

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ERICSSON INC. AND NOKIA OF AMERICA CORPORATION

Petitioners,

v.

HEADWATER PARTNERS II LLC,

Patent Owner.

IPR2025-00404
Patent 9,413,502

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

No.	Description
2001	ETSI, <i>4th Generation (LTE)</i> , available at https://www.etsi.org/technologies/mobile/4g
2002	Analog Devices, <i>Long Term Evolution</i> , available at https://www.analog.com/en/resources/glossary/long-term-evolution.html
2003	Digi, <i>What is LTE: How It Works and Why It Matters</i> , available at https://www.digi.com/blog/post/what-is-lte
2004	Overview of Ghosh et al, FUNDAMENTALS OF LTE (2011), available at https://www.informit.com/articles/article.aspx?p=1627062

I. Introduction

The Board should deny institution of *inter partes* review (“IPR”) of U.S. Patent No. 9,413,502 (“the ’502 patent”) because the theories set forth in the Petition have no reasonable likelihood of prevailing.

This Preliminary Response addresses one specific failure of the Petition. In particular, each challenged independent claim recites three distinct communication technologies—a “first communication technology,” “a second communication technology,” and “a third communication technology.” As the claims make clear (and the Petition itself recognizes), these three separately recited communication technologies are *different* from one another. *See* Pet. 5 (citing claim 1 of the ’502 patent as providing support for the assertion that “[e]ach leg of these backhaul pathways... can employ a *different* communication technology”).¹

However, the Petition makes no showing why a POSITA would have understood the prior art to disclose or render obvious the use of three *different* communication technologies *within a single implementation*, as the claims require. For instance, the Petition does not allege that the prior art discloses that the third communication technology is different from both the first and second communication technologies. Nor does the Petition allege any motivation to modify

¹ All emphases herein are added unless otherwise specified.

the prior art to make the third communication technology distinct from the first and second communication technologies in any given implementation of the prior art.

Accordingly, the Petition fails to set forth a prima facie case that the challenged claims are unpatentable over the prior art, and institution should be denied.

II. Overview of the '502 Patent

At a high level, the '502 patent is generally directed to using three different communication technologies to communicate between a backhaul user equipment (bUE) device and two different data networks.

Claim 1 is generally representative, and recites:

1[pre]² A system comprising:

1[a] a base station (BS) operable to communicate directly with a first data network;

1[b] a plurality of backhaul user equipment (bUE) devices, each of the plurality of bUE devices operable to wirelessly communicate with the BS through at least a ***first communication technology***, and the plurality of bUE devices each operable to communicate with a second data network through at least a ***second communication technology***, wherein the second data network is different than the first data network;

1[c] the BS operative to:

² Patent Owner adopts the claim element numbering used in the Petition.

wirelessly communicate with one or more user equipment (UE) devices, and network connect the one or more UE devices to the second data network through one or more of the plurality of bUE devices, or directly to the first data network through a ***third communication technology***;

1[d] communicate backhaul (BH) traffic through a selectable one of to the second data network through the one or more of the plurality of bUE devices, and directly to the first data network, wherein the BH traffic comprises access traffic from the one or more UE devices;

aid in selecting a transmission power level of at least one of the plurality of bUE devices, and at least one of the one or more UE devices; and

1[e] transmit resource block (RB) scheduling information for the BH traffic of at least one of the plurality of bUE devices and the access traffic of at least one of the one or more UE devices.

Ex. 1001, Claim 1.

The specification makes clear that an embodiment in which communications use a “first wireless technology” and “a second wireless technology” is distinct from an embodiment from one in which communications occur “on the ***same*** wireless technology”:

*For at least one embodiment the bUE device 210 wirelessly communicates with the BS 201 on the ***same wireless technology*** (for example 4G or LTE) as the UE device 212 wirelessly communicates*

*with the BS 201 but on a different channel or carrier. For at least one embodiment the bUE device 210 wirelessly communicates with the BS 201 on **the first wireless technology** (for example 4G/LTE) as the UE device 212 wirelessly communicates with the BS 201 on **a second wireless technology** (for example 3G/HSPA).*

Ex. 1001, 5:63-6:4. As such, the claims directed to a “first communication technology,” “second communication technology,” and “third communication technology” are directed toward the specification embodiments that do **not** use the same communication technology for the various communication links.

III. Level of Ordinary Skill in the Art

The Petition proposes that a POSITA in the field of the '502 patent “would have been someone with at least (1) a bachelor’s degree in electrical engineering, computer engineering/science, or a related scientific field, and (2) either (a) a master’s degree in electrical engineering, computer engineering/science, or a related field, or (b) two or more years of work or research experience in wireless networking and/or computing.” Pet. 13. For purposes of this Preliminary Response, Patent Owner does not challenge that definition.

IV. Claim Construction

Petitioner proposes a construction only for “[c]lient side modem functionality.” Pet. 14. For purposes of this Preliminary Response, Patent Owner does not believe that any terms require construction.

Patent Owner does note, however, that the “first communication technology,” “second communication technology,” and “third communication technology” should be understood to have their plain meaning wherein each of these recited communication technologies is a different communication technology, consistent with the intrinsic record as discussed above in Section III, and further consistent with Petitioner’s own understanding. *See* Pet. 5 (acknowledging that claim 1 provides support for an understanding of the specification wherein “[e]ach leg of these backhaul pathways... can employ a **different** communication technology”).

The understanding—that each of “a first communication technology,” “second communication technology,” and “third communication technology” refer to **different** communication technologies—is apparent from the claim language itself. As an initial matter, “[w]here a claim lists elements separately, the clear implication of the claim language is that those elements are distinct components of the patented invention.” *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010).

Additionally, if the three separately-recited communication technologies could be the **same** communication technology, there would have been no reason to specify a “first,” “second,” and “third” communication technology—the claims would have merely recited each of these as “a communication technology,” thus allowing **any** communication technology to be used for any of the links. By

separately listing the communication technologies as “first,” “second,” and “third” technologies, the claims make clear that *different* technologies are required for each of the three specified communication links.

V. The Petition fails to show obviousness of three different communication technologies arranged in the claimed manner.

All challenged independent claims recite three different communication technologies used for different communication links within a network system (or implementation): (1) “a first communication technology” used to communicate between backhaul user equipment (bUE) devices and a base station (BS) (claim limitations 1[b], 28[b], 30[b], 31[b], 40[a], 43[a]); (2) “a second communication technology” used to communicate between bUE devices and “a second data network” (claim limitations 1[b], 28[b], 30[b], 40[b], 43[b]); and (3) “a third communication technology” which can be used to “network connect the one or more [user equipment (UE)] devices... directly to the first data network” (claim limitations 1[c], 28[d], 30[d], 31[c], 40[g], 43[c]).

In other words, the claims recite three different communication technologies used to transfer data over three different legs of a single network system. However, as explained below, the Petition’s theory fails to establish the disclosure or obviousness of this requirement. The following subsections first provide an

overview of the Petition's theory, followed by an explanation of why these disclosures do not disclose or render obvious the relevant limitations.

A. Overview of the Petition's Theory

The Petition relies solely on Ishii (Ex. 1004) to disclose these three separately recited “communication technolog[ies]” for each of the independent claims. Specifically, regarding the “first communication technology,” the Petition alleges that “Ishii discloses that its plurality of bUE devices wirelessly communicate with the base station through a *first communication technology*” which is “*an X2 interface or LTE*.” Pet. 26 (citing Ex. 1004, 9:35-39); Pet. 27 (also citing Ex. 1004, 9:35-39, and asserting that the “first communication technology” is “an X2 interface or LTE”).

Regarding the “second communication technology,” the Petition alleges that Ishii's “*WiFi or cellular connection* is a *second communication technology* that is different from the first communication technology (i.e., an X2 interface or LTE).” Pet. 27.

Finally, regarding the “third communication technology,” other than quoting Ishii's disclosure without any analysis, the Petition does not actually specify what it contends the “third communication technology” would be. *See* Pet. 31-32. Ishii makes clear, however, that the backhaul link the Petition relies upon “may be a connection provided by a WiFi (Wireless LAN) or cellular system,” and that

example implementations could include “LTE” or “Wi-MAX, WiFi, or LTE Advanced”). *See* Pet. 31-32 (quoting Ex. 1004, 6:40-46, 17:11-16).

As explained below, the Petition fails to establish that Ishii either *discloses* (expressly or inherently) or *renders obvious* that each of these three communication links within a single network system would use a ***different*** communication technology, as all challenged claims require.

B. The Petition fails to show disclosure of the claim requirements.

As discussed above, a requirement of every challenged claim is that each of the three communication technologies within a single system implementation is ***different***. But the Petition points to no disclosure in Ishii that, within a single system, each communication link would be implemented using a different communication technology.

Specifically, although Ishii discloses that several different communication technologies were ***known***, Ishii does not disclose that ***three different*** communication technologies would be used within the ***same*** implementation in the manner claimed in the '502 patent. *See Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1334 (Fed. Cir. 2008) (“[D]isclosure of each element is not quite enough—this court has long held that ‘[a]nticipation requires the presence in a single prior art disclosure of all elements of a claimed invention *arranged as in the claim.*’”) (emphasis in

original) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

Ishii does not disclose the claimed arrangement of three different communication technologies within a single system, either expressly or inherently. In order to establish an express disclosure, Petitioner would need to identify a disclosure showing that within a single implementation of the network system, *all three* communication links the Petition relied upon would use a *different* communication technology. But Petitioner does not even allege Ishii provides such a disclosure, much less provide evidence of one.

The use of three *different* communication technologies for the three different communication links within a single implementation of Ishii's teachings is also not inherent. For example, one possible option for *each one* of the three communication links that Petitioner relies on Ishii for is a "cellular" or "LTE" connection.³ *See* Pet.

³ An *LTE* connection is a *cellular* connection. *See, e.g.*, Ex. 2001 at 1 (ETSI discussion of the requirement for "[i]ncreased bitrates at the edge of *cells*" in LTE based on a 2004 study documented by 3GPP); Ex. 2002 at 1 ("LTE (Long Term Evolution) is a high-speed mobile communications *cellular* standard developed by the 3rd Generation Partnership Project (3GPP)."); Ex. 2003 at 3 ("When Long-Term Evolution (LTE) was first introduced in 2008, it defined a new *cellular* access

26-27 (noting that the “first communication technology” can be “LTE”); Pet. 27 (noting that the “second communication technology” can be “cellular,” which a POSITA would have known includes “LTE”⁴); Pet. 31-32 (quoting a portion of Ishii that states that the “third communication technology” is “LTE” in the depicted embodiment).

But of course, an arrangement in which *even two* (much less *all three*) of the communication links use only the *same* LTE communication technology does not satisfy the claimed requirement that there be three *different* communication technologies within the system. It is thus indisputably possible to implement Ishii’s teachings in a manner that does *not* meet the claim requirements, such that the claim requirements cannot be inherent to Ishii’s disclosure.

Because the use of three *different* communication technologies for each of the three different communication links is neither expressly nor inherently *disclosed* by Ishii, the Petition must show the *obviousness* of such a configuration. *See Finisar*, 523 F.3d at 1334 (“To anticipate a claim, a single prior art reference must expressly

network....”); Ex. 2004 at 1 (“LTE also represents the first generation of *cellular* networks to be based on a flat IP architecture....”).

⁴ *See supra* n.3.

or inherently disclose each claim limitation. “). As discussed below, the Petition also fails to show obviousness.

C. The Petition fails to show obviousness of the claim requirements.

As noted above, Ishii does not *disclose* the use of three different communication technologies *within the same implementation of a network system* as the claims require. Accordingly, the Petition must show that the user of three different communication technologies would have been *obvious*.

However, the Petition does not even *allege* a theory of obviousness in this regard. The extent of the Petition’s analysis regarding *any* difference between the three communication technologies is limited to a contention that the “first” and “second” communication technologies would have been different, wherein the Petition alleges that Ishii’s “WiFi or cellular connection [between the UE-A or small-node devices and the Internet] is different from the first communication technology (i.e., an X2 interface or LTE.” Pet. 27. Even *assuming* this assertion is correct (even though an LTE connection is a cellular connection), that would only address whether the *second* communication technology is different from the *first*. The Petition provides *no* allegation that the “third communication technology” would be different from *either* (much less *both*) of the alleged “first” and “second” communication technologies. *See* Pet. 31 (alleging only that “Ishii discloses that the

base station communicates with the first data network through a third communication technology”).

Nor does the expert declaration accompanying the Petition provide any additional detail that could salvage the Petition’s deficiency in this regard. Instead, the declaration merely parrots the same conclusory assertions in the Petition, and like the Petition does even allege any difference between the “third communication technology” and the first and second communication technologies. *See* Ex. 1006 ¶¶57, 59, 63 (merely copying, *verbatim*, the Petition’s allegations regarding the alleged first, second, and third communication technologies).

* * *

Because the Petition fails to show either that Ishii discloses (expressly or inherently) that the communication technology used for each of the recited communication links would have been different, the Petition must both allege and provide evidence that Ishii renders this claim requirement obvious. However, the Petition fails to even make the allegation, much less provide the requisite evidentiary showing. Accordingly, the Petition cannot establish a reasonable likelihood of success on the merits.

VI. Conclusion

For the foregoing reasons, Patent Owner respectfully requests that institution be denied.

Date: May 2, 2025

Respectfully submitted,

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 2,456 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on May 2, 2025, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

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