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Paper No. 9
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,

Petitioner,

v.

IRON OAK TECHNOLOGIES, LLC,

Patent Owner.

Case IPR2018-01554
Patent 5,966,658

Before PATRICK R. SCANLON, BEVERLY M. BUNTING, and ARTHUR M. PESLAK, *Administrative Patent Judges.*

PESLAK, *Administrative Patent Judge*

DECISION

Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4(a)

I. INTRODUCTION

Petitioner, Samsung Electronics Co., Ltd. ("Samsung"), filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of claim 1 (the "challenged claim") of U.S. Patent No. 5,966,658 (Ex. 1001, "the '658 Patent"). Patent Owner, Iron Oak Technologies, LLC ("Iron Oak"), timely filed a Preliminary Response (Paper 8, "Prelim. Resp.").

We have authority, acting on the designation of the Director, to determine whether to institute an *inter partes* review under 35 U.S.C. § 314. *See also* 37 C.F.R § 42.4(a)(2018) ("The Board institutes the trial on behalf of the Director."). Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition shows "there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Taking into account the Petition, the arguments presented in Iron Oak's Preliminary Response, as well as all supporting evidence, we conclude that the information presented in the Petition establishes that there is a reasonable likelihood that Samsung would prevail in its challenge of claim 1 of the '658 Patent as unpatentable under 35 U.S.C. § 102. Pursuant to 35 U.S.C. § 314, we hereby institute an *inter partes* review as to claim 1 of the '658 Patent.

Our factual findings and legal conclusions at this stage of the proceeding are based on the evidentiary record developed thus far. This decision to institute trial is not a final decision as to the unpatentability of the claim for which *inter partes* review is instituted. Our final decision will be based on the full record developed during trial.

A. Related Matters

The parties state that the '658 Patent is the subject of the following civil actions:

1) *Iron Oak Techs. LLC v. Dell Inc.*, No. 3:18-cv-1542 (N.D. Tex.);
2) *Iron Oak Techs. LLC v. Sharp Elecs. Corp.*, No. 3:17-cv-02699 (N.D. Tex.);
3) *Iron Oak Techs. LLC v. Lenovo (United States) Inc. and Lenovo Holding Co., Inc.*, No. 3:18-cv-1539 (N.D. Tex.);
4) *Iron Oak Techs. LLC v. Acer Am. Corp.*, No. 3:18-cv-1543 (N.D. Tex.);
5) *Iron Oak Techs. LLC v. Samsung Elecs. Am. Inc. et al.*, No. 3:17-cv-01259 (N.D. Tex.);
6) *Iron Oak Techs. LLC v. Fujitsu Am. Inc.*, No. 3:16-cv-03319 (N.D. Tex.);
7) *Iron Oak Techs. LLC v. Toshiba Am. Inc.*, No. 3:16-cv-03320 (N.D. Tex.);
8) *Iron Oak Techs. LLC v. Asus Computer Int'l*, No. 3:16-cv-03322 (N.D. Tex.); and
9) *Iron Oaks Techs. LLC v. Microsoft Corp.*, No. 3:18-cv-0222 (N.D. Tex.).

Pet. 1–2; Paper 7, 1–2.

The '658 Patent is subject to review in

1) *Unified Patents Inc. v. Iron Oak Techs., LLC*, IPR2018-00486. Pet. 2, Paper 7, 2; and
2) *Microsoft Corp. v. Iron Oak Techs. LLC*, IPR2019-00107. Paper 7, 2.

B. The '658 Patent (Ex. 1001)

The '658 Patent issued on October 12, 1999, and is entitled "Automated Selection of a Communication Path." Ex. 1001, [45], [54]. The '658 Patent issued from U.S. Patent Application 08/718,951, filed on September 26, 1996. *Id.* at [21], [22].

The '658 Patent generally "relates to mobile communications, and more particularly to the automated selection of a communication path." Ex. 1001, 1:6–8. The '658 Patent describes that "a plurality of alternate communication paths may be available to a mobile communications device." *Id.* at 1:18–19. Among the types of communication paths disclosed are "a network of satellite-based or land-based transceivers, a public switched telephone network (PSTN), a mobile telecommunications switching office (MTSO), or any other suitable element for communications." *Id.* at 1:21–25, 2:44–63, Fig. 1.

Figure 1, reproduced below, illustrates a system for selecting an alternate communication path for transmitting a message between vehicle 12 and remote location 14 over alternate communication paths. *Id.* at 3:23–25.

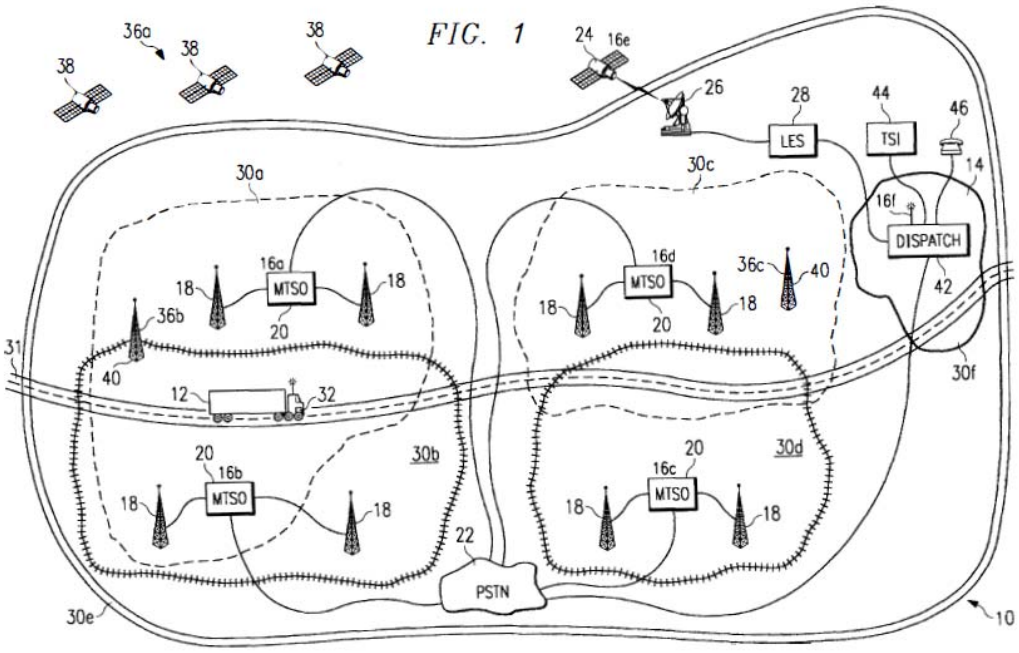

Figure 1 illustrates a system 10 for selecting one of a plurality of communication paths.

The '658 Patent provides that "[c]ommunication over a communication path **16** may be implemented in a voice channel, control channel, paging channel, part of a seized voice or data channel . . . ." *Id.* at 4:28–31.

The '658 Patent describes that

> [w]hen selecting a communication path **16**, processor **72** may consider the functional characteristics of each communication path **16** (e.g., cost of communication, ability to deliver voice and/or data, ability to confirm receipt, propagation delay, speed, current load, or capacity). Processor **72** may also consider the various parameters for the communication (e.g., priority, preferred cost, preferred transmission time, amount of information to be communicated, type of communication, or confirmation of receipt).

Id. at 5:55–64.

The functional characteristics of the communication path and the various parameters for the communication are deemed "communication attributes." *Id.* at 5:65. In one disclosed embodiment, processor 72 selects a communication path based on "the geographical position of the vehicle **12** and the priority of the communication" as the communication attribute. *Id.* at 5:66–6:3, Figs. 4, 5. In a second disclosed embodiment, "each communication attribute corresponds to a characteristic of a communication path **16**." *Id.* at 6:4–6, Figs. 6, 7.

The '658 Patent describes

> In operation, mobile unit **32** may receive a request for communication from either a user . . . or a sensor **82**. Such a request for communication may specify various parameters for the communication, including priority, preferred cost, preferred transmission time, amount of information to be communicated, type of communication (e.g., data and/or voice), confirmation of receipt, and the like. This information may be conveyed in the form of one or more communication attributes. . . .

> Furthermore, processor 72 may retrieve data, such as table **104** [Fig. 4] or table **120** [Fig. 6], relating to various alternate communication paths **16** from memory **74**. Using this information, processor **72** selects the most appropriate communication path **16** for communication.

Id. at 9:52–66.

C. Challenged Claim

Samsung challenges independent claim 1, reproduced below.

> 1. An apparatus for automatically selecting one of a plurality of communication paths, the apparatus comprising:
>
> a memory operable to store a plurality of ordered lists of communication paths, each ordered list associated with one of a plurality of communication attributes, each communication attribute representing a separate priority for communication; and
>
> a processor operable to receive a request for communication, the request indicating a communication attribute, the processor further operable to automatically select a communication path from an ordered list associated with the indicated communication attribute.

Ex. 1001, 16:31–43.

D. Asserted Grounds of Unpatentability

Samsung challenges claim 1 of the '658 Patent based on the asserted grounds of unpatentability set forth in the following table (Pet. 3, 16–66):

Reference	Basis	Claim Challenged
Le Boudec[1]	§ 102	1
Bosack[2]	§ 102	1
Oberlander[3]	§ 102	1

For the reasons described below, we institute an *inter partes* review of claim 1 on the grounds stated above.

II. ANALYSIS

A. Overview

A petition must show how the construed claims are unpatentable under the statutory ground it identifies. 37 C.F.R. § 42.104(b)(4). Samsung bears the burden of demonstrating a reasonable likelihood that it would prevail with respect to at least one challenged claim for a petition to be granted. 35 U.S.C. § 314(a). Further, this burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is anticipated under 35 U.S.C. § 102 "only if each and every element as set forth in the claims is found either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union*

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[1] U.S. Patent No. 6,044,075, issued Mar. 28, 2000 (Ex. 1006, "Le Boudec"). We note that the parties refer to this reference as "LeBoudec."
[2] U.S. Patent No. 5,088,032, issued Feb. 11, 1992 (Ex. 1005, "Bosack").
[3] U.S. Patent No. 5,509,000, issued April 16, 1996 (Ex. 1007, "Oberlander").

Oil Co. of Cal., 814 F.2d 628, 631 (Fed. Cir. 1987). However, this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *See In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). We analyze the asserted grounds based on anticipation in accordance with the above-stated principles.

B. Claim Construction

The parties agree that the '658 Patent expired on September 26, 2016. Pet. 15; Prelim. Resp. 3. Thus, we construe the claims in accordance with the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1309 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.5(b) (2018); *see also Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1279 (Fed. Cir. 2017) ("The Board construes claims of an expired patent in accordance with *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).").

Samsung requests that we construe the limitation "plurality of ordered lists of communication paths" as "multiple lists, each list containing multiple communication paths stored in a specified order." Pet. 12. Samsung contends that Iron Oak does not dispute this interpretation. *Id.* (citing Ex. 1017).

Samsung next requests that we construe the limitation "a processor operable to receive a request for communication, the request *indicating* a communication attribute" as "a processor operable to receive a request for communication, the request *including* a communication attribute." Pet. 14.

In turn, Iron Oak does not address Samsung's proposed claim constructions in its Preliminary Response, nor does it suggest that any other claim terms require construction.

Based on the present record, and for purposes of this Decision only, we determine that express construction of these claim limitations is not

necessary. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy").

C. Anticipation by Le Boudec

Samsung contends that claim 1 is anticipated by Le Boudec. Pet. 31–51. In support thereof, Samsung identifies the disclosures in Le Boudec alleged to describe the subject matter in the challenged claim. *Id.* Additionally, Samsung offers declaration testimony from David H. Williams in support of its position. Ex. 1002 ¶¶ 146–197.

In its Preliminary Response, Iron Oak contends that "LeBoudec involves consideration of only a single set (list) and not a plurality of ordered lists as required by claim 1." Prelim. Resp. 10. Iron Oak further contends that "the discussion in column 9 of Le Boudec occurs exclusively in the context of the selection of a route from a single set of routes." *Id.* (citing Ex. 1006, 9:29–31, 9:52–61, 11:34–51, 15:22–48).

Having considered the evidence and each of the parties' arguments and for the following reasons, we are persuaded at this stage of the proceeding that Samsung has demonstrated that it is reasonably likely to prevail on its contention that claim 1 of the '658 Patent is anticipated by Le Boudec. We begin our analysis with a brief overview of Le Boudec. We then address the parties' respective contentions with respect to the challenged claim.

1. Overview of Le Boudec (Ex. 1006)

Le Boudec is a United States Patent issued from an application filed

August 13, 1996. Ex. 1006, [86]. Le Boudec is directed to an "Apparatus and Method for Routing a Communication in a Network." *Id.* at [54]. Figure 1 of Le Boudec is reproduced below:

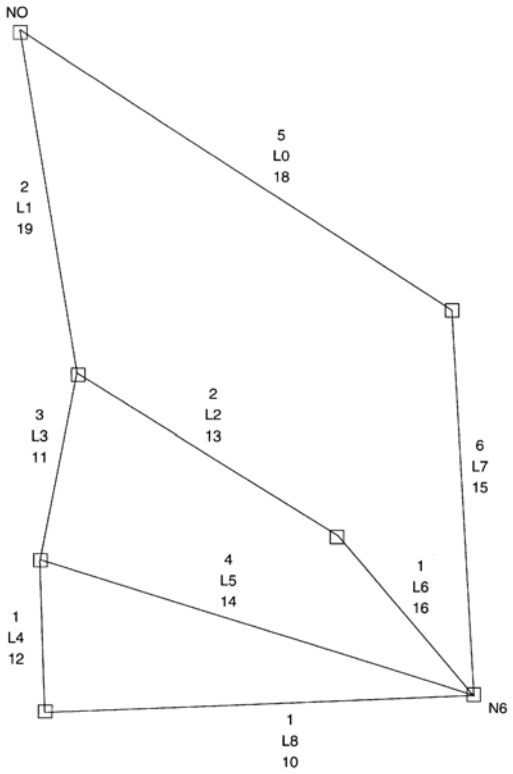

FIG. 1

Figure 1 illustrates a "communication network with internodal links L0–L8.

Le Boudec discloses that "[e]ach link in a network has attributes, i.e. characteristics inherent to the link." *Id.* at 4:12–13. Le Boudec categorizes the attributes as either "additive attributes" or "restrictive attributes." *Id.* at 4:19–27. An additive attribute is one "which must be added up over the whole length of a route [between nodes] to give their effective value for the route. An example of such an attribute is [signal] delay." *Id.* at 4:14–16. An example of a restrictive attribute "is the bandwidth of a link, the lowest

bandwidth of any of the links in a route determining the bandwidth of the whole route." *Id.* at 4:24–26.

Le Boudec discloses "assigning a route . . . in response to a request for communication between any two nodes in the network." *Id.* at 4:8–9. Le Boudec discloses an embodiment based on calculating "the optimum route for one of the additive attributes. For example, the route with the least delay between the two nodes can be calculated." *Id.* at 8:24–26. After the delays are calculated, "[a]n ordered list of all the links in the network" using the restrictive attribute of bandwidth is created. *Id.* at 8:31–39. A table containing a set of optimal routes that link two nodes and with the minimum possible delay for a given route bandwidth is created. *See id.* at 9:16–30. When a request for communication between nodes is received, "the route with the minimum delay between these nodes which can support the bandwidth specified in the requests is tried first." *Id.* at 9:30–34. Le Boudec discloses creating a matrix "organized such that for each pair of nodes in the network, a set of optimal routes for various particular values of restrictive attributes is stored." *Id.* at 11:55–58. Le Boudec also discloses a table of optimal routes between various nodes:

Start and finish	Route	Delay, Bandwidth
A to B	A,C,B	3,2
A to B	A,B	4,1
A to C	A,C	1,2
A to D	A,C,B,D	4,3
A to D	A,C,D	6,2

Table from Column 15 of Le Boudec Listing Communication Paths

This table contains different routes between pairs of nodes in the network ordered based on signal delay or bandwidth.

i. Analysis of Claim 1

a. Preamble: "An apparatus for automatically selecting one of a plurality of communication paths, the apparatus comprising:"

Samsung argues that Le Boudec discloses "an apparatus for automatically selecting one of a plurality of communication paths." Pet. 31 (citing Ex. 1002 ¶¶ 70–89, 146–165). Specifically, Samsung contends, *inter alia*, that Le Boudec discloses

> that "the invention is based upon a method of deriving routes within a network, selecting a set of these routes which bear a particular relationship to one another, and assigning a route from this set in response to a request for communication between any two nodes in the network," along with "an apparatus for carrying out this method."

Id. at 32 (citing Ex. 1006, 4:5–11, Ex. 1002 ¶ 149).

Samsung also contends that Le Boudec's "routes" correspond to the recited "communication paths." *Id.* at 35 (citing Ex. 1006, 15:25–34). Samsung contends that Figure 7 of Le Boudec illustrates the elements of Le Boudec's apparatus for automatically selecting one of a plurality of communication paths. *Id.* at 36 (citing Ex. 1006, Fig. 7, 15:56–16:31, Ex. 1002 ¶ 161. Iron Oak does not dispute Samsung's contention that the preamble of claim 1 is disclosed by Le Boudec. Prelim. Resp. 8–11.

Based on the present record, Samsung demonstrates sufficiently that Le Boudec discloses "[a]n apparatus for automatically selecting one of a plurality of communication paths."

b. "a memory operable to store a plurality of ordered lists of communication paths, each ordered list associated with one of a

> *plurality of communication attributes, each communication attribute representing a separate priority for communication"*

Samsung contends that Le Boudec discloses this claim limitation. Pet. 37–48 (citing Ex. 1002 ¶¶ 70–89, 166–190). Specifically, Samsung contends that Le Boudec "determines and stores a set of optimal routes for each pair of nodes in the network based on attributes . . . which disclose a plurality of ordered lists of communication paths." *Id.* at 37 (citing Ex. 1002 ¶ 168). Further, Samsung argues Le Boudec discloses that "several additive attributes can be considered, which forms separate sets of lists of optimal routes, where each route is optimized with respect to one of the additive attributes," resulting "in separate lists of multiple communication paths (optimal routes) for each additive attribute . . . and for each node pair in the network." *Id.* at 40 (citing Ex. 1006, 7:40–48, 9:23–34). Samsung further contends that Le Boudec "discloses that multiple sets of optimal routes (a plurality of ordered lists of communication paths) are created and stored based on attribute information (e.g., a first set of optimum routes for a first node pair, and a second set of optimum routes for a second node pair.)." *Id.* at 38 (citing Ex. 1002 ¶ 170); *see also id.* at 40 ("The sets of optimal routes are a plurality of ordered lists of communication paths."). Samsung also contends that because Le Boudec's

> routes (which are determined based on ordered lists of links that are processed according to the disclosed methods to form a set of optimum routes) can be ordered according to various attributes . . . each ordered list is associated with one of a plurality of communication attributes . . . and each attribute represents a separate priority for communication (e.g., least available bandwidth or most constrained link, etc.).

Id. at 39 (citing Ex. 1002 ¶ 171; Ex. 1006, 9:24–34, 9:52–61, 20:40–50).

Samsung further supports its contention by annotating the table shown in column 15 of Le Boudec, as reproduced below. *Id.* at 44 (citing Ex. 1006, 15:25–35, 15:35; Ex. 1002 ¶ 180).

Start and finish	Route	Delay, Bandwidth
A to B	A,C,B	3,2
A to B	A,B	4,1
A to C	A,C	1,2
A to D	A,C,B,D	4,3
A to D	A,C,D	6,2

Petitioner's annotation to Table from Le Boudec Listing Communication Paths.

Samsung contends that this table shows lists of communication paths between various nodes in the network ordered by communication attributes of delay or bandwidth. *Id.* According to Samsung,

> the red box shows a first list of routes ("communication paths") that are stored in a specific order . . . or highest bandwidth attribute value . . . . The blue box . . . shows a second list of routes (communication paths) that are also stored in a specific order . . . or highest bandwidth attribute value.

Id. (citing Ex. 1002 ¶ 181).

Samsung next contends that Le Boudec discloses "the optimum routes (in their respective orders) are stored in RAM 18." *Id.* at 46 (citing Ex. 1006, 16:9–11).

Iron Oak contends that "LeBoudec involves consideration of only a single set (list) and not a plurality of ordered lists as required by claim 1." Prelim. Resp. 10. Iron Oak directs us to several parts of Le Boudec that refer to "the" set of routes to support this contention. *See id.* (citing Ex. 1006, 9:29–31, 11:34–51, 15:22–48). Although Iron Oak's quotations from

Le Boudec are accurate, each quote refers to routes between a particular pair of nodes. For example, Le Boudec discloses that

> [t]he method outlined above leads to a streamlined procedure for ascertaining which routes *between two nodes* would be optimum with respect to one additive attribute under various constraints . . . The set of optimum routes then forms a reference table. When a request for communication between any pair of nodes is received, the set is scanned and the route with the minimum delay *between these nodes* . . . is tried first.

Ex. 1006, 9:24–34 (emphasis added).

Samsung's contention is, however, that the sets of optimal routes between various node pairs correspond to the claimed plurality of ordered lists. *See* Pet. 44 (referring to annotated table at column 15 of Le Boudec showing routes between nodes). We are not persuaded by Iron Oak's contention because it fails to squarely address Samsung's position that the ordered list of optimal routes between nodes A to B, A to C, and A to D, set forth in the table in column 15 of Le Boudec, correspond to the recited plurality of ordered lists of communication paths. Based on the present record, Samsung, therefore, demonstrates sufficiently that Le Boudec discloses this claim limitation.

c. *"a processor operable to receive a request for communication, the request indicating a communication attribute, the processor further operable to automatically select a communication path from an ordered list associated with the indicated communication attribute."*

Samsung contends that Le Boudec discloses this claim limitation. Pet. 48–51 (citing Ex. 1002 ¶¶ 70–89, 191–197). Specifically, Samsung refers to Figure 7 of Le Boudec and contends that "*LeBoudec* discloses that a second microprocessor 20 'receives incoming route requests from network users' and in 'accordance with the requirements of the route requests, the second

microprocessor selects a route from the set of optimal routes stored in RAM.'" *Id.* at 48 (quoting Ex. 1006, 16:12–16); *see also id.* at 50. Samsung further contends that "*LeBoudec* discloses that requests for communications include (and therefore also indicate) attribute(s) that are used to compare to stored . . . optimal paths to allow for selection of the path that meets the attribute criteria for communicating signals between nodes." *Id.* Samsung supports this contention by reference to disclosure in Le Boudec that "[t]he set of optimum routes is then consulted when a request for a route is received and a route from the set which meets the criteria contained in the request is assigned." *Id.* at 49 (quoting Ex. 1006, 5:23–30). Iron Oak does not dispute Samsung's contention that Le Boudec discloses this claim limitation. *See* Prelim. Resp. 8–11. Thus, based on the present record, Samsung demonstrates sufficiently that Le Boudec discloses this claim limitation.

Based on the present record and after considering all of Iron Oak's arguments, we determine that the evidence at this point in the proceeding shows a reasonable likelihood that claim 1 is anticipated by Le Boudec.

D. Anticipation by Bosack

Samsung contends that claim 1 is anticipated by Bosack. Pet. 16–31. In support thereof, Samsung identifies the disclosures in Bosack alleged to describe the subject matter in the challenged claim. *Id.* Samsung offers declaration testimony from David H. Williams in support of its position. Ex. 1002 ¶¶ 98–145.

In its Preliminary Response, Iron Oak contends, *inter alia*, that Bosack does not select "a communication path from one of a plurality of ordered lists of communication paths." Prelim. Resp. 8. In support of this

contention, Iron Oak argues that in Bosack, "the communication is carried out through the transmission of data packets among several paths with metrics falling within a specified range." *Id*; *see also id.* at 6–7 (citing Ex. 1005, 2:61–3:2. 5:35–47).

1. Overview of Bosack (Ex. 1005)

Bosack is a United States Patent issued from an application filed January 29, 1988. Ex. 1005, [22]. Bosack is directed to a "Method and Apparatus for Routing Communications among Computer Networks." *Id.* at [54]. Figure 2 of Bosack is reproduced below:

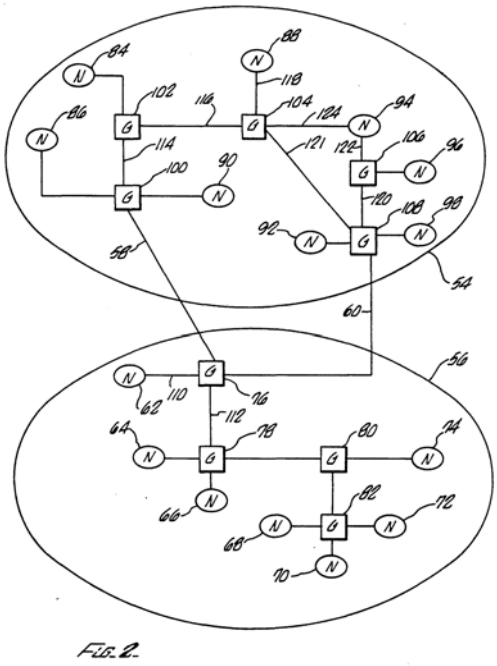

Figure 2 illustrates computer network systems 54 and 56 interconnected by links 56 and 60.

"[L]inks 58 and 60 might be a land microwave repeater link and a satellite link, respectively." *Id.* at 3:35–36. Network system 56 comprises "computer networks 62–74 interconnected by gateway circuits 76–82." *Id.*

at 3:37–38. Network system 54 comprises "computer networks 84–98 interconnected by gateway circuits 100–108." *Id.* at 3:39–40.

In Bosack, the gateway circuits identify

> all destinations for which it has a directly connected interface. . . . For each identified path, the gateway stores the identity of the gateway circuit which is the "next hop" on the path and a vector of metric information describing the path. The metric information includes topological delay time for a transmission, the path bandwidth for the narrowest bandwidth segment of the path, the channel occupancy of the path, and a count of the gateway circuits through which the path runs (the "hop count"). Based on this metric information, a single "composite metric is calculated for the path. When a data transmission is received, the gateway examines the various paths in accordance with a predetermined algorithm which uses the composite metric to determine a best path for transmission. The data transmission is then directed over that best path. *If more than one path exists, the data may be directed in multiplex fashion over two or more paths with the amount of data on each path related to the quality of the path.*

Id. 1:63–2:18 (emphasis added); *see also id.* Fig.4, step E, 8:40–53.

i. Analysis of Claim 1

a. Preamble: "An apparatus for automatically selecting one of a plurality of communication paths, the apparatus comprising:"

Samsung contends that Bosack discloses an apparatus for automatically selecting one of a plurality of communication paths as set forth in the preamble to claim 1. Pet. 16 (citing Ex. 1002 ¶¶ 61–69, 99–118). Iron Oak does not dispute Samsung's assertions. Prelim. Resp. 7–8.

Based on the present record, Samsung demonstrates sufficiently that Bosack discloses "[a]n apparatus for automatically selecting one of a plurality of communication paths."

b. "a memory operable to store a plurality of ordered lists of communication paths, each ordered list associated with one of a plurality of communication attributes, each communication attribute representing a separate priority for communication"

Samsung contends that Bosack discloses this claim limitation. Pet. 20 (citing Ex. 1002 ¶¶ 61–69, 119–134). Samsung specifically directs us to disclosure in Bosack of RAM 126 that keeps "separate lists of paths to each destination" where the "**paths are selected and ordered** according to the composite metric-defined by Eq. 1." *Id.* at 20–21 (citing Ex. 1005, 6:44–48). Samsung asserts that Bosack's equation 1 "considers bandwidth, delay, and K values associated with types of service for communications in the network" and discloses "an exemplary table of such information" which reflects the information stored in RAM 126. *Id.* at 21 (citing Ex. 1005, 4:38–5:15, 6:31–48, Table 1; Ex. 1002 ¶¶ 119–120). Samsung further asserts that the separate lists in Bosack's Table 1 "are associated with 'one of a plurality of communication attributes'" (*id.* at 21–22 (citing Ex. 1002 ¶ 121)) because "each path in a particular list is associated with a metric that is determined from parameters or characteristics ('attributes') relating to the given communication path (e.g. delay time and path bandwidth) and representing a separate priority for the path." *Id.* at 23 (citing Ex. 1001, 3:64–4:23, 5:55–6:8, Ex. 1005, 5:55–6:8, 10:36–56, Ex. 1002 ¶¶ 121, 125–126).

Iron Oak contends that Bosack does not disclose this limitation because "where there is only one usable communications link from the gateway at issue to the target destination, there is no memory storing a plurality of ordered lists of communication paths . . . since there is only one usable path." Prelim. Resp. 8. The '658 Patent, however, also discloses that

there are circumstances where the ordered lists disclose only one usable path for a communication attribute. *See* Ex. 1001, Fig. 4 (Column titled "Attribute D" in Table 104), 11:37–67). We are not persuaded by Iron Oak's contention because Iron Oak does not adequately explain why the "Attribute D" column in Table 104, with only one usable path, represents an ordered list of communication paths while a similar disclosure of one usable path in Bosack does not represent an ordered list, as recited in claim 1.

Based on the present record, Samsung demonstrates sufficiently that Bosack discloses this claim limitation.

c. *"a processor operable to receive a request for communication, the request indicating a communication attribute, the processor further operable to automatically select a communication path from an ordered list associated with the indicated communication attribute."*

Samsung contends that Bosack discloses this claim limitation. Pet. 28 (citing Ex. 1002 ¶¶ 61–69, 135–145). Samsung specifically directs us to Bosack at column 6, lines 34 to 36 and the Declaration of David H. Williams at paragraph 142. *Id.* at 30 (citing Ex. 1002 ¶ 142; Ex. 1005, 6:34–36). Mr. Williams's Declaration provides that "a person of ordinary skill in the art would have understood that *Bosack* discloses that the processor (e.g., microprocessor 124) is further operable to automatically select a communication path from an ordered list associated with the indicated communication attribute." Ex. 1002 ¶ 142. For example, column 6, lines 34 to 36 of Bosack provides "certain protocols allow the packet to specify the relative importance of high bandwidths, low delay or high reliability." Ex. 1005, 6:34–36.

Iron Oak counters that, in Bosack, "where there are multiple usable paths, there is no selection of a communication path." Prelim. Resp. 8.

According to Iron Oak, Bosack discloses that, rather than selecting a single path, "'[t]raffic can be distributed over parallel paths.'" *Id.* at 6 (citing Ex. 1005, 2:66–67). Consequently, Iron Oak argues that in the case of multiple usable paths, "the communication is carried out through the transmission of data packets amoung [sic] several paths with metrics falling within a specified range." *Id.* at 8.

Samsung acknowledges that, in Bosack, "traffic can be split among several routes in parallel to provide effective bandwidth." Pet. 19 (citing Ex. 1005, 5:27–34). In light of this acknowledgement and the disclosure in Bosack that a communication is *directed* over two or more paths (Ex. 1005, 2:15–18), Samsung's reliance on column 6, lines 34 to 36 of Bosack does not sufficiently establish that Bosack discloses a processor that *automatically selects a* communication path. *See also* Ex. 1006, 3:7–22.

Based on the present record, we determine that Iron Oak's contention that Samsung has not established sufficiently that Bosack discloses a processor that automatically selects a communication path such that claim 1 would be anticipated by Bosack has merit. Nonetheless, at the institution phase, once it is determined that there is a reasonable likelihood that Petitioner will succeed on a single claim, review of all claims and grounds is justified. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018).

E. Anticipation by Oberlander

Samsung contends that claim 1 is anticipated by Oberlander. Pet. 51–66. In support thereof, Samsung identifies the disclosures in Oberlander alleged to describe the subject matter in the challenged claim. *Id.* Samsung offers declaration testimony from David H. Williams in support of its position. Ex. 1002 ¶¶ 90–97, 198–238.

In its Preliminary Response, Iron Oak contends that Oberlander does not disclose a memory as recited in claim 1. Prelim. Resp. 11. In support of this contention, Iron Oak argues that Oberlander's list of communication paths does not correspond to the recited "plurality of ordered lists of communication paths" because "each list is associated only with a subscriber ID and a device ID, neither of which . . . represents a separate priority of communication." *Id.* at 11–12.

1. Overview of Oberlander (Ex. 1007)

Oberlander is a United States Patent issued from an application filed June 10, 1994. Ex. 1007, [22]. Oberlander is directed "to a method and apparatus for routing information to a particular person (i.e., subscriber) via a particular destination device and over a particular network within a communication system." *Id.* at 1:8–11. Oberlander notes that "the typical business individual may nonetheless prefer to receive a particular type of information at a particular one of her communicating devices." *Id.* at 1:27–30. Figure 1 of Oberlander is reproduced below:

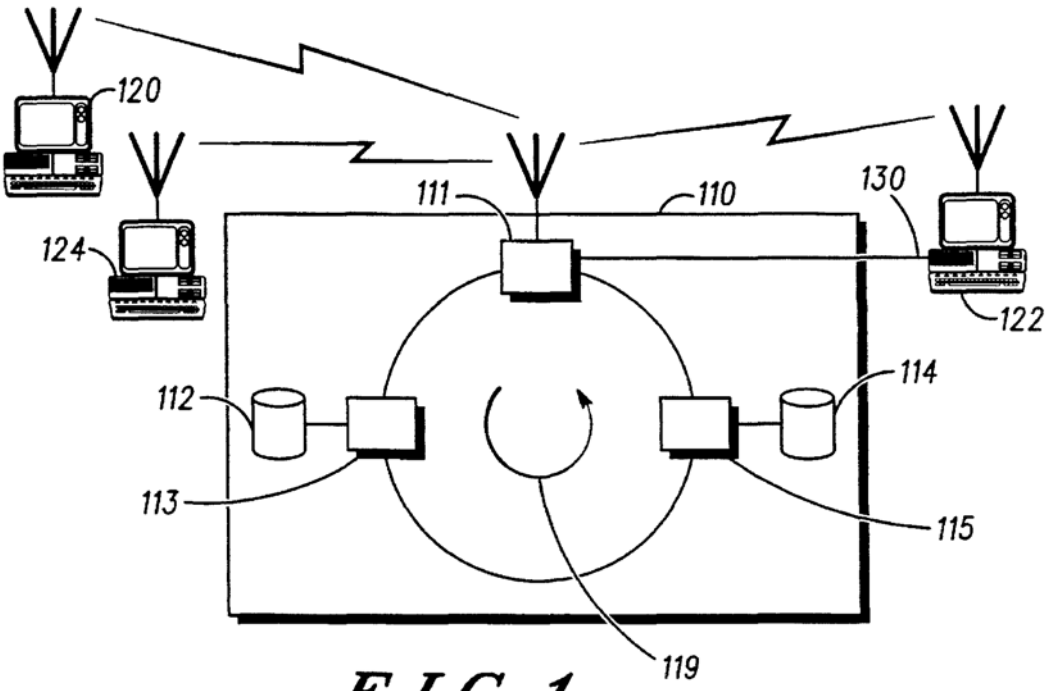

FIG. 1

Figure 1 illustrates in block diagram form a communication system.

Communication system 100, shown in Figure 1, "employs both wireless and wireline communication networks comprising a server 110 and a plurality of subscriber devices." *Id.* at 2:30–32.

Figure 3 of Oberlander is reproduced below:

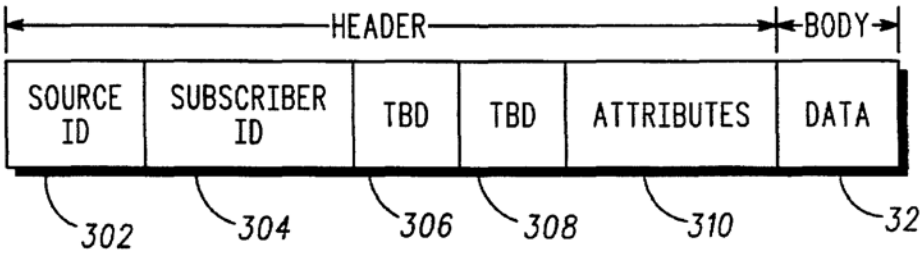

FIG. 3

Figure 3 depicts the structure of a message for use within the communication system of Figure 1.

Message 300 includes attributes field 310. *Id.* at 3:48–53. The attributes field 310 "maintains information specific to the message 300" such as "message originator, message priority, message data format, message logical size, message security requirements, message transmitted size, and message compressed size." *Id.* at 3:66–4:5.

Oberlander discloses a data base structure that "comprises a plurality of records 510, each record comprises a subscriber ID field 502, a device ID field 504, a network ID list field 505 and a logic function field 506." *Id.* at 4:43–46. Each record 510 represents "a rule that conditionally maps a subscriber and a selected device 120-124 to a prioritized list of communication networks." *Id.* at 4:46–49. Oberlander discloses generating a key "to determine which network to use for transmission of the message . . . by applying the set of attribute 310 values of the message in question to the logic function within field 506 of each data base 500 record." *Id.* at 4:64–5:1.

i. Analysis of Claim 1

a. Preamble: "An apparatus for automatically selecting one of a plurality of communication paths, the apparatus comprising:"

Samsung contends that Oberlander discloses an apparatus for automatically selecting one of a plurality of communication paths as set forth in the preamble to claim 1. Pet. 51 (citing Ex. 1002 ¶¶ 90–97, 198–238). Iron Oak does not dispute Samsung's assertions. Prelim. Resp. 11–12. Based on the present record, Samsung demonstrates sufficiently that Oberlander discloses "[a]n apparatus for automatically selecting one of a plurality of communication paths."

b. "a memory operable to store a plurality of ordered lists of communication paths, each ordered list associated with one of a plurality of communication attributes, each communication attribute representing a separate priority for communication"

Samsung contends that Oberlander discloses this limitation. Pet. 59 (citing Ex. 1002 ¶¶ 90–97, 220–230). Samsung specifically contends that Oberlander discloses "a memory (e.g., database 114) operable to store

> a plurality of ordered lists of communication paths (e.g., record 510 including a prioritized list of communication networks for consideration for transmitting message 300), where each ordered list (e.g. record 510 including network ID list 505) is associated with one of a plurality of communication attributes (e.g., attribute field 310 that may include attributes relating to message priority, message security requirements, etc.).

Id. at 61–62 (citing Ex. 1007, 3:66–4:6, 5:26–31, 6:8–14, 8:21–9:2; Ex. 1002 ¶ 226).

Samsung further contends that Oberlander's message attributes "are associated with the ordered list of communication networks in list 505 of database 114 because *Oberlander* explains that NMM115 applies the set of attribute 310 values of a message 300 to the logic function within field 506 of each database 500 record 510." *Id.* at 62 (citing Ex. 1007, 4:62–5:5, Ex. 1002 ¶ 227).

Iron Oak counters that Oberlander's "prioritized lists of communication networks" referenced by Samsung do not correspond to the recited "plurality of ordered lists of communication paths" where "each ordered list is associated with one of a plurality of communication attributes" (Prelim. Resp. 11) because "each list is associated only with a subscriber ID and a device ID, neither of which . . . is a 'communication attribute' and neither of which . . . represents a separate priority of

communication." *Id.* at 12. Iron Oak further argues that neither a subscriber ID nor a device ID "constitute[s] an attribute of a requested communication or an attribute of a path to be used for a requested communication." *Id.*

We have considered Iron Oak's contention but determine it is not persuasive at this time for the following reasons. First, the subscriber ID and device ID are not part of attributes field 310. Ex. 1007, 3:48–60, Fig. 3. Second, Iron Oak's contention fails to squarely address why the various items Oberlander discloses as comprising attributes field 310, such as "message priority, message data format, message logical size, [and] message security requirements" (*id.* at 4:2–4), do not correspond to the recited "communication attributes."

Apart from Iron Oak's contention, we reviewed the portions of Oberlander cited by Samsung as well as the Declaration of Mr. Williams, and, based on the present record, are not convinced that Samsung has sufficiently established that Oberlander discloses that "each ordered list is associated with *one* of a plurality of communication attributes." Our determination is based on the disclosure in Oberlander that attributes field 310 may include more than one attribute. *See* Ex. 1007, 3:66–4:5. Although Oberlander discloses that the "set of attribute 310 values" is applied to the "logic function within field 506 of each data base 500 record" (*id.* at 4:66–5:1), Samsung does not direct us to any portion of Oberlander that discloses each ordered list is associated with only one of the set of attribute 310 values, nor do we discern any such disclosure in Oberlander. Further, Mr. Williams's Declaration specifically states that "*Oberlander's* attributes, which include message priority and security requirements are associated with the ordered list of communication networks." Ex. 1002 ¶ 227. This

testimony does not convince us that Oberlander associates each list with one attribute value.

c. *"a processor operable to receive a request for communication, the request indicating a communication attribute, the processor further operable to automatically select a communication path from an ordered list associated with the indicated communication attribute."*

Samsung contends that Oberlander discloses this limitation. Pet. 63 (citing Ex. 1002 ¶¶ 90–97, 231–238). Iron Oak does not specifically dispute that Oberlander discloses a processor operable to receive a request for communication and to automatically select a communication path. Prelim. Resp. 11–12. However, based on our preliminary finding that Samsung has not sufficiently established that Oberlander discloses that "each ordered list is associated with *one* of a plurality of communication attributes," we are not convinced that Samsung has sufficiently established that Oberlander discloses this claim limitation.

Based on the present record and after considering all of Samsung's arguments, for the reasons discussed, we are not convinced that Oberlander discloses all of the limitations of claim 1 of the '658 Patent. Nonetheless, because we have determined that there is a reasonable likelihood that Petitioner will succeed on a single claim and ground, review of all claims and grounds is justified. *SAS*, 138 S. Ct. at 1356.

F. Discretionary Denial of Institution

Iron Oak contends that "prudential considerations of Board resources, judicial economy, and the overall goal of improving the efficiency of the patent system warrant non-institution." Prelim. Resp. 12. The basis for this request is that the '658 Patent is the subject of review in IPR2018-00486 and

because the '658 Patent is the subject of "multiple patent litigation proceedings." *Id.*

Although not specifically stated by Iron Oak, we interpret this contention as a request to exercise our discretion to deny institution under 35 U.S.C. § 314(a). In *General Plastic Industrial Co., Ltd., v. Canon Kabushiki Kaisha*, IPR2016-01357, slip op. at 16 (PTAB Sept. 6, 2017) (Paper 19) (precedential), the Board set forth seven non-exclusive factors that inform "the public of the Board's considerations in evaluating follow-on petitions." *Id.* These factors are:

1. whether the same petitioner previously filed a petition directed to the same claims of the same patent;
2. whether at the time of filing of the first petition the petitioner knew of the prior art asserted in the second petition or should have known of it;
3. whether at the time of filing of the second petition the petitioner already received the patent owner's preliminary response to the first petition or received the Board's decision on whether to institute review in the first petition;
4. the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition;
5. whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent;
6. the finite resources of the Board; and
7. the requirement under 35 U.S.C. § 316(a)(11) to issue a final determination not later than 1 year after the date on which the Director notices institution of review.

Gen. Plastic, slip op. at 16 (citing *NVIDIA Corp. v. Samsung Elec. Co.*, Case IPR2016-00134 (PTAB May 4, 2016) (Paper 9)). These factors are "a non-exhaustive list" and "additional factors may arise in other cases for consideration, where appropriate." *Id*. at 7, 8.

In applying these factors, we consider not only the congressional intent that *inter partes* review proceedings provide an effective and efficient alternative to district court litigation, but also the potential for abuse of the review process through repeated attacks by the same petitioner with respect to the same patent. *See Gen. Plastic*, slip. op. at 16–17 (citing H.R. Rep. No. 112-98, pt. 1, at 40 (2011)). For the reasons discussed below, we do not exercise our discretion to deny institution based on § 314(a).

Here, we clearly appreciate that the Petitioner in IPR2018-00486 is Unified Patents Inc., a different entity. IPR2018-00486, Paper 8, 2. Nonetheless, where a subsequent petition is filed by a *different* petitioner than the entity that filed the previous petition considered by the Board, the following additional considerations have been considered relevant to the § 314(a) analysis:

> 8. whether there may be potential prejudice to the subsequent petitioner if institution is denied and the pending instituted proceedings involving the first petitioner are terminated; and
> 9. whether multiple petitions filed against the same patent is a direct result of Patent Owner's litigation activity.[4]

See Lowes Cos. Inc., v. Nichia Corp., Case IPR2017-02011, slip op. at 19 (PTAB March 12, 2018) (Paper 13) (determining that "[d]enial of the Petition in part would prejudice the Petitioner in this proceeding should the Vizio Petitions be resolved by settlement"); *Samsung Elecs. Am., Inc. v. Uniloc Luxembourg S.A.*, Case IPR2017-01797, slip op. at 33–34 (PTAB Feb. 6, 2018) (Paper 8) (recognizing the purpose of the availability of *inter*

[4] We identify these additional factors by numbers "8" and "9" to distinguish from the factors identified in *General Plastic*. Our usage of identifying numbers does not indicate that these factors are applicable to all cases.

partes review to parties accused of infringement, and finding Patent Owner's complaint about multiple petitions filed against the same patent unpersuasive "when the volume [of petitions] appears to be the direct result of its own litigation activity").

We note that the grounds of unpatentability asserted in IPR2018-00486 are based on 35 U.S.C. § 103, and not 35 U.S.C. § 102. IPR2018-00486, Paper 8, 7. Further, none of the challenges in that proceeding are based on the same prior art as in this proceeding, namely Le Boudec, Bosack, or Oberlander. *Id.* We also note that Iron Oak initiated each of the "multiple patent litigation proceedings" to which it refers. *See supra* § I.A.

As to factors 1 through 5 delineated in *General Plastic*, Iron Oak does not cite to or specifically address any of these factors, let alone argue that any of these factors weigh in favor of denying institution. Prelim. Resp. 12–14. Instead, Iron Oak points out that the challenged claim "is involved in multiple patent litigation proceedings, involving a number of parties other than petitioner." *Id.* at 12. This argument, by itself, does not weigh in Iron Oak's favor because the statute allows parties to file a petition within one year of being served with a complaint of infringement. *See* 35 U.S.C. § 315(b) ("An inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent."). That the prior art Samsung relies on in the present proceeding is not the same as the other proceedings also does not weigh in Iron Oak's favor. Prelim. Resp. at 13.

As to factors 6 and 7, that the patent is involved in multiple pending judicial proceedings does not, by itself, have a tangible impact on Board

resources. Prelim. Resp. 13–14. These factors do not weigh in Iron Oak's favor. Factors 8 and 9 also do not weigh in Iron Oak's favor. That is, we decline to wield Iron Oak's own litigation activities as a shield in this *inter partes* review.

Based on the present record, we determine that none of the *General Plastic* factors weigh in favor of exercising our discretion to deny institution under 35 U.S.C. § 314(a) and we, thus, do not do so.

III. CONCLUSION

Based on the record before us, we determine that Samsung demonstrates a reasonable likelihood that it would prevail in challenging claim 1 of the '658 Patent as unpatentable under 35 U.S.C. § 102. We, thus, institute an *inter partes* review of claim 1 of the '658 Patent based on all grounds in the Petition as set forth above. At this stage of the proceeding, we have not made a final determination under 35 U.S.C. § 318(a) with respect to the unpatentability of the challenged claim.

IV. ORDER

For the foregoing reasons, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claim 1of the '658 Patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4(b), *inter partes* review of the '658 Patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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