed. Cir. 1998), the "Court is not obliged to endorse the constructions adopted in any . . . previous district court opinions construing the patents-in-suit." *Good Tech. Corp. v. Little Red Wagon Techs., Inc.*, No. 3:11-CV-02373-M, 2013 WL 4052408, at *3 (N.D. Tex. Aug. 11, 2013). Thus, notwithstanding previous district court opinions construing some of the claims and claim terms the parties contest in this case, "*stare decisis* does not preclude this Court from an independent analysis" of the same. *Kinetic Concepts, Inc. v. Wake Forest Univ. Health Scis.*, No. SA-11-CV-163-XR, 2013 WL 6164592, at *3 (W.D. Tex. Nov. 25, 2013) (citing *Maurice Mitchell Innovations, L.P. v. Intel Corp.*, No. 2:04-CV-450, 2006 WL 1751779, at *4 (E.D. Tex. June 21, 2006), *aff'd*, 249 F. App'x 184 (Fed. Cir. 2007)). Instead, the Court gives "reasoned deference to the decisions of other district courts" that have construed the claims and claim terms the parties presently contest. *Kinetic*, 2013 WL 6164592, at *3.

II. Analysis

A. Contested Claim Terms

The parties ask the Court to construe thirteen claim terms.[2] The parties' proposed constructions for each of the thirteen claim terms establish a fundamental dispute on the scope of the claim terms. Construction of each disputed claim term is therefore necessary.

1. "application"

The parties submit that the term "application" appears in claims of the asserted '033, '136, '383, '816, '015, and '292 Patents.[3] *See* ECF No. 30, at 7 n.1; *see also* ECF No. 32, at 9 n.4.

[2] In *MicroPairing Technologies LLC v. General Motors LLC*, No. 6-20-CV-01002-ADA, the parties asked the Court to construe the same thirteen claim terms contested herein. There, the court provided its preliminary claim constructions by email. *See* ECF No. 55-1. To date, the court has not issued a formal claim construction order.

[3] In identifying the claims in which the disputed term(s) appear, the Court does not include all claims that incorporate the disputed term(s) through dependency.

MicroPairing asks the Court to construe the term according to its plain and ordinary meaning. ECF No. 46-1, at 2. Toyota proposes "entire computer program, other than the operating system, that performs a task to fulfill a specific need of a user and can be added to the system after it is put into use." *Id.* As discussed at the claim construction hearing, the Court construes the term "application" as "software, other than operating system and support software, that performs a task to fulfill a specific need of a user." *See* ECF No. 59, at 40:24–46:17.

2. "priority labels used independently by the individual priority managers to determine processing priorities for the individual messages for the individual software applications"

The parties submit that this term appears in Claim 13 of the asserted '033 Patent. *See* ECF No. 30, at 9 n.2; *see also* ECF No. 32, at 19 n.10. MicroPairing asks the Court to construe the term according to its plain and ordinary meaning. ECF No. 46-1, at 2. Toyota proposes "each individual priority manager independently uses a message's priority value to control the order in which a message is processed based on a comparison of the message's priority value to the priority value of other messages in a queue and a ranking of the message's priority." *Id.*

MicroPairing submits that the term "is easily understood in the context of the claim in which it appears." ECF No. 30, at 9. MicroPairing contends that Toyota's construction improperly limits the term to a particular priority scheme "based on a comparison of the message's priority value to the priority value of other messages in a queue and a ranking of the message's priority." *Id.* at 10. Because nothing in the intrinsic record suggests a limitation to this term, MicroPairing argues, the term "should be given its full scope." *Id.* In MicroPairing's view, Toyota's construction is "an attempt to limit claim 13 to the embodiment" described in the specification for the asserted '033 Patent. *Id.* Nevertheless, to the extent construction is necessary, MicroPairing asks the Court

to construe the term as "wherein the individual priority managers independently use a message's priority label to control when, if at all, a message is processed."[4] ECF No. 59, at 47:8–19.

Toyota counters that its construction describes the sole priority scheme disclosed, and therefore patented, in the asserted '033 Patent. ECF No. 32, at 20. Citing the asserted '033 Patent's specification, Toyota explains:

> [T]he specification describes how the "priority manager 44 determines a priority value for the message that determines how the message is processed." '033 Patent, 3:49–51. It discloses that "the priority manager 44 ***compares*** the priority value for the outgoing message with the priority values for ***other messages*** in the processor." '033 Patent, 3:58–60. The specification also discloses that, as part of determining the order of processing using the priority value, the priority manager "***ranks*** the [priority value for the] outgoing message ***with respect to other messages*** and then sends the message." '033 Patent, 3:61–62. The specification specifically discloses a queue: "[t]he ***priority manager 44 in block 72 ranks the priority of the incoming message in relation to the priorities of all the other messages in the processor***. The priority manager in block 74 ***decides according to the ranking whether the message should be put in a queue or sent directly to the application for immediate processing***." *Id.*, 4:30–35.

Id. at 20–21. Toyota contends that its "construction is consistent with the ordinary meaning and the specification's defined method for determining the processing order of messages[.]" *Id.* at 21. According to Toyota, its construction is proper because "[t]he patentee consistently declared in the specification that messages are ranked against each other and the message with the highest priority processed." *Id.* "Construction is necessary[,]" Toyota argues "to prevent MicroPairing from disregarding important aspects of this claim language." *Id.* at 22.

[4] In its briefing, MicroPairing alternatively proposed "wherein the individual priority managers independently use a message's priority **value** to control when, if at all, a message is processed." ECF No. 34, at 7 n.2 (emphasis added). At the claim construction hearing, MicroPairing asked the Court to construe its alternative proposal as follows: "wherein the individual priority managers independently use a message's priority **label** to control when, if at all, a message is processed." *See* ECF No. 59, at 47:8–19 (emphasis added). MicroPairing correctly noted at the hearing that Claim 13 of the asserted '033 Patent recites the word "label" instead of "value." *See id.* The Court, therefore, considers MicroPairing's alternative proposal as stated at the claim construction hearing.

"[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Phillips*, 415 F.3d at 1313; *see also Innova/Pure Water*, 381 F.3d at 1116 ("A court construing a patent claim seeks to accord a claim the meaning it would have to a person of ordinary skill in the art at the time of the invention."). "[T]he specification may resolve ambiguous claim terms 'where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.'" *Halliburton Energy Servs., Inc. v. M-I, LLC*, 456 F. Supp. 2d 811, 815 (E.D. Tex. 2006) (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002)). "Much of the time, upon reading the specification . . . it will become clear whether the patentee is setting out specific examples of the invention . . . or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive." *Phillips*, 415 F.3d at 1323.

Here, a person of ordinary skill in the relevant art at the time of the invention, after reading the term in the context of the claim in which the term appears and the specification, would understand that the patentee intended to patent one priority scheme as it relates to an individual priority manager in an Open Communication system receiving and reading a message. Broadly, the asserted '033 Patent's specification discloses a "communication system for a mobile vehicle" that "includes multiple processors." ECF No. 1-2, at 1:53–54. The specification provides that "multiple processors each run an Open Communication system that controls how data is transferred between processors based on data content as opposed to the links that connect the processors together." *Id.* at 1:54–58. The specification also discloses that the Open Communication system "enables data or messages to be effectively transferred and processed for real-time

applications or other server based applications that may be running on the multiple processors in a secure environment regardless of processors, locations, or data links." *Id.* at 1:59–63.

Significantly, the specification describes a queue by which an individual priority manager in an Open Communication system ranks and processes an incoming message. The specification explicitly discloses that an individual priority manager "decides according to the ranking whether the message should be put in a queue or sent directly to the application for immediate processing." *Id.* at 4:33–35. Figure 4, a flow diagram showing how the priority manager receives data in the open communication system, illustrates the described queue:

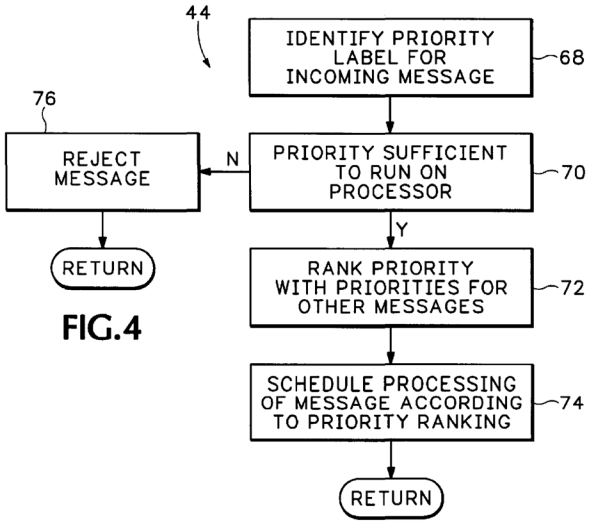

FIG.4

Id. at 6. According to Figure 4, an individual priority manager identifies an incoming message's priority label and subsequently determines whether the value on the identified incoming message's priority label is sufficient to run on the processor. *Id.* If the identified incoming message's priority label is sufficient to run on the processor, then the individual priority manager ranks the identified incoming message's priority label by comparing the value of that priority label with the values of priority labels on other incoming messages. *Id.* If it is not sufficient, then the individual priority manager rejects the message. *Id.* The individual priority manager ultimately schedules processing of those incoming messages that it did not reject according to priority ranking. *Id.* This priority

scheme is not simply, as MicroPairing contends, a preferred embodiment; rather, it is the only priority scheme disclosed by the asserted '033 Patent's intrinsic evidence and therefore patented.[5]

However, the term fails to describe the patented priority scheme. While the term discloses that individual priority managers independently use priority labels to determine priority labels for the individual messages received from individual software applications, the term fails to explain how the individual priority managers use the priority labels. *See* ECF No. 1-2, at 11:61–64. Claim 13 of the asserted '033 Patent is similarly deficient; the claim merely describes a vehicle system comprising multiple processors operating a communication system, which further comprises individual priority managers associated with individual software applications that attach priority labels to individual messages transferred between individual software applications in the vehicle. *See id.* at 11:50–64. Dependent claims also fail to explain how the individual priority managers use priority labels. For instance, Claim 17 recites a "system according to claim 13 wherein the priority managers assign priority values to different sensor data messages according to a likelihood of objects identified in the sensor data colliding with the vehicle[,]" *id.* at 12:13–16, but the claim fails to describe how the individual priority managers use priority labels.

"The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). While Toyota's proposed construction provides some clarity on the patented priority scheme, its construction fails to clearly account for the possibility that an individual priority manager may reject a message upon receiving

[5] Even if the only priority scheme described in the asserted '033 Patent's specification is, as MicroPairing urges, an embodiment, for the reasons discussed, there is "a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

and reading the value on the message's priority label.[6] MicroPairing's alternative proposed construction, however, accounts for this possibility.

Therefore, the Court construes "priority labels used independently by the individual priority managers to determine processing priorities for the individual messages for the individual software applications" as "wherein the individual priority managers independently use a message's priority label to control when, if at all, a message is processed." A person of ordinary skill in the relevant art at the time of the invention would have understood that Claim 13 of the asserted '033 Patent claims a particular priority scheme, wherein the individual priority managers independently use a message's priority label to control when, if at all, a message is processed.

3. "configured to" / "adapted to"

The parties submit that the term "configured to" appears in Claim 10 of the asserted '073 Patent; Claims 1, 18, and 31 of the asserted '136 Patent; Claim 1 of the asserted '383 Patent; Claims 1, 6, and 17 of the asserted '816 Patent; Claims 1, 6, and 17 of the asserted '015 Patent; and Claims 1 and 2 of the asserted '292 Patent. *See* ECF No. 30, at 11 n.3; *see also* ECF No. 32, at 17 n.8. The parties further submit that the term "adapted to" appears in Claim 25 of the asserted '033 Patent. *See* ECF No. 30, at 11 n.3; *see also* ECF No. 32, at 17 n.8. MicroPairing asks the Court to construe the terms according to their plain and ordinary meaning. ECF No. 46-1, at 2. Toyota proposes "actually configured to and not merely capable to." *Id.* The parties agree that the terms should be construed consistently. *See* ECF No. 17, at 17. As discussed at the claim construction hearing, the Court construes the terms "configured to" and "adapted to" according to their plain and ordinary meaning. *See* ECF No. 59, at 50:16–53:12.

[6] To the extent Toyota argues that its construction captures the possibility of an individual priority manager rejecting a message because "[d]iscarding the message is processing the message according to the ranking of its priority against other messages[,]" ECF No. 38, at 11, its construction is unclear. *See Kinetic*, 2013 WL 6164592, at *15 (rejecting proposed construction because "further defining the term would only add to the jury's confusion").

4. "audio sources"

The parties submit that the term "audio sources" appears in Claim 10 of the asserted '073 Patent. *See* ECF No. 30, at 12 n.4; *see also* ECF No. 32, at 22 n.11. MicroPairing initially proposed "devices that generate audio data." ECF No. 46-1, at 2. At the claim construction hearing, however, MicroPairing stated that it "is amenable to plain and ordinary meaning[.]" ECF No. 59, at 53:19–20. Toyota also proposes the term's plain and ordinary meaning. ECF No. 46-1, at 2. Therefore, as discussed at the claim construction hearing, the Court construes the term "audio sources" according to its plain and ordinary meaning. *See* ECF No. 59, at 53:13–21.

5. "wireless audio output devices" / "the audio output devices"

The parties submit that the terms "wireless audio output devices" and "the audio output devices" appear in Claim 10 of the asserted '073 Patent. *See* ECF No. 30, at 13 n.5; *see also* ECF No. 32, at 23 n.12. MicroPairing asks the Court to construe the terms according to their plain and ordinary meaning. ECF No. 46-1, at 3. Alternatively, MicroPairing proposes "devices configured to output audio from audio data provided by wireless audio sources." *Id.* Toyota proposes "wireless devices that output sound." *Id.* As discussed at the claim construction hearing, the Court construes the terms "wireless audio output devices" and "the audio output devices" as "wireless devices that output sound." *See* ECF No. 59, at 53:22–58:10.

6. "multiprocessor system" / "multi-processor system"

The parties submit that the terms "multiprocessor system" and "multi-processor system" appear in Claims 1, 18, and 31 of the asserted '136 Patent; Claim 6 of the asserted '816 Patent; and Claim 6 of the asserted '015 Patent.[7] *See* ECF No. 30, at 15 n.7; *see also* ECF No. 32, at 25

[7] MicroPairing states that the term "multi-processor system" also appears in Claim 1 of the asserted '383 Patent. ECF No. 30, at 15 n.7. However, the word "distributed" immediately precedes the term as it appears in Claim 1 of the asserted '383 Patent and reads "distributed multi-processor system," which the parties have asked the Court

n.13. The parties appear to agree that the terms should be construed consistently. MicroPairing asks the Court to construe the terms according to their plain and ordinary meaning. ECF No. 46-1, at 3. Toyota proposes "system of multiple processors which share memory, and in which the processing tasks for an application can be coordinated across multiple processors." *Id.*

MicroPairing submits that the terms are entitled to the full scope of their plain and ordinary meaning, namely "a system that includes multiple processors."[8] ECF No. 30, at 16. MicroPairing argues that the relevant claim language and specifications do not require multiple processors in a multiprocessing system to share memory and coordinate processing tasks. *Id.* Citing to the specification for the unasserted '260 Patent, MicroPairing submits that the memory in a multiprocessor system "may also include different local memories that are accessed locally by specific processors."[9] *Id.*; *see also* ECF No. 30-3, at 5:44–46. MicroPairing further contends that the relevant intrinsic records do not indicate that a multiprocessor system is limited to a system of multiple processors "in which the processing tasks for an application can be coordinated across multiple processors." ECF No. 30, at 16. MicroPairing maintains that "the language of the asserted claims itself defines how the claimed multiprocessor systems are configured." *Id.*

In response, Toyota argues that the relevant claim language and specifications dispense with MicroPairing's construction that a multiprocessor system is simply a system that includes

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to construe separately. *See* ECF No. 1-5, at 20:13–43. The Court, therefore, does not construe the term "multi-processor system" in Claim 1 of the asserted '383 Patent in this section.

[8] Elsewhere, MicroPairing submits that "a system with multiple processors" captures the full scope of the terms' plain and ordinary meaning. *See* ECF No. 30, at 15. The distinction is immaterial. Construing the terms according to their plain and ordinary meaning, a system that includes multiple processors is a system with multiple processors and a system with multiple processors is a system that includes multiple processors.

[9] According to MicroPairing, the specification for the unasserted '260 Patent is incorporated into the specifications for each of the patents asserted in this case, except for the asserted '033 Patent. *See* ECF No. 30, at 16. Toyota appears to agree, stating in its responsive claim construction brief that the specification for the unasserted '260 Patent "is incorporated by reference into the Multiprocessor Patents[.]" ECF No. 32, at 26.

multiple processors. ECF No. 32, at 25–26. Toyota contends that the relevant claim language establishes that a multiprocessor system requires "multiple processors to be networked together." *Id.* at 26. For instance, Toyota submits, Claim 6 of the asserted '816 Patent recites, "multiple processors networked together into a multi-processor system." *Id.* at 26; *see also* ECF No. 1-6, at 9:37–38. According to Toyota, the relevant specifications further explain "that part of networking multiple processors together is giving them access to a shared memory." ECF No. 32, at 26. Citing the specification for the unasserted '260 Patent, Toyota argues that requiring the sharing of memory among multiple processors is not, as MicroPairing contends, contrary to the ordinary meaning of the terms.[10] *Id.* at 28. In Toyota's view, the fact that a multiprocessor system "may also include . . . [t]he presence of additional local memories for specific processors does not detract from the '260 Patent's confirmation that the ordinary meaning of 'multiprocessor system' requires a shared memory among multiple processors." *Id*. Based on its proposition that a multiprocessor system requires "multiple processors networked together," Toyota further contends that the relevant specifications describe, and therefore also require, that a multiprocessor system "facilitate coordination of processing tasks for an application across multiple processors." *Id.*

This is not the first time a court has construed the disputed terms. In *Eagle Harbor Holdings, LLC v. Ford Motor Co.*, No. 3:11-CV-05503-BHS (W.D. Wash. July 29, 2013), the court appointed a special master to construe the term "multiprocessor system" in, *inter alia*, Claim 1 of the asserted '136 Patent.[11] *See* Special Master Order, *Eagle Harbor Holdings, LLC v. Ford*

[10] Toyota also cites to extrinsic evidence. *See* ECF No. 32, at 27, 29. "Such evidence, however, is 'less reliable than the patent and its prosecution history in determining how to read claim terms.'" *Good Tech.*, 2013 WL 4052408, at *3 (quoting *Phillips*, 415 F.3d at 1318).

[11] To be precise, the parties in *Eagle Harbor* asked the court to construe the terms "multiprocessor system," "multiprocessor network," and "a processor system, wherein a processor is coupled to at least a second processor." *See* Special Master Order, *Eagle Harbor Holdings, LLC v. Ford Motor Co.*, No. 3:11-CV-05503-BHS (W.D. Wash. July 29, 2013), ECF No. 165, at 31–32.

Motor Co., No. 3:11-CV-05503-BHS (W.D. Wash. July 29, 2013), ECF No. 165, at 31. The special master observed that, in many instances, the term appeared in the preamble of a claim, followed by the word "comprising." *Id.* at 36. "Where the term is not in the preamble," the special master noted, "it is followed by the term 'configured to' and limitations describing requirements for the multiprocessor system." *Id.* "For example," the special master illustrated, "claim 1 of the '136 patent includes the limitation 'one or more of the multiple on-board processors coupled together into a multiprocessor system and configured to' followed by several additional limitations defining the multiprocessor system." *Id.*

Based on the structure of the claims in which the term appeared, the special master concluded that the term is used in the nominative sense in the preamble and body of claims, "providing a descriptive name to the set of limitations that follow, and in which the further limitations completely set forth the invention." *Id.* at 37. According to the special master, "A person of ordinary skill would understand that the limitations following the preamble or the 'configured to' transition would define the requirements of the multiprocessor system."[12] *Id.* at

[12] The special master reached this conclusion even though the terms "are sometimes used for the first time in the body of an asserted claim instead of the preamble[.]" Special Master Order, *Eagle Harbor*, No. 3:11-CV-05503-BHS, ECF No. 165, at 37. The special master explained:

> [T]he parties have agreed that these terms should be construed to mean the same thing in every instance, regardless of whether they appear in the preamble or in the body of the claim. This potentially raises an issue as to whether the precedent for interpretation of preamble is equally applicable to terms applying in the body of the claim, but in this instance even where these terms [first appear] in the body of a claim rather than in the preamble, they are still used in the same nominative sense. Because these terms are frequently used in the preamble in a nominative sense, or used in the body of a claim in the similar nominative sense, and where they are grouped together to be construed the same way, the guidance for interpretation of terms in a preamble should be applied to these terms.

Id. The court subsequently considered a motion for further claim construction of the disputed terms. *See Eagle Harbor Holdings, LLC v. Ford Motor Co.*, No. 3:11-CV-05503-BHS, 2014 WL 12570145 (W.D. Wash. Feb. 4, 2014). In resolving the motion, the court recognized that, under *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801 (Fed. Cir. 2002), "dependence on a particular disputed preamble phrase for antecedent basis *may* limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention." *Id.* at 809. Still, the court concluded that further construction of the terms would be "unworkable because it is clear that the inventors

36–37. The term, the special master reasoned, is "not limiting and need not be expressly construed."[13] *Id.* at 37. As a result, the special master construed the term "multiprocessor system" according to its plain and ordinary meaning as defined by the limitations that follow the term. *Id.* at 38. The court agreed and adopted the special master's construction. *See* Order, *Eagle Harbor Holdings, LLC v. Ford Motor Co.*, No. 3:11-CV-05503-BHS (W.D. Wash. Nov. 13, 2013), ECF No. 184, at 9–11.

Having independently reviewed the claims of the asserted patents in which the terms "multiprocessor system" and "multi-processor system" appear in this case, the Court finds that the *Eagle Harbor* court's construction of "multiprocessor system" is entitled to deference. Like the term "multiprocessor system" in *Eagle Harbor*, the terms "multiprocessor system" and "multi-processor system" in this case are followed by the term "configured to" and limitations describing requirements for the disclosed multiprocessor and multi-processor systems. For instance, Claim 6 of the asserted '816 Patent recites, "A method of operating an audio system in a vehicle comprising: multiple processors networked together into a multi-processor system, the multi-processor system configured to . . . ." ECF No. 1-6, 9:35–39. Claim 6 of the asserted '015 Patent similarly recites, "A method of operating an audio system in a vehicle comprising: networking multiple processors together into a multiprocessor system, the multi-processor system which is configured to . . . ." ECF No. 1-7, at 21:16–20. Claims 1, 18, and 31 of the asserted '136 Patent are no different. *See* ECF No. 1-4, at 6:45–10:42. There is no need to add Toyota's proposed "extra

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used the duplicative terms to reference the system as a whole and not to provide additional limitations for the antecedent system." *Eagle Harbor*, 2014 WL 12570145, at *2. Construing the terms to provide further limitations in the claim, the court reasoned, "is illogical and contrary to the invention as a whole." *Id.*

[13] The special master also concluded that it would be "redundant to impose requirements that the processors must operate common software and control operation of applications where other limitations more specifically define the nature of these same requirements." Special Master Order, *Eagle Harbor*, No. 3:11-CV-05503-BHS, ECF No. 165, at 38.

language because it does not change the claims in any substantive way." *USB Bridge Sols., LLC v. Buffalo Inc.*, No. 1-17-CV-001158-LY, 2020 WL 1906898, at *7 (W.D. Tex. Apr. 17, 2020).

Thus, the Court construes "multiprocessor system" and "multi-processor system" according to their plain and ordinary meaning as defined by the limitations that follow these terms. One of ordinary skill in the relevant art at the time of the invention would have understood that the limitations following the "configured to" transition define the requirements of a multiprocessor system and multi-processor system.

7. "move" / "download"

The parties submit that these terms appear in five varied forms in Claims 1, 18, and 31 of the asserted '136 Patent; Claim 1 of the asserted '292 Patent; and Claims 1, 6, and 17 of the asserted '816 Patent. *See* ECF No. 30, at 17–18; *see also* ECF No. 56, at 9–10. The parties agree that the terms should be construed consistently. ECF No. 46-1, at 3 n.2. MicroPairing generally proposes "make the application from the memory available for execution by one of the processors."[14] *Id.* at

[14] In its reply claim construction brief, MicroPairing agreed that, when the terms refer to the moving or downloading of an application into a processor, the construction should include "from the memory." *See* ECF No. 34, at 13–15. Because the terms as used in the relevant claims of the asserted '136 and '292 Patents refer to the moving or downloading of an application into a processor, the only substantive distinction among the parties' proposed constructions with respect to the terms as they appear in the relevant claims of the asserted '136 and '292 Patents is Toyota's inclusion of "in an address space" in its proposed construction. *See id.* at 14.

According to MicroPairing, the terms as used in Claims 1, 6, and 17 of the asserted '816 Patent do not refer to the moving or downloading of an application into a processor. *See id.* MicroPairing, therefore, maintains that the proper construction of the terms as used in Claims 1, 6, and 17 of the asserted '816 Patent must omit both "in an address space" and "from the memory." *Id.* at 14–15.

MicroPairing, however, has also represented to the Court that "these terms should be construed consistently with one another" and that the parties' "dispute centers on whether the claim language requires making an application 'available in an address space.'" ECF No. 30, at 17. Further, at the claim construction hearing, MicroPairing did not specifically request a different construction of the same terms based on the claims in which the terms are used. *See* ECF No. 59, at 63:6–65:5. The Court, therefore, declines MicroPairing's inconsistent invitation to construe the terms as used in the claim of one asserted patent differently from the terms as used in the claims of other asserted patents. *See Phillips*, 415 F.3d at 1314 ("Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.").

3–4. Toyota generally proposes "make the application from the memory available in an address space for execution by one of the processors."[15] *Id.*

MicroPairing argues that the relevant claim language and intrinsic record fail to support Toyota's construction. ECF No. 30, at 17. According to MicroPairing, "Neither the language the parties seek to construe nor any other claim language mentions the process of making an application available in an address space." *Id.* MicroPairing contends that "[t]he specifications do not link the functions of 'moving' or 'downloading' an application with the function of initializing an application or making it available in an address space." *Id.* "Rather," MicroPairing argues, "the specifications generally connect the 'moving' or 'downloading' functions with executing an application on a processor in response to certain conditions, such as the detection of a data type associated with that application or the detection of another processor." *Id.* at 17–18.

Toyota, on the other hand, argues that the relevant specifications describe an application being loaded, which is synonymous with download, into a processor. ECF No. 32, at 33–35. Toyota further contends that the "relevant claims indicate the purpose of moving/downloading/loading the application into the processor, is to run or execute the application." *Id.* at 33. "Thus," Toyota submits, "the claim language and the specifications make clear that loading/downloading/moving the applications 'from memory' and into the processor (or for processing) requires that the application be loaded 'into' or 'onto' the processor for execution." *Id.* at 34. Relying on extrinsic evidence, Toyota argues that "in order to load the application for execution, the processor must first create an address space in its working memory." *Id.* Toyota submits that its construction recognizes "that the concept of 'moving' or 'downloading' an

[15] The parties propose the same construction for the terms, differing only to account for the claim language in which the terms appear. *See* ECF No. 46, at 3–4.

application '***from memory***' '***to a processor***' or '***for processing***' by a processor necessarily involves making that application available in an address space so that it can be processed." *Id.* at 31–32.

The *Eagle Harbor* court also construed the terms "move" and "download" in Claim 1 of the asserted '136 Patent. *See Eagle Harbor Holdings, LLC v. Ford Motor Co.*, 3:11-CV-05503-BHS, 2014 WL 4748139, at *1 (W.D. Wash. Aug. 8, 2014). MicroPairing's predecessor-in-interest argued that the terms could be understood according to their plain and ordinary meaning, and thus, did not require construction. *Id.* at *2. Ford disagreed and argued "that the terms 'move' and 'download' are used in a manner that is synonymous with 'load,' and that a person of ordinary skill in the art would understand 'load' to require the application to be made available in an address space in order to be executed by the particular processor." *Id.*

After examining the relevant claim language and specifications, the special master determined that "[a] person of ordinary skill in the relevant art, having read the specifications of the patents at issue, would have understood the terms 'download,' and 'move' to be synonymous with 'load,' and to encompass either moving an application physically into a working memory or mapping the application to a virtual memory." *Id.* at *9. "Because they are used synonymously," the special master reasoned, '"download' and 'move' must be construed in a manner that is also consistent with the meaning of 'load.'" *Id.* Relying on undisputed extrinsic evidence defining the term "load," the special master construed the terms "move" and "download" as requiring "a series of steps that includes creating an address space for the program[.]" *Id.* at *8. Despite objections, the court adopted the special master's construction. *See Eagle Harbor Holdings, LLC v. Ford Motor Co.*, No. C-11-CV-05503-BHS, 2014 WL 4748142, at *3 (W.D. Wash. Sept. 22, 2014).

The Court has independently reviewed the claims of the asserted patents in which the terms "move" and "download" appear in this case and finds that the *Eagle Harbor* court's construction

of the same is entitled to deference. Based on the relevant specifications, Toyota, like Ford, convincingly establishes that the terms "move" and "download" are synonymous with "load." ECF No. 32, at 33–35. MicroPairing does not challenge Toyota's assertion that the terms "move" and "download" are synonymous with "load." *See generally* ECF Nos. 30, 34, 55. Further, Toyota's extrinsic evidence, like Ford's, persuasively establishes that "in order to load the application for execution, the processor must first create an address space in its working memory." ECF No. 32, at 34. Again, MicroPairing does not dispute that the term "load" requires the creation of an address space for a program. *See generally* ECF Nos. 30, 34, 55. In short, the *Eagle Harbor* court considered the arguments Toyota presents in this case, and its construction of the terms "move" and "download" in Claim 1 of the asserted '136 Patent is legally sound.

As a result, the Court construes the terms "move" and "download" as "make the application from the memory available in an address space for execution by one of the processors," differing only to account for the language in the relevant claims. A person of ordinary skill in the relevant art at the time of the invention would have understood the terms "move" and "download" to be synonymous with "load," which requires the creation of an address space for a program.

8. "distributed multi-processor system" / "distributed processing system"

The parties submit that the terms "distributed multi-processor system" and "distributed processing system" appear in Claim 1 of the asserted '383 Patent and Claim 1 of the asserted '292 Patent. *See* ECF No. 30, at 18 n.8; *see also* ECF No. 32, at 35 n.17. The parties appear to agree that the terms should be construed consistently. MicroPairing proposes a "system consisting of two or more processors, connected so that information can be exchanged." ECF No. 46-1, at 4. Toyota proposes a "system of multiple processors which share memory, and in which the

processing tasks for an application are distributed among and coordinated across multiple processors." *Id.*

MicroPairing asks the Court to construe the terms according to the full scope of their plain and ordinary meaning, namely "a system consisting of two or more processors, connected so that information can be exchanged." ECF No. 30, at 19. MicroPairing submits that the claim language reciting the terms support its construction. *Id.* at 18. Further, as with the disputed terms "multiprocessor system" and "multi-processor system," MicroPairing argues that Toyota's construction improperly requires processors in a "distributed multi-processor system" or "distributed processing system" to share memory and coordinate processing tasks. *Id.* at 19. MicroPairing acknowledges that the *Eagle Harbor* court previously construed the term "distributed processing system" to mean "a multiprocessor system in which the processing tasks for the applications can be distributed among multiple processors." *Id.* at 20. Still, MicroPairing submits that "nothing in the intrinsic record suggests that the patentee intended to give the term anything other than its full scope (a system consisting of two or more processors, connected so that information can be exchanged)." *Id.* at 20. If a limiting construction is necessary, however, MicroPairing asks the Court to adopt the *Eagle Harbor* court's construction. ECF No. 34, at 16.

Toyota submits that MicroPairing's construction "erases the concept of 'distributed' from the claims." ECF No. 32, at 36. Based on the claim language reciting the terms, Toyota contends that a "distributed multi-processor system" and "distributed processing system" are a particular type of multiprocessor system. *Id.* Toyota argues that the specifications for the asserted '383 Patent and unasserted '033 Patent, which the asserted '383 Patent incorporates by reference, describe a "distributed multi-processor system" and "distributed processing system" as having the "ability to distribute applications from one processor to another based on system needs[.]" *Id.* at 37. Toyota

further submits that extrinsic evidence from the time of the claimed invention establishes that a "distributed multi-processor system" and "distributed processing system" require the system to distribute applications from one processor to another based on system needs. *Id.* In Toyota's view, its construction provides proper meaning to the word "distributed." *Id.* at 37–38.

Although the parties in *Eagle Harbor* agreed that the term "distributed processing system" described a particular type of multiprocessor system, they offered different constructions. *See* Special Master Order, *Eagle Harbor*, No. 3:11-CV-05503-BHS, ECF No. 165, at 38–39. In that instance, MicroPairing's predecessor-in-interest proposed to construe the term as "two or more processors, connected by links, that perform various tasks with and communicate with each other." *Id.* at 39. Ford, on the other hand, proposed to construe the term as "a multiprocessor system or network in which applications can be distributed among multiple processors." *Id.* To resolve the parties' dispute, the special master analyzed the relevant claim language and specifications, as well as the extrinsic evidence the parties presented. *See id.* at 39–45. Based on his analysis, the special master concluded that both constructions were deficient. The construction proposed by MicroPairing's predecessor-in-interest, the special master determined, was "too vague" and failed to sufficiently differentiate a distributed processing system from the more general multiprocessor system. *Id.* at 44–45. And Ford's construction requiring the distribution of applications among multiple processors, the special master concluded, was too narrow. *Id.* at 42. According to the special master, "[A] person of ordinary skill in the art would understand distributed processing to include the use of multiple different processors to perform the computing tasks (whether in the form of threads or otherwise) of a single application, as well as the distribution of single applications to different processors." *Id.* Finding deficiencies in both parties' constructions, the special master instead construed the term as "a multiprocessor system in which the processing

tasks for applications can be distributed among multiple processors." *Id.* at 45. The court agreed and adopted the special master's construction. *See* Order, *Eagle Harbor*, No. 3:11-CV-05503-BHS, ECF No. 184, at 2–3, 11.

After independently reviewing the claims in the asserted patents in which the terms "distributed multi-processor system" and "distributed processing system" appear in this case, the Court finds that the *Eagle Harbor* court's construction of the term "distributed processing system" is entitled to deference. The parties in this case have asked the Court to construe the terms "distributed multi-processor system" and "distributed processing system" consistently and apart from "multiprocessor system" and "multi-processor system." In so doing, MicroPairing and Toyota, like the parties in *Eagle Harbor*, have indicated to the Court that a "distributed multi-processor system" or "distributed processing system" is distinct from a "multiprocessor system" or "multi-processor system." Further, the one evident distinction between the former and latter pair of terms is the use of the word "distributed" to modify a "multi-processor system" or "processing system" in the latter pair of terms. "A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so." *Merck & Co., Inc. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005). Thus, the best construction of the terms "distributed multi-processor system" and "distributed processing system" must account for the word "distributed."

MicroPairing's construction, however, fails to account for the word "distributed." A system consisting of two or more processors connected so that information can be exchanged, as MicroPairing proposes, can also describe a "multiprocessor system" or "multi-processor system" that is not distributed; such a construction would improperly render the word "distributed" in the terms a nullity. And while Toyota's construction accounts for the distribution of an application's processing tasks among multiple processors, it goes too far in requiring multiple processors to

share memory and coordinate processing tasks. The Court has already found that these additional requirements are unnecessary in construing the terms "multiprocessor system" and "multi-processor system." The Court will not create confusion by imposing these additional requirements onto what appears—by Toyota's own request to construe the terms "multiprocessor system," "multi-processor system," "distributed multi-processing system," and "distributed processing system" with the same requirements—to be a more limited multi-processing or processing system. The *Eagle Harbor* court's construction accounts for the word "distributed" and is legally sound.

Therefore, the Court construes the terms "distributed multi-processing system" and "distributed processing system" as "a multiprocessor system in which the processing tasks for the applications can be distributed among multiple processors." One of ordinary skill in the relevant art at the time of the invention would have understood the terms "distributed multi-processing system" and "distributed processing system" to be a type of multiprocessor system in which the processing tasks for the applications can be distributed among multiple processors.

9. "secure real-time executive"

The parties submit that the term "secure real-time executive" appears in Claim 1 of the asserted '383 Patent. *See* ECF No. 30, at 20 n.9; *see also* ECF No. 32, at 38 n.18. The parties dispute whether the term is indefinite. ECF No. 46-1, at 4.

MicroPairing submits that the term "secure real-time executive" is not indefinite because a person of ordinary skill in the relevant art at the time of the invention would have understood the term and the scope of the claim in which it appears with reasonable certainty. ECF No. 30, at 21. To support its argument, MicroPairing relies on an expert, Steven Loudon.[16] *See id.*; *see also* ECF

[16] According to his declaration, Loudon's work, since 1988, "has involved the design, development, testing and analysis of hardware and software that has been used in automobile control systems." Loudon Decl. ¶ 8. Loudon submits that he has "an extensive understanding and background of the type of rigorous software development process that is necessary for automobile control systems." *Id.*

No. 30-1 ("Loudon Decl."). Recognizing that his assessment "must be undertaken from the perspective of what would have been known or understood by a person having ordinary skill in the art[,]" Loudon Decl. ¶ 18, Loudon opines that the term "secure real-time executive" is not indefinite, *id.* ¶ 35. According to Loudon, "A person of skill in the art at the time of the invention after reviewing the claims, specification, and file history for the '383 patent would have understood with reasonable certainty the scope of claim 1 and the term 'secure real-time executive.'"[17] *Id.* ¶ 44. Loudon bases his opinion on the constituent parts of the term "secure real-time executive" and the specification for the asserted '383 Patent as it relates to the Open Communication system, which, Loudon submits, a person of ordinary skill in the relevant art at the time of the invention would have understood to be an example of a "secure real-time executive." *Id.* ¶ 44–45.

With respect to the constituent parts of the term, Loudon opines that, "[b]y April 2001, when the earliest application to which the '383 patent claims priority was filed, the term 'real-time executive' was widely used and understood by those of skill in the art to describe a class of software that operates between applications and the underlying software and hardware support facilities (e.g., operating systems) to facilitate real-time applications or capability." *Id.* ¶ 44. To illustrate, Loudon cites an article titled "Task scheduling policies for real-time systems," which, according to Loudon, defines the term "real-time executive" in substantially the same manner. *Id.*; *see also* ECF No. 34-8, at 2. Loudon further opines that a person of ordinary skill in the relevant art "at the time of the invention (and up to the present) would have understood a secure system or software to refer to a system or software that protects against unpermitted access or modification." Loudon Decl. ¶ 44. Thus, Loudon submits, a person of ordinary skill in the relevant art at the time of the invention "would have understood 'secure real-time executive' to generally refer to software

[17] Loudon's declaration, at times, refers to an '838 Patent. *See, e.g.*, ECF No. 30-1 ¶ 45. The Court assumes that references to an '838 Patent are a typographical error, intended to refer to the asserted '383 Patent.

that operates between applications and underlying software and hardware support facilities to facilitate real-time functionality and protect against unpermitted access modification."[18] *Id.*

Loudon also opines that the Open Communication system described in the specification for the asserted '383 Patent is an example of a "secure-real time executive." *Id.* ¶ 45. The patent's abstract and relevant claim language, Loudon explains, indicate that a "secure real-time executive includes, among other things, a security manager and is configured to control how processors communicate with each other and how priorities are set for messages." *Id.* The Open Communication system, Loudon explains, "is a secure system because it protects against unauthorized access, and it [is] a real-time executive because it operates between applications and an operating system to facilitate real-time applications and functionality, such as automobile braking applications." *Id.* ¶ 46. Loudon therefore submits that a person of ordinary skill in the relevant art at the time of the invention "would have understood the scope of Claim 1 of the asserted '383 Patent and the term 'secure real time-executive' with reasonable certainty." *Id.* ¶ 49.

Toyota relies on its own expert, Scott Andrews, to argue that the term "secure real-time executive" is indefinite.[19] *See* ECF No. 32, at 39–42; *see also* ECF No. 32-2 ("Andrews Decl."). Acknowledging that the meaning and scope of patent claims should be assessed "from the perspective of a person of ordinary skill in the art as of the earliest claimed priority date[,]"

[18] MicroPairing also submits that the U.S. Patent and Trademark Office ("PTO") twice "blessed the claim language 'secure real-time executive'" by issuing Notices of Allowance related to the distributed vehicle control system invention. ECF No. 30, at 23; *see also* ECF Nos. 30-7, 30-8. MicroPairing's briefing and the cited Notices of Allowance, however, fail to suggest, let alone establish, that the PTO specifically considered whether the term "secure real-time executive" is indefinite. *See generally* ECF Nos. 30, 30-7, 30-8, 34, 55. "[A] patent examiner's finding of validity carries less weight on issues that the examiner did not specifically consider." *Brown v. Baylor Health Care Sys.*, 662 F. Supp. 2d 669, 682 (S.D. Tex. 2009).

[19] Andrews submits that he has "over 30 years of professional experience in the field of Automotive electronics, including vehicle information systems, vehicle electrical architectures, vehicle safety and control systems, vehicle infotainment systems, mobile devices and mobile information systems, including handheld communications and navigation devices." ECF No. 32-1 ¶ 9. Andrews further states that he has "authored numerous published technical papers and [he is] the named inventor on 25 U.S. and foreign patents." *Id.*

Andrews Decl. ¶ 21, Andrews opines that the term "secure real-time executive" is not a term of art and must therefore be defined and described to understand the scope and meaning of the term with reasonable certainty, *id.* ¶ 101. According to Andrews, the constituent parts of the term have "many different definitions" and "depend on the operational context." *Id.* ¶ 96. Based on his review of the asserted '383 Patent's abstract, as well as relevant claim language in the asserted '383 and '033 Patents, Andrews further opines that a person of ordinary skill in the relevant art at the time of the invention would have not understood the Open Communication system to be an example of a "secure real-time executive." *See id.* ¶¶ 106–32. Andrews opines that the use of the term "secure real-time executive" in the unasserted '049 Patent is inconsequential because the date of invention claimed in the asserted '383 Patent, where the term "secure real-time executive" appears, is earlier than the date of invention claimed in the unasserted '049 Patent. *Id.* ¶ 133. "Nothing in the '383 Patent[,]" Andrews submits, "suggests looking to the '049 Patent, or '136 Patent for guidance."[20]

"[C]laim construction must begin with the words of the claims themselves." *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 457 F.3d 1293, 1301 (Fed. Cir. 2006). Claim 1 of the asserted '383 Patent describes a distributed vehicle control system comprising multiple processors in a distributed multi-processor system. ECF No. 1-5, at 20:13–15. The distributed vehicle control system also comprises a secure real-time executive operating in the distributed multi-processor system. *Id.* at 20:16–17. Claim 1 explains that the secure real-time executive operates on each processor independently. *Id.* at 20:17–18. Each secure real-time executive "comprises a message manager associated with an application running on each of the processors and configured to associate priority values with messages transmitted by the applications and to control the processing sequence of messages received by applications according to a predetermined priority

[20] Andrews submits that the unasserted '049 Patent is a continuation of the asserted '136 Patent. *See* Andrews Decl. ¶ 133.

scheme[.]" *Id.* at 20:19–25. According to Claim 6 of the asserted '383 Patent, the secure real-time executive "further comprises a security manager configured to control which data and messages are allowed to be received and transmitted by the different vehicle applications operating on the different processors." *Id.* at 20:61–64. Claim 15 of the asserted '383 Patent further provides, that the secure real-time executive "cannot be manipulated by the applications." *Id.* at 21:41–42. Claim 7 of the asserted '383 Patent also makes clear that the secure real-time executive "comprises a critical data manager configured to identify messages containing data from critical and non-critical operations and to prevent applications related to non-critical operations and messages from non-critical operations from being transferred to processors running applications associated with critical operations." *Id.* at 20:66–21:4. Claim 16 of the asserted '383 Patent further provides that the secure real-time executive "initiates two or more of the processors in a lock-step mode wherein the lock-step mode is used to at least one of determine a system failure, determine a sequence of events, reconstruct a vehicle accident and diagnose a vehicle system." *Id.* at 21:44–48.

Based on the claim language, the Court finds that a person of ordinary skill in the relevant art at the time of the invention would have understood with reasonable certainty that the term "secure real-time executive" means, as Loudon opines, software that operates between applications and underlying software and hardware support facilities to facilitate real-time functionality and protect against unpermitted access or modification.[21] *Cf. Phillips*, 415 F.3d at 1318 (quoting *Key Pharms.*, 415 F.3d at 716) ("[A] court should discount any expert testimony 'that is clearly at odds with the claim construction mandated by the claims themselves[.]'"). Toyota's arguments to the contrary are unpersuasive. In contending that the term "secure real-time executive" is indefinite

[21] To be clear, the Court reaches this finding based on its analysis of the claim language itself, recognizing that "[e]xperts may explain terms of art and the state of the art at any given time, but they cannot be used to prove the legal construction of a writing." *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1339 (Fed. Cir. 2015).

because the relevant specifications do not disclose the claimed "secure real-time executive," Toyota improperly attacks the patent's validity at the claim construction stage. *See Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1319 (Fed. Cir. 2016) (stating that, at the claim construction stage, "courts should not resolve questions that do not go to claim scope, but instead go to infringement, or improper attorney argument") (internal citations omitted). Further, while the term "secure real-time executive" may not be, as Toyota urges, a term of art, the claims in which the term appears provide a fair understanding of the invention the patentee intended to patent in claiming a distributed vehicle control system comprising a secure real-time executive. *See Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1279–80 (Fed. Cir. 2017) (citing *Phillips*, 415 F.3d at 1314) ("The claims themselves often provide significant guidance as to the meaning of a particular term."); *see also ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003) ("While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms."). In other words, the claims of the asserted '383 Patent particularly point out and distinctly claim the subject matter which MicroPairing regards as the invention. *See Nautilus*, 572 U.S. at 901 (quoting 35 U.S.C. § 112, ¶ 2 (2006 ed.)) ("The Patent Act requires that a patent specification 'conclude with one or more claims *particularly pointing out and distinctly claiming* the subject matter which the applicant regards as the invention.'").

Loudon's declaration also credibly establishes, at the claim construction stage, that a person of ordinary skill in the relevant art at the time of the invention would have understood the term "secure real-time executive" according to its constituent parts, "with an understanding of their meaning in the field, and . . . knowledge of any special meaning and usage in the field." *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998). Based on their specialized

knowledge of the term's constituent parts, a person of ordinary skill in the relevant art at the time of the invention could translate "secure" and "real-time executive" to ascertain the meaning of the term and the scope of the claims in which the term appears with reasonable certainty. *Cf. Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1251 (Fed. Cir. 2008) ("Even if a claim term's definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope.").

For these independent reasons, Toyota has failed to prove by clear and convincing evidence that the term is indefinite. Thus, the claims in which the term appears are not invalid as indefinite. A person of ordinary skill in the relevant art at the time of the invention would have understood with reasonable certainty that the term "secure real-time executive" means software that operates between applications and underlying software and hardware support facilities to facilitate real-time functionality and protect against unpermitted access or modification.

10. "message manager associated with an application running on each of the processors"

The parties submit that this term appears in Claim 1 of the asserted '383 Patent. *See* ECF No. 30, at 23 n.10; *see also* ECF No. 32, at 47 n.20. MicroPairing asks the Court to construe the term according to its plain and ordinary meaning. ECF No. 46-1, at 4. Toyota initially proposed "dedicated software component associated with the same application running on every processor." *Id.* However, at the claim construction hearing, Toyota agreed to construe the term according to its plain and ordinary meaning. *See* ECF No. 59, at 76:15–77:7. Thus, as discussed at the claim construction hearing, the Court construes the term "message manager associated with an application running on each of the processors" according to its plain and ordinary meaning. *Id.*

11. "associate priority values with messages transmitted by the applications and to control the processing sequence of messages received by applications according to a predetermined priority scheme"

The parties submit that this term appears in Claim 1 of the asserted '383 Patent. *See* ECF No. 30, at 26 n.11; *see also* ECF No. 32, at 42 n.19. MicroPairing asks the Court to construe the term according to its plain and ordinary meaning. ECF No. 46-1, at 5. Toyota proposes "assign priority values to messages transmitted by the applications and control the order in which messages received by the applications are processed based on a comparison of a message's priority value to the priority value of other messages in a queue and a ranking of the message's priority." *Id.*

MicroPairing argues that the term does not need to be construed because its meaning "is easily understood in the context of the asserted claims." ECF No. 30, at 26. MicroPairing submits that Toyota's construction improperly limits the term in two ways. *Id.* First, MicroPairing contends, Toyota's construction improperly requires the message managers on each independently operating secure real-time executive to "assign priority values to messages." *Id.* "[N]othing in the specification or file history[,]" MicroPairing urges, "suggests 'associate priority values' means 'assign priority values to messages.'" *Id.* "In fact," MicroPairing argues, Toyota's "construction is inconsistent with the specification[,]" which "discloses embodiments where the priority manager determines (e.g. reads) a priority value that was previously assigned."[22] *Id.* at 26. MicroPairing further contends that Toyota's construction improperly requires the message managers on each independently operating secure real-time executive to determine priority values according to a particular predetermined priority scheme, namely "based on a comparison of a message's priority value to the priority value of other messages in a queue and a ranking of the message's priority." *Id.* at 27. MicroPairing submits that "nothing in the specification or file history sets out a special

[22] In so arguing, MicroPairing appears to concede that a "message manager" and "priority manager" are the same.

meaning for 'according to a predetermined priority scheme' or disavows the full scope of the phrase." *Id.* In MicroPairing's view, Toyota's construction improperly limits Claim 1 of the asserted '383 Patent to the embodiment disclosed in the specification. *Id.* Thus, MicroPairing maintains, the term should be construed according to its plain and ordinary meaning. *Id.* at 26.

Toyota, on the other hand, submits that its construction *is* the plain and ordinary meaning of the term. ECF No. 32, at 42. Toyota anchors its construction on the claim language and specifications for the asserted '383 Patent and the asserted '033 Patent, which the asserted '383 Patent incorporates by reference. *Id.* at 43. According to Toyota, this evidence "indicates that the 'message manager' as claimed in Claim 1 of the '383 Patent has the same functionality as the 'priority manager' as described in the specifications of the '383 and '033 Patents." *Id.* "Consistent with the functioning of the 'priority manager' as disclosed by the '383 Patent and the '033 Patent," Toyota explains, "the 'message manager' ***assigns*** priority values to messages transmitted by the applications." *Id.* at 44. Toyota further contends that its construction accounts for the one priority scheme disclosed in the specifications for the asserted '383 and '033 Patents. *Id.* at 45. "In cases like this, where the specification consistently describes a process for determining priority," Toyota submits, "that characterization properly is read as part of the claim." *Id.* at 46. Toyota therefore argues that its construction "is consistent with ordinary meaning and the specification's defined method for determining the processing order of messages[.]" *Id.* at 46–47.

"To begin with, the context in which a term is used in the asserted claim can be highly instructive." *Phillips*, 415 F.3d at 1314. Claim 1 of the asserted '383 Patent provides that message managers on each independently operating secure real-time executive are configured to "associate" priority values with messages transmitted by the applications according to predetermined priority scheme. *See* ECF No. 1-5, at 20:17–25. Claim 1 explains that the secure real-time executive

running on a first processor, which runs a first application, receives a first message from the first application "and associates a priority value with the first message[.]" *Id.* at 20:28–29. Claim 1 describes that the secure real-time executive running on a second processor, which runs a second application, also receives a second message from the second application "and associates a second priority value with the second message[.]" *Id.* at 20:33–34. Claim 1 further provides that the secure real-time executive running on a third processor, which runs a third application, "receives the first message and associated first priority from the first processor and receives the second message and associated second priority from the second processor[.]" *Id.* at 20:37–40. Claim 1 ends by reciting that, "responsive to receiving the priority associated messages," the secure real-time executive on the third processor "determines the sequence in which the third application handles the priority associated messages using the predetermined priority scheme." *Id.* at 20:40–43.

The claim language surrounding the term consistently uses the word "associate" to describe the claimed invention. The Court sees no reason to create any ambiguity by construing the word "associate" in the term as "assign," while leaving the word "associate" unchanged in the surrounding claim language. *See Phillips*, 415 F.3d at 1314 ("[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms."); *see also Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) (quoting *Sulzer Textil A.G. v. Picanol N.V.*, 358 F.3d 1356, 1366 (Fed. Cir. 2004)) ("The terms, as construed by the court, must 'ensure that the jury fully understands the court's claim construction rulings and what the patentee covered by the claims.'"). A person of ordinary skill in the relevant art at the time of the invention would understand that the patentee's use of the word "associate" throughout Claim 1 of the asserted '383 Patent was intentional and according to its plain and ordinary meaning.

Thus, the only remaining dispute between the parties is the use of "predetermined priority scheme" in the term. "[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Phillips*, 415 F.3d at 1313. "[T]he specification may resolve ambiguous claim terms 'where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.'" *Halliburton*, 456 F. Supp. 2d at 815 (quoting *Teleflex*, 299 F.3d at 1325). "Much of the time, upon reading the specification . . . it will become clear whether the patentee is setting out specific examples of the invention . . . or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive." *Phillips*, 415 F.3d at 1323.

Here, a person of ordinary skill in the relevant art at the time of the invention, after reading the term in the context of the claim in which the term appears and the specification, would understand that the patentee intended to patent one priority scheme as it relates to a secure real-time executive message manager in a distributed multi-processor system controlling the processing sequence of messages received by applications. The asserted '383 Patent's specification discloses a "multiprocessor system used in a car" comprising "multiple processors that run different real-time applications." ECF No. 1-5, at 4:13–14. The specification provides that the processors "all include software that run a Dynamic Configuration (DC) system 6010 that enables new processors or devices to be automatically added and removed from the car multiprocessor system[.]" *Id.* at 5:24–27. According to the specification, the DC system "runs on the multiple processors and includes a device manager, configuration manager, and data manager." *Id.* at 4:15–17. The specification explains that a device manager "establishes communications with new devices that are to be incorporated into the multiprocessor system[.]" *Id.* at 6:22–24. The specification provides

that a configuration manager "dynamically moves applications between different processors according to user inputs and other monitored conditions in the multiprocessor system[.]" *Id.* at 6:25–27. The specification further discloses that a "data manager identifies the type of data input or output by a new processor and identifies other processors or devices in the multiprocessor system that can output data from the new device or input data to the new device." *Id.* at 6:27–31.

The asserted '383 Patent also claims to incorporate the asserted '033 Patent by reference. *See id.* at 1:16–17. As with the specification for the asserted '033 Patent, the specification for the asserted '383 Patent discloses a "communication system for a mobile vehicle" that "includes multiple processors." *Id.*, at 4:24–25. The specification provides that "multiple processors each run an Open Communication system that controls how data is transferred between processors based on data content as opposed to the links that connect the processors together." *Id.* at 4:25–29. The specification further discloses that the Open Communication system "enables data or messages to be effectively transferred and processed for real-time applications or other server based applications that may be running on the multiple processors in a secure environment regardless of processors, locations, or data links." *Id.* at 4:30–34.

In describing the Open Communication system, the specification provides that, "[a]fter a message passes through the car interface manager 3346, a priority manager 3344 determines a priority value for the message that determines how the message is processed both in the local processor 3350 and in other processors[.]"[23] *Id.* at 12:65–13:2. The specification cites to Figure 16, a flow diagram showing how a priority manager processes outgoing data in the Open Communication system, *id.* at 4:56–57, to establish that "an outgoing message is identified by the priority manager[,]" *id.* at 13:3–4. Figure 16 depicts the following:

[23] At this point, the specification makes clear that the terms "message" and "data" are used interchangeably. ECF No. 12:64–65.

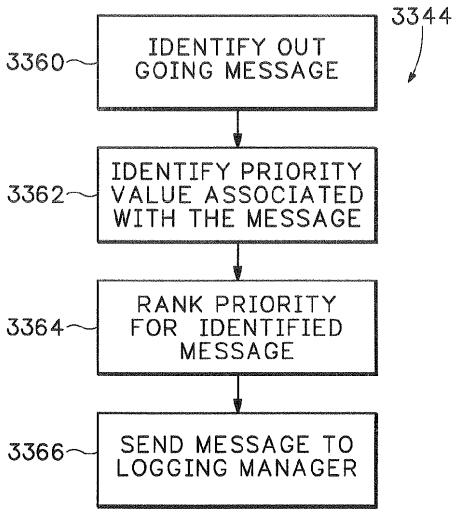

FIG.16

The specification does not explicitly disclose a queue in describing how a priority manager processes outgoing messages in the Open Communication system; however, it explains that a "priority for the message is identified . . . by reading a priority value that the generic car interface manager 3346 has attached to the message."[24] *Id.* at 13:4–6. The specification discloses that "the priority manager 3344 compares the priority value for the outgoing message with the priority values for other messages in the processor." *Id.* at 13:7–9. The specification further provides that the priority manager "ranks the outgoing message with respect to the other messages and then sends the message to the logging manager[.]" *Id.* at 13:9–11. By way of example, the specification discloses that "there may be several messages that either need to be output or received by a particular processor." *Id.* at 13:12–14. "An output message with a high priority value, such as a crash indication message," the specification explains, "will be assigned higher priority than other messages and will therefore be immediately transmitted by the processor 3350 before other lower

[24] The specification discloses a queue when describing how a priority manager processes incoming messages. *See* ECF No. 13:47–50.

priority messages." *Id.* at 13:14–18. The Court has carefully reviewed the relevant claim language and specifications and finds that this is the only priority scheme disclosed and therefore patented.[25]

The term itself, however, fails to describe the patented priority scheme. The term merely states that a secure real-time executive message manager in a distributed multi-processor system controls the processing sequence of messages received by applications according to a predetermined priority scheme. *Id.* at 20:24–25. Claim 1 of the asserted '383 Patent also fails to describe the patented priority scheme. Claim 1 simply recites that message managers on each independently operating secure real-time executive are configured to associate priority values with messages transmitted by the applications according to a predetermined priority scheme. *See id.* at 20:17–25. To be sure, Claim 1 goes on to describe three secure real time executives running on three distinct processors, claiming that, "responsive to receiving the priority associated messages," the secure real-time executive on the third processor "determines the sequence in which the third application handles the priority associated messages using the predetermined priority scheme." *Id.* at 20:40–43. But the fact remains that Claim 1 altogether fails to describe how a secure real-time executive message manager in a distributed multi-processor system controls the processing sequence of messages received by applications. Dependent claims similarly fail to explain how a secure real-time executive message manager in a distributed multi-processor system controls the processing sequence of messages received by applications.[26]

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[25] As with the priority scheme disclosed in the specification for the asserted '033 Patent, even if the only priority scheme described in the specification for the asserted '383 Patent is, as MicroPairing contends, an embodiment, for the reasons discussed, there is "a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim*, 358 F.3d at 913.

[26] Though not noted by any party, the Court has carefully reviewed the dependent claims. Claim 5 of the asserted '383 Patent recites, "The vehicle distributed control system according to claim 1 wherein the predetermined priority scheme is based on critical occupant safety data and system warning prompts." ECF No. 1-5, at 20:57–59. Claim 5 is indeed dependent on Claim 1 and limits the predetermined priority scheme described in Claim 1 to one that is based on critical occupant safety data and system warning prompts. It is well established that "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of

"The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw*, 158 F.3d at 1250. Based on the parties' proposed constructions, the Court finds that Toyota's construction most naturally aligns with the patent's description.[27] Nonetheless, because neither the claim language nor the specification for the asserted '383 Patent explicitly acknowledge a queue, the Court will not adopt Toyota's proposed construction insofar as it describes a queue.[28]

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the claim term." *Phillips*, 415 F.3d at 1314. For instance, "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Id.* at 1315. Thus, the predetermined priority scheme described in Claim 1 of the asserted '383 Patent must mean something more than the predetermined priority scheme limited by Claim 5 of the same. More precisely, the predetermined priority scheme described in Claim 1 must be based on something more than the predetermined priority scheme Claim 5 describes. The disputed term, as written, aptly captures the fact that the patentee intended to claim a predetermined priority scheme that is not entirely based on critical occupant safety data and system warning prompts.

Nevertheless, Claim 5 and other dependent claims fail to describe how a secure real-time executive message manager in a distributed multi-processor system controls the processing sequence of messages received by applications. While Claim 5 indicates that the predetermined priority scheme described in Claim 1 may be based on critical occupant safety data and system warning prompts, the fact remains that neither Claim 5 nor any other dependent claim explain how a secure real-time executive message manager in a distributed multi-processor system controls the processing sequence of messages received by applications. In short, no dependent claim explains what "predetermined priority scheme" means.

In reaching this finding, the Court is mindful that "[t]he doctrine of claim differentiation 'creates a presumption that each claim in a patent has a different scope.'" *Versa Corp. v. Ag-Bag Intern. Ltd.*, 392 F.3d 1325, 1330 (Fed. Cir. 2004) (quoting *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998)). To be sure, further elaboration of a term in dependent claim language is a significant factor given the Federal Circuit's warning against confining claims to their respective embodiments; as the Federal Circuit cautioned, "a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment." *SuperGuide Corp. v. DirectTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004). "The manner in which the patentee uses a term within the specification and claims usually will make the distinction apparent." *Phillips*, 415 F.3d at 1323. Nevertheless, having reviewed the relevant claim language, including Claim 5, and specifications, the Court is persuaded that Claim 1 of the asserted '383 Patent and the embodiment in the specification for the asserted '383 Patent are strictly coextensive. *See Phillips*, 415 F.3d at 1323.

[27] MicroPairing takes issue with Toyota's construction because the specification for the asserted '383 Patent discloses a priority scheme where a priority manager may reject an incoming message. *See* ECF No. 34, at 20–21. The parties, however, agree that the disputed term appears in the context of a secure real-time executive message manager in a distributed multi-processor system associating priority values to outgoing, not incoming, messages. *See* ECF No. 1-5, at 20:16–25; *see also* ECF No. 34, at 17–18; ECF No. 38, at 23.

[28] Although the specification for the asserted '033 Patent, which the asserted '383 Patent claims to incorporate by reference, does disclose a queue, the Court is not convinced that intrinsic evidence describing the priority scheme disclosed in the asserted '033 Patent applies with equal force to the priority scheme disclosed in Claim 1 of the asserted '383 Patent. The specification for the asserted '033 Patent discloses a priority scheme based on a queue in relation to an individual priority manager in an Open Communication system that ranks and processes an incoming message. *See* ECF No. 1-2, at 4:33–35. Claim 1 of the asserted '383 Patent, however, discloses a priority scheme in relation to a

Therefore, the Court construes "associate priority values with messages transmitted by the applications and to control the processing sequence of messages received by applications according to a predetermined priority scheme" as "associate priority values with messages transmitted by the applications and to control the processing sequence of messages received by applications according to a predetermined priority scheme based on a comparison of a message's priority value to the priority value of other messages and a ranking of the message's priority." A person of ordinary skill in the relevant art at the time of the invention would have understood that Claim 1 of the asserted '383 Patent uses the word "associate" according to its plain and ordinary meaning and further claims a particular priority scheme based on a comparison of a message's priority value to the priority value of other messages and a ranking of the message's priority.

12. "at least one of . . . and . . ."

The parties submit that this term appears in Claims 1, 2, 6, and 17 of the asserted '015 Patent; Claim 1 of the asserted '292 Patent; and Claims 2 and 4 of the asserted '383 Patent. *See* ECF No. 30, at 27 n.12; *see also* ECF No. 32, at 48 n.21. The parties do not dispute that the term should be construed consistently. *See* ECF No. 30, at 28. MicroPairing proposes that the term is disjunctive. ECF No. 46-1, at 5. Toyota proposes that the term is conjunctive. *Id.*

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secure real-time executive message manager in a distributed multi-processor system controlling the processing sequence of messages received by applications; moreover, the disputed term appears in the context of a secure real-time executive message manager in a distributed multi-processor system associating priority values to outgoing, not incoming, messages. The parties' claim construction briefing fails to make clear whether, and how, priority managers in an Open Communication system and secure real-time executive message managers in a distributed multi-processor system are related. Absent specific compelling evidence to the contrary, the Court declines to read limitations from the specification for the purportedly incorporated and asserted '033 Patent into the claims of the asserted '383 Patent. *See Uniloc USA, Inc. v. AVG Techs. USA, Inc.*, No. 2:16-CV-00393, 2017 WL 3498496, at *7 n.4 (E.D. Tex. Aug. 16, 2017) (quoting *Advanced Display Sys. Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000)) ("The Federal Circuit has stated that 'incorporation by reference provides a method for integrating material from various documents into a host document . . . by citing material *in a manner that makes clear* that the material is effectively part of the host document as if it were explicitly contained therein.'") (emphasis added).

MicroPairing argues that the term is disjunctive and used to indicate alternatives. ECF No. 30, at 28. To support its argument, MicroPairing cites Claims 1 and 2 of the asserted '015 Patent, Claim 1 of the asserted '292 Patent, and Claim 4 of the asserted '383 Patent. *See id.* at 28–30. According to MicroPairing, this claim language confirms that Toyota's construction is "nonsensical" and would render the term "meaningless." *Id.* at 28, 29. For instance, MicroPairing explains, Claim 4 of the asserted '383 Patent recites, "wherein the network is at least one of wired and wireless." *Id.* at 29; *see also* ECF No. 1-5, at 55–56. The term, MicroPairing contends, "is clearly used to indicated alternatives—the network is wired or wireless." ECF No. 30, at 29–30.

Toyota counters that the term is conjunctive and means "at least one of A and at least one of B." ECF No. 32, at 48. Relying on *SuperGuide Corp. v. DirectTV Enterprises Inc.*, 358 F.3d 870 (Fed. Cir. 2004), Toyota submits that its "construction fits squarely within Federal Circuit precedent setting forth the rules for interpreting claim language that includes the phrase 'at least one of X and Y.'" *Id.* Those rules, Toyota contends, provide that the plain and ordinary meaning of the term "at least one of . . . and . . ." is one in which the term modifies each member of the list or each category in the list *Id.* at 49. Toyota submits that the Patent Trial and Appeal Board adopted this construction in *Ex Parte Jung*, Appeal No. 2016-008290, 2017 WL 1130560 (P.T.A.B. Mar. 20, 2017). *Id.*at 49–50. In Toyota's view, "MicroPairing misreads unambiguous claims to assert mutual exclusivity that does not exist." *Id.* at 51.

In *SuperGuide*, the Federal Circuit determined that the plain and ordinary meaning of the phrase "at least one of" is "one or more." 358 F.3d at 886. To ascertain what the term "at least one of . . . and . . ." meant in that case, the Federal Circuit considered what the phrase "at least one of" modifies. *Id.* The Federal Circuit noted that "[a] common treatise on grammar teaches that 'an article of a preposition applying to all the members of the series must either be used only before

the first term or else be repeated before each term.'" *Id.* (quoting William Strunk, Jr. & E.B. White, *The Elements of Style* 27 (4th ed. 2000)). The Federal Circuit further observed that the claim at issue in *SuperGuide* listed criteria consisting of four categories, where each category was further comprised of many possible values. *SuperGuide*, 458 F.3d at 886. After assessing the relevant intrinsic evidence, the Federal Circuit also found that "[e]very disclosed embodiment teaches that the user must choose a value for each designated category." *Id.* at 887. Based on these circumstances, the Federal Circuit concluded that the "phrase 'at least one of' precedes a series of categories of criteria, and the patentee used the term 'and' to separate the categories of criteria, which connotes a conjunctive list." *Id.* at 886.

Nevertheless, courts have recognized that, in some instances, deviation from the Federal Circuit's construction of the term "at least one of . . . and . . ." as articulated in *SuperGuide* is warranted. For example, "[w]hen 'the specification or claims imply a broader meaning' than would be established by the conjunctive construction, the disjunctive construction applies." *Shotkam LLC v. Tachyon, Inc.*, No. CV H-20-1070, 2021 WL 23311, at *6 (S.D. Tex. Jan. 4, 2021) (quoting *Hewlett-Packard Co., v. MPHJ Tech. Invs., LLC*, No. IPR2013-00309, 2013 WL 8563946, at *5 (P.T.A.B. Nov. 21, 2013)). Courts have also "found *SuperGuide* inapplicable when the listed items following 'at least one of' are not categories containing many possible values." *Apple, Inc. v. Evolved Wireless LLC*, No. IPR2016-01177, 2017 WL 6543970, at *4 (P.T.A.B. Dec. 20, 2017). Also, where the relevant claim language recites an option of two rather than a list, "[t]he duality of the term makes it a binary choice between two options—not a list giving rise to the confusion present in *SuperGuide*." *3rd Eye Surveillance, LLC v. United States*, 140 Fed. Cl. 39, 69 (2018).

In this case, the claims in which the term "at least one of . . . and . . ." appears and the relevant specifications indicate that the term implies a broader meaning than the construction the Federal Circuit articulated in *SuperGuide*. For example, Claim 2 of the asserted '383 Patent recites:

> **2.** The vehicle distributed control system according to claim **1** wherein the distributed vehicle control system comprises at least one of vehicle infrared sensor control, vehicle radar sense control, vehicle video control, vehicle brake control, vehicle audio control, vehicle environmental control and vehicle driver assistance control.

ECF No. 1-5, at 20:44–49. Yet, the specification for the asserted '383 Patent does not necessarily require that the claimed vehicle distributed control system be comprised of one of each of the vehicle control categories recited in the claim. Further, it is unclear what possible values could fall under the categories—if they represent categories at all—vehicle infrared sensor control and vehicle brake control. In addition, the term appears in claim language reciting an option of two rather than a list. For instance, Claims 1 and 2 of the asserted '015 Patent recite "at least one of a first speaker of the vehicle audio system and a speaker in the wireless audio device" and "at least one of 802.11 and Bluetooth[,]" respectively. ECF No. 1-7, at 21:1–3, 21:5–6 . Claim 1 of the asserted '292 Patent similarly provides, "at least one of an unauthorized application and unauthorized data[.]" ECF No. 1-8, at 9:12–13. And Claim 4 of the asserted '383 Patent recites, "The vehicle distributed control system according to claim 1 wherein the network is at least one of wired and wireless." ECF No. 1-5, at 20:54–56. "If given a choice between two options, it is equally as natural to say 'choose between this *and* that' as it would be to say 'choose between this *or* that.'" *3rd Eye*, 140 Fed. Cl. at 69 n.21.

Thus, the Court construes the term "at least one of . . . and . . ." as disjunctive. A person of ordinary skill in the relevant art at the time of the invention would have understood that the patentee used the term to indicate alternatives.

13. Claims 1 and 6 of the asserted '816 Patent

The parties dispute whether Claims 1 and 6 of the asserted '816 Patent are indefinite. ECF No. 46-1, at 5. MicroPairing submits that the asserted claims are not indefinite because a person of ordinary skill in the relevant art at the time of the invention would understand with reasonable certainty that the claims are infringed upon "the act of 'operating' an audio system with the claimed structural requirements." ECF No. 30, at 32. The asserted claims, MicroPairing contends, are limited to practicing the claimed method. *Id.* According to MicroPairing, Toyota's argument "presupposes that a method claim must be presented in a particular form and incorrectly suggests that a method claim is invalid for reciting physical structure." *Id.* at 31. Citing *MicroProcessor Enhancement v. Texas Instruments*, 520 F.3d 1367 (Fed. Cir. 2008), MicroPairing argues that "there is no prohibition against claiming structure in a method claim." *Id.*

In response, Toyota argues that Claims 1 and 6 of the asserted '816 Patent are indefinite "because they impermissibly mix statutory subject matter classes." ECF No. 32, at 52. Toyota submits that the "the claims are entirely unconstrained by any method steps and are therefore written so broadly as to conceivably encompass every possible 'method of operating' the described audio systems." *Id.* at 53. "For example," Toyota explains, "it is unclear if these claims would be infringed when the vehicle is first turned on and the audio system begins playing music from the radio, or when the driver presses the 'mute' button, or when the driver changes the volume." *Id.* at 54. Toyota therefore asks the Court to find that the asserted claims are indefinite.[29] *Id.* at 55.

"A single patent may include claims directed to one or more of the classes of patentable subject matter, but no single claim may cover more than one subject matter class."

[29] Toyota also cites a communication from the U.S. Patent and Trademark Office. *See* ECF No. 30, at 54; *see also* ECF No. 32-8. That communication, however, reflects a non-final action. *See* ECF No. 32-8, at 3. "[E]vidence of non-final reexamination determinations is of little relevance[.]" *K-TEC, Inc. v. Vita-Mix Corp.*, 696 F.3d 1364, 1376 (Fed. Cir. 2012).

MicroProcessor, 520 F.3d at 1374 (citing *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005)). A claim that covers more than one subject matter "'is not sufficiently precise to provide competitors with an accurate determination of the "metes and bounds" of protection involved' and is 'ambiguous and properly rejected[.]'" *IPXL*, 430 F.3d at 1384 (quoting *Ex Parte Lyell*, 17 U.S.P.Q.2d 1548, 1550–51 (1990)). Therefore, a claim is indefinite if it is ambiguous whether infringement of the claim occurs when one creates or uses the claimed invention. *IPXL*, 430 F.3d at 1384. By contrast, a claim is not necessarily indefinite if it is unambiguous that infringement of the claim occurs upon one's creation or use of the claimed invention. *MicroProcessor*, 520 F.3d at 1374.

Here, Claims 1 and 6 of the asserted '816 Patent clearly establish that infringement of these claims occurs when one operates the described vehicle audio system. The claims explicitly recite "a method of operating a vehicle audio system" followed by a description of the vehicle audio system's structural requirements. *See* ECF No. 1-6, at 9:2–4, 35–36; *see also MicroProcessor*, 520 F.3d at 1375 ("Direct infringement of claim 1 is clearly limited to *practicing* the claimed method in a pipelined processor possessing the requisite structure."). Additionally, surrounding claims explain the steps involved in the claimed methods. *See, e.g.*, ECF No. 1-6, at 9:24–25, 10:3–4; *see also In re Mouttet*, 716 F. App'x 984, 986 (Fed. Cir. 2017) (finding that method claims were not indefinite because one of the claims recited a method and the remaining claims further specified the process steps). No risk of confusion exists. *Cf. IPXL*, 430 F.3d at 1384 (finding claim indefinite where it is unclear whether infringement occurs when one creates or uses the claimed invention). Infringement of Claims 1 and 6 of the asserted '816 Patent is clearly limited to operating the claimed methods in a vehicle audio system possessing the described structural requirements.[30]

[30] In arguing that "it is unclear if these claims would be infringed when the vehicle is first turned on and the audio system begins playing music from the radio, or when the driver presses the 'mute' button, or when the driver

As a result, Toyota has failed to prove by clear and convincing evidence that Claims 1 and 6 of the asserted '816 Patent are indefinite. Thus, the claims are not invalid as indefinite. A person of ordinary skill in the relevant art at the time of the invention would have understood that these claims are limited to operating the claimed methods in a vehicle audio system possessing the described structural requirements.

CONCLUSION

Accordingly, the Court construes the thirteen contested claim terms as follows:

Term	**Construction**
"application"	"software, other than operating system and support software, that performs a task to fulfill a specific need of a user"
"priority labels used independently by the individual priority managers to determine processing priorities for the individual messages for the individual software applications"	"wherein the individual priority managers independently use a message's priority value to control when, if at all, a message is processed"
"configured to" / "adapted to"	Plain and ordinary meaning
"audio sources"	Plain and ordinary meaning
"wireless audio output devices" / "the audio output devices"	"wireless devices that output sound"
"multiprocessor system" / "multi-processor system"	Plain and ordinary meaning

changes the volume[,]" ECF No. 32, at 54, Toyota seems to take issue with the meaning of the word "operating" as used in Claims 1 and 6 of the asserted '816 Patent. The parties have not asked the Court to construe the word "operating" as used in these claims. Moreover, the relevant inquiry is whether the claims are indefinite. They are not.

"move" / "download"	"make the application from the memory available in an address space for execution by one of the processors"
"distributed processor system" / "distributed processing system"	"a multiprocessor system in which the processing tasks for the applications can be distributed among multiple processors"
"secure real-time executive"	Not indefinite
"message manager associated with an application running on each of the processors"	Plain and ordinary meaning
"associate priority values with messages transmitted by the applications and to control the processing sequence of messages received by applications according to a predetermined priority scheme"	"associate priority values with messages transmitted by the applications and to control the processing sequence of messages received by applications according to a predetermined priority scheme based on a comparison of a message's priority value to the priority value of other messages and a ranking of the message's priority"
"at least one of . . . and . . ."	Disjunctive
Claims 1 and 6 of the asserted '816 Patent	Not indefinite

It is so **ORDERED**.

SIGNED this January 5, 2022.

XAVIER RODRIGUEZ
UNITED STATES DISTRICT JUDGE