

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORP., ERICSSON INC., AT&T SERVICES, INC.,
CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,
AND T-MOBILE USA, INC.,
Petitioners,

v.

PEGASUS WIRELESS INNOVATION LLC,
Patent Owner.

Case IPR2025-00036
U.S. Patent No. 11,627,631

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	Memorandum Opinion and Order in <i>Pegasus Wireless Innovation LLC v. Verizon Communications Inc. et al.</i> , Nos. 2:23-cv-00640, 2:23-cv-00638, 2:23-cv-00639 (E.D. Tex Dec. 11, 2024)
2002	Memorandum Opinion and Order in <i>Pegasus Wireless Innovation LLC v. Verizon Communications Inc. et al.</i> , Nos. 2:23-cv-00640, 2:23-cv-00638, 2:23-cv-00639 (E.D. Tex Dec. 23, 2024)
2003	Comparison of Districts Within the Fifth Circuit — 12-Month Period Ending September 30, 2024 (available at https://www.uscourts.gov/sites/default/files/2024-12/fcms_na_distcomparison0930.2024.pdf)
2004	Defendants' Preliminary Invalidity Contentions in <i>Pegasus Wireless Innovation LLC v. Verizon Communications Inc. et al.</i> , Nos. 2:23-cv-00640, 2:23-cv-00638, 2:23-cv-00639 (E.D. Tex May 17, 2024)
2005	Appendix A to Defendants' Preliminary Invalidity Contentions in <i>Pegasus Wireless Innovation LLC v. Verizon Communications Inc. et al.</i> , Nos. 2:23-cv-00640, 2:23-cv-00638, 2:23-cv-00639 (E.D. Tex May 17, 2024)
2006	Ex. A-1 of Appendix A to Defendants' Preliminary Invalidity Contentions in <i>Pegasus Wireless Innovation LLC v. Verizon Communications Inc. et al.</i> , Nos. 2:23-cv-00640, 2:23-cv-00638, 2:23-cv-00639 (E.D. Tex May 17, 2024)
2007	Ex. A-2 of Appendix A to Defendants' Preliminary Invalidity Contentions in <i>Pegasus Wireless Innovation LLC v. Verizon Communications Inc. et al.</i> , Nos. 2:23-cv-00640, 2:23-cv-00638, 2:23-cv-00639 (E.D. Tex May 17, 2024)
2008	Ex. A-4 of Appendix A to Defendants' Preliminary Invalidity Contentions in <i>Pegasus Wireless Innovation LLC v. Verizon Communications Inc. et al.</i> , Nos. 2:23-cv-00640, 2:23-cv-00638, 2:23-cv-00639 (E.D. Tex May 17, 2024)
2009	Reserved
2010	Reserved
2011	Reserved
2012	Reserved
2013	Reserved

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Exhibit No.	Description
2014	Reserved
2015	Reserved
2016	U.S. Patent 10,966,222 (Han counterpart)
2017	Non-access stratum – Wikipedia (Oct. 19, 2016) (available at https://en.wikipedia.org/w/index.php?title=Non-access_stratum&oldid=745097988)

Pursuant to 37 C.F.R. § 42.107, Exclusive Licensee Pegasus Wireless Innovation LLC (“Pegasus” or “Patent Owner”) files this preliminary response to the Petition, setting forth reasons why the Petition for *inter partes* review (“IPR”) of claims 1-18 of U.S. Patent No. 11,627,631 (the “’631 Patent”), as requested by Nokia of America Corp., Ericsson Inc., AT&T Services, Inc., Cellco Partnership d/b/a Verizon Wireless, and T-Mobile USA, Inc. (“Petitioners”), should be denied.¹

I. INTRODUCTION

The ’631 Patent is directed to handover protocols of a user equipment (UE), where data communication between the UE and a base station (BS) occurs via a communication session associated with network slice.

Central to the invention claimed in the challenged independent claims of the ’631 patent, a source BS decides whether to perform a handover. In response to deciding to perform a handover, the source BS transmits a handover request to a target BS, where the handover request message includes network slice information. The source BS receives handover request confirmation message in response to the handover request message. If there are network slices that are not supported by the target BS, the handover request confirmation message includes information for

¹ By submitting this Preliminary Response, no waiver of any argument is intended by Patent Owner. Patent Owner will have a right to file a complete response to the Petition, should the Board institute *inter partes* review. 37 C.F.R. § 42.120(a).

indicating a rejection of one or more PDU sessions associated with the non-supported network slices.

Petitioners' Ground 1 art was first publicly available approximately nine months *after* the filing date of the '631 patent's priority document, defined by Petitioners as the "2016 KR document." This priority document fully supports independent claims 1, 7, and 13 as required by 35 U.S.C. § 112(a), and therefore disqualifies Petitioners' Ground 1 reference as prior art.

Petitioners' Ground 3 challenge relies upon the Han reference, but Han clearly and intentionally discloses that no decision is made to perform a handover until after an inquiry regarding service support is made from a source base station to a target base station, and a response is received. According to Han, the decision whether to handover is based on the response from the target BS. Thus, Han does not disclose at least "transmitting, from the source BS to a target BS, a handover request message when it is decided to perform the handover," as recited in at least claim 1. While Petitioners allege that Han could be modified to alter the timing of Han's decision whether to perform a handover, Petitioners' theory for this modification fails to consider Han's purpose for deferring a decision regarding handover and represents a hindsight-based attempt to recreate the challenged claims.

Moreover, Grounds 2 and 4 are asserted only against dependent claims, and do not remedy the defects of Grounds 1 and 3 against the '631 patent's independent claims. Thus, Grounds 2 and 4 fail for similar reasons as Grounds 1 and 3.

Accordingly, each of Petitioners' Ground fails on the merits.

Notwithstanding the substantive defects of the Petition, the Board should exercise its discretion to deny the Petition based on discretionary grounds. A proper balancing of the *Fintiv* factors weighs strongly in favor of denying institution. Patent Owner filed three parallel cases in the Eastern District of Texas involving the parties, in which it asserted not only the '631 patent but also ten other patents. Those cases were combined for pretrial proceedings and are rapidly moving towards trial, with a jury selection date approximately four months after the Board is expected to reach a decision on institution in this IPR, and eight months before a final written decision is expected to issue. As will be discussed, considerable effort will be undertaken in district court, both before the Board issues its institution decision in this IPR and before any final written decision would issue. Moreover, due to Petitioners' piecemeal filings of ten other IPRs against the ten other patents, many of the other IPRs do not even have expected dates for decisions on institution. Under a proper balancing of the *Fintiv* factors, the Board is requested to exercise its discretion and deny the Petition.

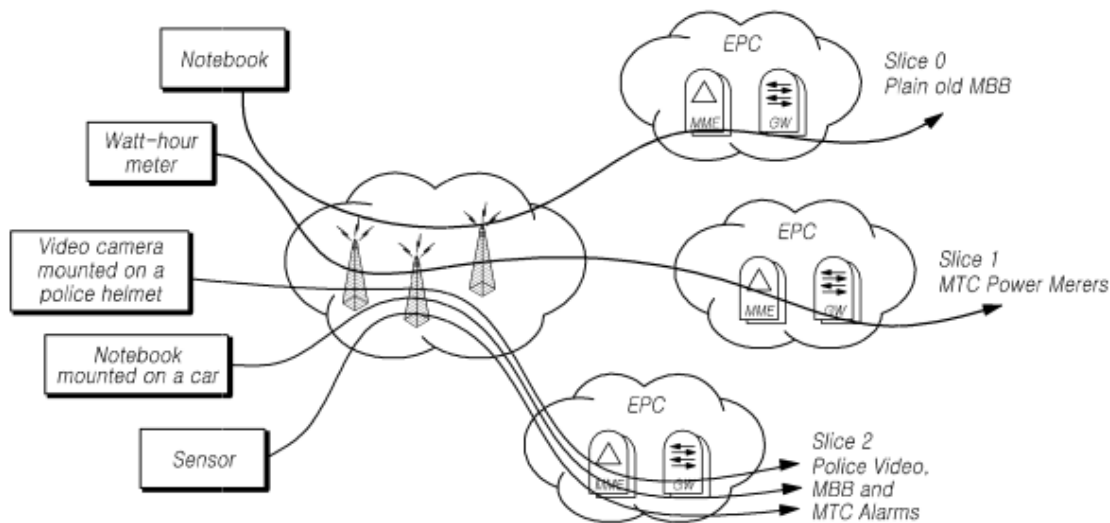
For each of these reasons, no IPR should be instituted.

II. THE '631 PATENT

The '631 Patent is entitled, "Method for Processing Data on Basis of Network Slice, and Apparatus therefor."

Fig. 1 of the '631 patent (reproduced below) illustrates "a plurality of slices configured in a network infrastructure." '631 Pat., 7:58-59. As illustrated, "a service for connecting a notebook to the Internet through mobile broadband (MBB), a data service of watt-hour meter using machine type communications (MTC), a service for a video camera mounted on a police helmet and a notebook located on a police car, a data service of an MTC sensor, and the like, may be individually and dependently provided through a plurality of slices configured in a network infrastructure." '631 Pat., 7:60-67.

FIG. 1



The '631 Patent also explains that “network slicing allows differentiated treatment depending on each customer requirements. With slicing, it is now possible for mobile network operators (MNO) to consider customers as belonging to different tenant types with each having different service requirements that govern in terms of what slice types each tenant is eligible to use based on service level agreement (SLA) and subscriptions.” '631 Pat., 8:3-9.

The claims of the '631 patent are understood easily with reference to the disclosed “Third Embodiment: Transferring Slice Information to a Target Base Station During a Handover.” '631 Pat., 17:50-52.

As disclosed, “[w]hile a UE in the RRC connected state transmits and receive data through a specific network slice, a handover may be performed as the

UE moves.” ’631 Pat., 17:54-56. “[A] base station recognizes network slice information configured for the UE in the RRC connected state or allowed in a network, by help information (e.g., network slice request information) provided by the UE or a 5G core network entity.” ’631 Pat., 17:60-64. “While preparing the handover, the source base station may transfer the network slice request information received from the UE to a target base station, if available.” ’631 Pat., 17:65-67. The “network slice request information may be transmitted with being included in a handover request message.” ’631 Pat., 18:27-28. “[W]hen a target cell/base station does not support/allow a corresponding network slice, the target base station may include information for indicating this in a handover response inter-base station interface (Xn) message or a handover command Inter-node RRC message.” ’631 Pat., 18:42-46. The ’631 Patent also discloses that “network slice related information may be at least one of information for identifying a service/PDU session/bearer associated with the corresponding network slice information and bearer information of a PDU session associated with the network slice.” ’631 Pat., 21:15-20. Similarly, “network slice request information may include at least one of network slice information configured for the UE, information for identifying a network slice service/PDU session/bearer associated with the corresponding network slice information, and priority information on the corresponding network slice.” ’631 Pat., 22:11-16.

Consistent with the '631 Patent's disclosure, independent claim 1 recites:

1. A method for transmitting and receiving data, the method comprising:
deciding, by a source base station (BS), whether to perform a handover;
transmitting, from the source BS to a target BS, a handover request message when it is decided to perform the handover, wherein the handover request message includes network slice information; and
receiving, by the source BS from the target BS, a handover request confirmation message in response to the handover request message,
wherein, if ***one or more protocol data unit (PDU) sessions are associated with one or more network slices that are not supported by the target BS, the handover request confirmation message includes information for indicating a rejection of the one or more PDU sessions by the target BS.***

'631 Patent, Claim 1 (emphasis added).

Claim 7 recites:

7. A controller for transmitting and receiving data, the controller comprising:
a processor performs:
to decide whether to perform a handover,
to transmit a handover request message when it is decided to perform the handover,

wherein the handover request message includes network slice information; and
to receive a handover request confirmation message in response to the handover request message,
wherein, if one or more protocol data unit (PDU) sessions are associated with one or more network slices that are not supported by a target BS, the handover request confirmation message includes information for indicating a rejection of the one or more PDU sessions by the target BS.

'631 Patent, Claim 7.

Claim 13 recites:

13. An apparatus for transmitting and receiving data, the apparatus comprising:

a controller configured to decide whether to perform a handover,
a transmitter configured to transmit a handover request message when it is decided to perform the handover,
wherein the handover request message includes network slice information; and
a receiver configured to receive a handover request confirmation message in response to the handover request message,
wherein, if one or more protocol data unit (PDU) sessions are associated with one or more network slices that are not supported by a target BS, the handover request confirmation message includes information for indicating a rejection of the one or more PDU sessions by the target BS.

'631 Patent, Claim 13.

III. THE BOARD NEED NOT REACH ANY CLAIM CONSTRUCTION ISSUES TO DENY THE PETITION

Petitioners identify no terms as requiring construction and contends the “terms should receive their respective plain and ordinary meaning as understood by a person of ordinary skill in the art under *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005).” Pet., 11 (attempting to “reserve the right to contend that claim 7 and its dependents are indefinite”). Without waiving its right to submit constructions in a Patent Owner Response, Patent Owner submits that the Board need not engage in any pre-institution claim construction. For the substantive reasons presented in Section IV below, Petitioners’ grounds include fundamental flaws and fail to establish the disclosure of every claimed element in each independent claim. These findings do not require the Board to conduct any construction of the above-identified terms.

IV. PETITIONERS’ CHALLENGES FAIL ON THE MERITS

Petitioners assert four grounds in their Petition, but only two of those grounds, Grounds 1 and 3, apply to the independent claims (claims 1, 7, and 13). Ground 1 contends the independent claims, are obvious over R3-173152² and Ground 3 contends the independent claims are obvious in view of Han³ and TS

² Ex. 1011, Xn Based Mobility Across RA (“R3-173152”).

³ Ex. 1015, WIPO Publication No 2018/059592 A1 (“Han”).

36.300⁴. For completeness, Grounds 2 and 4 are not used to shore up the deficiencies of the challenges against the independent claims in Grounds 1 and 3 and, instead, are asserted against the dependent claims as follows: Ground 2 contends dependent claims 2-6, 8-12, and 14-18 are obvious in view of R3-173152 and TR 38.801⁵; and Ground 4 contends dependent claims 2-6, 8-12, and 14-18 are obvious in view of Han, TS 36.300, and TR 38.801.

Grounds 1 and 3 fail, however, to establish unpatentability of any challenged independent claim, and Grounds 2 and 4 against the dependent claims fail for similar reasons as Grounds 1 and 3.

Ground 1 is plainly deficient because Petitioners' lead reference, R3-173152 (hereinafter, "R3") is not prior art. Petitioners dedicated pp. 5-11 of the Petition trying to establish that the '631 patent's claims 1, 7, and 13 are not entitled to the filing date of KR Provisional Application No. 10-2016-0145054 ("the 2016 KR document"), submitted as Ex. 1006 to the Petition. This is wrong.

⁴ Ex. 1006, 3GPP TS 36.300 V.13.4.0 (2016-06) 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (Release 13) ("TS 36.300")

⁵ Ex. 1013, 3GPP TR 38.801 V0.4.0 (2016-08) 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Study on New Radio Access Technology; Radio Access Architecture and Interfaces (Release 14) ("TR 38.801").

The 2016 KR document was filed in Korea on November 3, 2016, while Petitioners contend that R3 was first publicly accessible as of August 11, 2017. Pet., 12. Because the '631 patent's claims 1, 7, and 13 are entitled to the November 3, 2016 filing date of the 2016 KR document, R3 is not prior art as to these claims, and the Ground 1 fails.⁶

Ground 3 also fails. As disclosed and illustrated in Han, Han transmits a handover request message to an "access network device," but does so without first deciding whether to perform a handover. Instead, Han does not determine whether to initiate a handover until after receiving a handover response message from the first access network device. Han discloses that the second access network device uses the content of the handover response message, and the resources that are available to the mobile device from the first access network device, in the decision-making process of whether to perform a handover.

Petitioners propose that it would have been obvious to "improve" Han by "decid[ing] to perform a handover prior to sending the handover request message." Pet., 51. According to Petitioners, Han's disclosed technique "would have been

⁶ As addressed below, Petitioners also incorrectly assert that the 2016 KR document "fails to provide written description support for at least one limitation recited in dependent claims 2, 4, 8, 10, 14, and 16" related to a "non-access stratum (NAS) message" and a "radio resource control (RRC) connection setup message." Pet., 11.

unnecessary and inefficient” because it would have “randomly sen[t] handover request messages to other base stations when it had not been determined that handover was imminent.” Pet., 51-52. But this argument fails to understand Han and Han’s use of handover inquiries. Petitioners’ modification to Han frustrates Han’s purpose of prioritizing the maintenance of service to a mobile station, and Petitioners fail to consider that Han already considers inefficiency and quality of service in deciding to perform a handover based on the availability of services offered to a mobile station by a target base station. Petitioners’ proposed modification fails for destroying Han’s intended purpose.

Thus, Ground 1 depends upon a reference that is not prior art, and Ground 3 similarly fails to establish the unpatentability of any challenged independent claim. Grounds 2 and 4 do not remedy these deficiencies of Grounds 1 and 3. For the reasons discussed below, the Petition should be denied without institution.

A. The Claims 1, 7, and 13 are Entitled to an Earlier Date Than R3-173152

Petitioners assert that the R3 document “renders obvious the independent claims of the ’631 Patent.” Pet., 16. However, because the ’631 patent’s claims 1, 7, and 13 are entitled to the November 3, 2016 filing date of the 2016 KR document, R3 is not available as prior art under any section of 35 U.S.C. § 102 as to these claims, and Ground 1 fails.

As a predicate to their Ground 1 and Ground 2 challenges, Petitioners incorrectly assert that claims 1, 2, 4, 7, 8, 10, 13, 14, and 16 are not entitled to the November 3, 2016 filing date of the 2016 KR document. Petitioners first argue that the “wherein” clause of claims 1, 7, and 13—“wherein, if one or more protocol data unit (PDU) sessions are associated with one or more network slices that are not supported by a target BS, the handover request confirmation message includes information for indicating a rejection of the one or more PDU sessions by the target BS”—is not supported by the 2016 KR document, and therefore Petitioners contend that these claims are not entitled to the 2016 KR document's filing date. Pet., 5-7.

1. The 2016 KR Document Supports the “PDU Session” Features of Claims 1, 7, and 13

Petitioners initially dispute that the 2016 KR document supports the “PDU session” features of claims 1, 7, and 13. They assert that the 2016 KR document “does not describe network slicing in connection with PDU sessions, nor does it describe indicating a rejection of PDU sessions based on a network slice not being supported.” Pet., 7. This is wrong. They also assert that the 2016 KR document “does not disclose support or lack thereof of network slicing on a PDU session-by-PDU session basis, let alone the concept of rejecting a PDU session.” Pet., 7-8. This is also wrong.

While Petitioners did not explain the meaning of a PDU session to the Board in their Petition, their declarant, Dr. Kotzin, did. Dr. Kotzin, identifies Ex. 1020 as defining a PDU session to be “an association between the UE and a data network that provides a PDU connectivity service (which is a service that provides exchange of PDUs between a UE and a data network).” Ex. 1003, ¶ 59 (citing Ex. 1020, 21-22). Ex. 1020 further explains that the “association between the UE and a data network” may be “IP type, Ethernet type and non-IP type.” Ex. 1020, 21. Indeed, Ex. 1020 explains that “Each PDU Session is associated with a PDU Session type that indicates what PDU type(s) are carried by the PDU Session. The PDU Session Type may be of IP Type, Ethernet Type or non-IP Type.” Ex. 1020, 208. And as was clearly understood prior to 2016, a PDU is a protocol data unit (Ex. 1021, 12) or a data unit used according to the relevant protocol. In the context of an all-IP LTE network, the PDU is understood to be a data packet. Dr. Kotzin’s own reference confirms that a PDU session is nothing more than an association between the UE and a data network that provides a connectivity service using, for example, IP data packets. This PDU session is nothing more complicated than a logical connection between a user equipment (UE) and a data network, as understood by a POSITA. The “PDU session” concept was easily understood by a POSITA as of the 2016 timeframe.

Applying this understanding of a PDU session, the 2016 KR document supports the disclosure of a PDU session, including its full use in the “wherein” clause of claims 1, 7, and 13 through a variety of disclosures.

First, the illustration of Fig. 1 in the 2016 KR document clearly shows network slices associated with PDU sessions.

The 2016 KR document identifies Fig. 1 as illustrating “an example of multiple slices built within the same network infrastructure.” Ex. 1006, [0027]. These slices are provided for “*data transmission-reception via a specific network slice* or one or more network slices provided on an infrastructure where the terminal is shared” *Id.*, [0028] (emphasis added); *see also id.*, [0030]. As reproduced below, Fig. 1 clearly illustrates five devices, or user equipment, having associated data connections with a data network indicated by the icons designated as “EPC” or Evolved Packet Core, the mobile core network under LTE beginning with 3GPP Release 8 (2009). Ex. 1021, 19 (“3GPP specified an evolved packet core (EPC) architecture to support the E-UTRAN through reduction in the number of network elements and simplification of functionality, but most importantly allowing for connections and handover to other fixed and wireless access technologies, providing the network operators with the ability to deliver a seamless mobility experience.”); *id.*, 34 (“EPC (core network)”). Petitioner’s own evidence confirms this: “the EPC is an all-IP mobile core network for the LTE radio access,

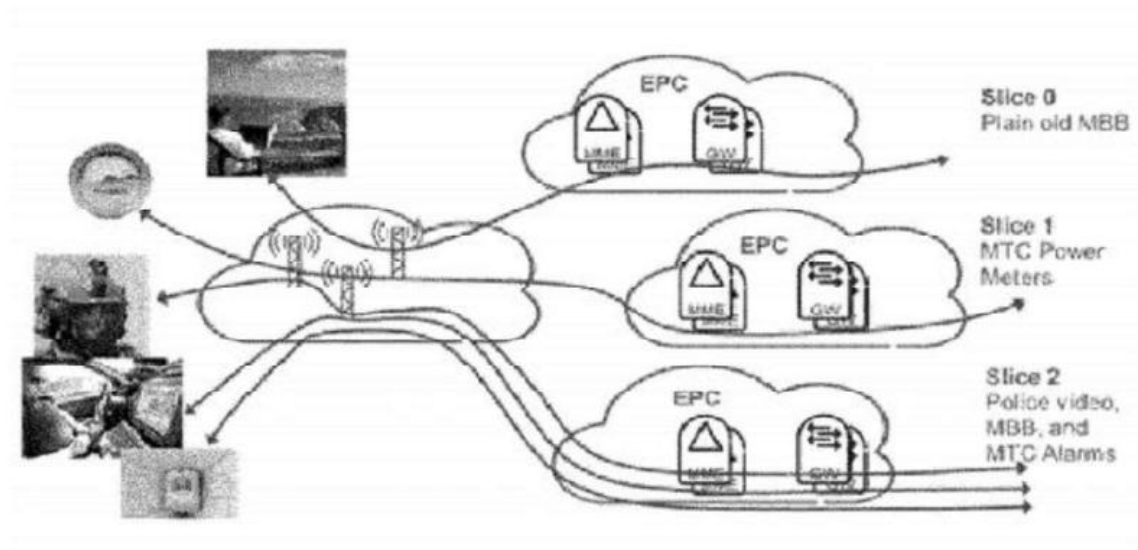
providing a converged framework for IP-based real-time/non-real-time applications and services.” Ex. 1021, 57.

The EPCs illustrated in Fig. 1 also each include at least an MME (Mobility Management Entity) and serving GW (GateWay), another illustrative indicator that these data transmissions are occurring in an LTE network. This is consistent with the title of the Invention, which identifies the network as “5G network.” Ex. 1006, Title; *see also id.*, [0007] (including within the scope of the invention a “User Equipment (UE) terminal and Base Stations (Base station, BS, or eNB).” It was understood as least as of 2009 that EPCs in LTE systems used an all-IP channel for packet data transmission using evolved node Bs. Ex. 1021, 4 (“3GPP started the development of the evolved packet system in late 2004, which subsequently resulted in specification and standardization of a new OFDM-based radio access network and an IP-based core network in 3GPP Rel-8, which was further enhanced in the subsequent releases.”). Even Dr. Kotzin, testifying for Petitioners, concedes that “[p]rior to the ’631 patent’s earliest alleged priority date, a person of ordinary skill in the art would have been familiar with base stations (or *eNBs*, *gNBs*) **and their components.**” Ex. 1003, ¶62 (emphasis added).

Referring back to Fig. 1 of the 2016 KR document, the associations between user equipment and the EPCs illustrated in Fig. 1 include bidirectional arrows,

indicating both transmission and receiving of data via these network associations, with the eNBs arranged therebetween.

[FIG. 1]



These channels are described throughout the 2016 KR document, but at least [0015] is particularly relevant as describing these channels as data channels. These uplinks and downlinks “transmit data by being configured by data channels such as Physical Downlink Shared Channel (PDSCH), Physical Uplink Shared Channel (PUSCH), and the like to transmit data.” Ex. 1006, [0015]; *see also* Ex. 1021, 747 (“The physical uplink shared channel (PUSCH) carries user data and upper layer signaling as well as control information ...”).

The components providing this association between the UE and the data network are described with respect to Fig. 2 (base station) and Fig. 3 (user terminal), which perform the “method for transmitting and receiving data based on

network slicing.” *Id.*, [0095]-[0103]. For example, the base station includes the “transmitting unit 1020 and the receiving unit 1030 ... used for transmitting and receiving the signal, message, or data necessary to carry out the present invention described above.” *Id.*, [0098]. On the UE side, the “receiving unit 1110 receives downlink control information, data, and messages from the base station via the corresponding channel.” *Id.*, [0101]. Thus, the 2016 KR document clearly discloses an “an association between the UE and a data network” for transmitting and receiving data.

Considering these disclosures as a whole, there is clear support that the 2016 KR document discloses at least one association between a UE and a data network via the all-IP LTE network, which is the very definition of a PDU session.

2. The 2016 KR Document Supports the “Wherein” Clauses of Claims 1, 7, and 13

The 2016 KR document also supports the “wherein” clause of claims 1, 7, and 13, including the identification of information indicting a rejection of one or more PDU sessions by the target BS. Once again, the clause in question recites, in full, “wherein, if one or more protocol data unit (PDU) sessions are associated with one or more network slices that are not supported by a target BS, the handover request confirmation message includes information for indicating a rejection of the one or more PDU sessions by the target BS.”

Petitioners do not dispute that the 2016 KR document discloses a handover request message including network slice information (“During handover preparation, the source base station can forward the network slice information received from the core network to the target base station, if available” per Ex. 1006, [0077]; “information ... can be sent as included in a handover request message” per [0081]), or a handover request confirmation message (“handover response X2 message” in Ex. 1006, [0086]). Similarly, Petitioners acknowledge that the 2016 KR document discloses “if the target cell/base station does not support network slicing, the target base station may include information to give an instruction in the handover response X2 message or the handover command internode RRC message.” Pet., 8 (quoting Ex. 1006, [0085]). Petitioners also acknowledge that the 2016 KR document discloses “when the target cell/base station does not support network slicing, or does not provide the corresponding interest group communication via network slicing, the information may be forwarded to the terminal to give an instruction in the handover command internode RRC message.” Pet., 8-9 (quoting Ex. 1006, [0086]).

Petitioners dispute that the 2016 KR document discloses “indicating a rejection of PDU sessions based on a network slice not being supported.” Pet., 7; *see also id.*, 8 (“rejecting a PDU session.”). But by failing to meaningfully address

at least [0086] of the 2016 KR document, Petitioners overlook the support for the “wherein” clause contained in that document.

Paragraph [0086] of the 2016 KR document recites, in full:

As one example, if the target cell/base station receives the information described above via the source cell/base station, and when the target cell/base station does not support network slicing, or does not provide the network slice via network slicing, the target base station may transmit the information to the source base station as included in the handover response X2 message. As another example, when the target cell/base station receives the information described above via the source cell/base station, and *when the target cell/base station* does not support network slicing, or *does not provide the corresponding interest group communication via network slicing, the information* may be forwarded to the terminal to give an instruction in the handover command internode RRC message.

Ex. 1006, [0086] (emphasis added). As indicated in this paragraph, “*when the target cell/base station* does not support network slicing, or *does not provide the corresponding interest group communication via network slicing, the information* may be forwarded to the terminal to give an instruction in the handover command internode RRC message.” *Id.* (emphasis added). Patent

Owner has already established that the communication sessions established in Fig. 1 of the 2016 KR document support the concept of PDU sessions, or associations between a UE and a data network via the all-IP LTE network, and therefore would be understood by a POSITA to be PDU sessions associated with one or more network slices. Per the 2016 KR document, the inventors disclosed a scenario where a “corresponding interest group communication,” which is provided “via network slicing,” is not supported by the target cell/base station. This disclosure supports the “if” statement of the “wherein” clauses in question: “if one or more protocol data unit (PDU) sessions are associated with one or more network slices that are not supported by a target BS”

Moreover, the 2016 KR document fully discloses providing “the information” of non-support, namely informing via messaging that “the target cell/base station ... does not provide the corresponding interest group communication via network slicing.” This disclosure supports the consequence of the “if” statement in the “wherein” clause in question: “the handover request confirmation message includes information for indicating a rejection of the one or more PDU sessions by the target BS.” The identification of the “one or more PDU sessions” is provided in [0086] through the informing of the non-supported “corresponding interest group communication via network slicing,” which plainly

identifies the interest group communication, i.e., the PDU session, associated with the non-supported network slice.

3. The 2016 KR Document Supports the “Deciding” and “Transmitting” Features of Claims 1, 7, and 13

Petitioners also dispute the written description support of two other claim elements in claims 1, 7, and 13. Specifically, Petitioners dispute that “deciding, by a source base station (BS), whether to perform a handover,” and “transmitting, from the source BS to a target BS, a handover request message when it is decided to perform the handover” are disclosed or supported by the 2016 KR document. Pet., 10. Petitioners are wrong.

As noted above, the 2016 KR document plainly discloses “During handover preparation, the source base station can forward the network slice information received from the core network to the target base station, if available.” Ex. 1006, [0077], [0078]. The 2016 KR document therefore discloses the source base station beginning “handover preparation.” Further, this disclosure is contained in the section entitled, “Transmitting slice information to the target base station during handover” per [0076]. And, as noted above, this disclosed process includes the step of “forward[ing] the network slice information received from the core network to the target base station,” this “information ... can be sent as included in a handover request message,” which adequately discloses a handover request message as claimed. Thus, “deciding, by a source base station (BS), whether to

perform a handover,” and “transmitting, from the source BS to a target BS, a handover request message when it is decided to perform the handover” are disclosed or supported by the 2016 KR document through at least these aforementioned disclosures.

4. Claims 1, 7, and 13 Have an Earlier Date than R3-173152

As discussed above, each of Petitioners' disputed positions regarding support in the 2016 KR document for specifically-identified features of independent claims 1, 7, and 13 are incorrect. Because claims 1, 7, and 13 are fully supported by the 2016 KR document, these claims are entitled to the November 3, 2016 filing date of that document. This is nearly one year before the asserted August 11, 2017 date of R3-173152, and therefore R3-173152 is disqualified as prior art as to these claims.

5. Claims 1, 7, and 13 Have an Earlier Date than R3-173152, and Ground 1 Fails Because the Asserted Art is Not Prior Art

For all the foregoing reasons, the 2016 KR document fully supports claims 1, 7, and 13 as required by 35 U.S.C. § 112(a), and these claims are entitled to the November 3, 2016 priority date, before the first-alleged public availability of R3-173152 relied upon by Petitioners in Ground 1. This November 3, 2016 date is nearly one year before the asserted August 11, 2017 date of R3-173152, and therefore R3-173152 is disqualified as prior art as to these claims.

Ground 1 therefore fails to establish unpatentability of any challenged claim.

B. Ground 2 Based on R3-173152 in view of TS 38.801 Fails Because the Dependent Claims, including Claims 2, 4, 8, 10, 14, and 16, are Entitled to an Earlier Date Than R3-173152

As noted above, Petitioners dispute that independent claims 1, 7, and 13 are entitled to the priority date of the 2016 KR document. In Ground 2, Petitioners assert that dependent claims 2, 4, 8, 10, 14, and 16 are also not entitled to the priority date of the 2016 KR document. Petitioners incorrectly assert that the 2016 KR document “fails to provide written description support for at least one limitation recited in dependent claims 2, 4, 8, 10, 14, and 16” related to a “non-access stratum (NAS) message” and a “radio resource control (RRC) connection setup message” in which the NAS message is included. Pet., 11. Petitioners make no separate challenge of support in the 2016 KR document for dependent claims 3, 5, 6, 9, 11, 12, 15, 17, and 18.

1. The 2016 KR Document Supports the “Non-Access Stratum (NAS) Message” Limitations of Dependent Claims 2, 4, 8, 10, 14, and 16

In 5G systems, the “[n]on-access stratum (NAS) is a functional layer in the UMTS and LTE wireless telecom protocol stacks between the core network and user equipment.” Ex. 2017, 1. “The NAS is defined in contrast to the Access Stratum which is responsible for carrying information over the wireless portion of the network.” *Id.* “The distinction is that the Access Stratum is for dialogue

explicitly between the mobile equipment and the radio network and the NAS is for dialogue between the mobile equipment and core network nodes.” *Id.*

The 2016 KR document includes numerous descriptions that a POSITA would understand as disclosing the inventor's possession of NAS messages, including “a non-access stratum (NAS) message including network slice request information” (claims 2, 8, 14) and “the network slice request information is included in a radio resource control (RRC) connection setup completion message” (claims 4, 11, and 16). For example, [0070] of the 2016 KR document states “a terminal ... can transmit network slice information to a 5G core network object in one or more of the cases among: *at the RRC Connection setup*; when entering or leaving the current network slicing cell; *start or end of a session*; change of system information related to network slicing; change of interested network slice to be received via network slicing; change of service to be received via network slicing; network attach, tracking area update; service request; or *network connection setup*.” 2016 KR document, [0070]; *see also id.* [0068] (“the terminal can instruct the interest information to the base station via the 5G core network object”), [0069], [0055], [0056]. That the messages discussed in [0070] are, at the functional level, between the “terminal” and the “core network object,” a POSITA would understand them to be NAS messages. Ex. 2017, 1 (“the NAS is for dialogue between the mobile equipment and core network nodes”).

Petitioners argue that the limitations “(1) a ‘non-access stratum (NAS) message,’ and (2) a ‘radio resource control (RRC) connection setup message’ in which a ‘non-access stratum (NAS) message’ is included” found in dependent claims 2, 4, 8, 10, 14, and 16 do not find written description support in the 2016 KR document. Pet., 11. But Petitioner’s argument is entirely conclusory because Petitioners make no attempt to explain what NAS is or what NAS messages are. Thus, Petitioners’ conclusions overlook the passages in the 2016 KR document cited above that a POSITA would understand as supporting the NAS message limitations. Instead, Petitioners appear to search for “*in haec verba*” support instead of how a POSITA would understand the 2016 KR document. *See* Pet., 11 (arguing “[i]ndeed, a ‘non-access stratum (NAS) message’ first appears in the 2017 KR priority document,” and citing Ex. 1008, ¶¶[0073], [0086], [0106], [0130], [0151], Claims 3, 9, 13, 19)). Petitioners’ theory that all claimed features must be described using the exact terms used in the claims is simply incorrect under the law. *See Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1344-47 (Fed. Cir. 2016); *id.*, at 1345 (“when examining the written description for support for the claimed invention, we have held that the exact terms appearing in the claim ‘need not be used *in haec verba*.’”) (citing *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997)); *id.*, at 1347 (“the Board erred by giving improper

weight to the mere fact that ‘tag’ and ‘token’ are absent from the text of the written description.”)

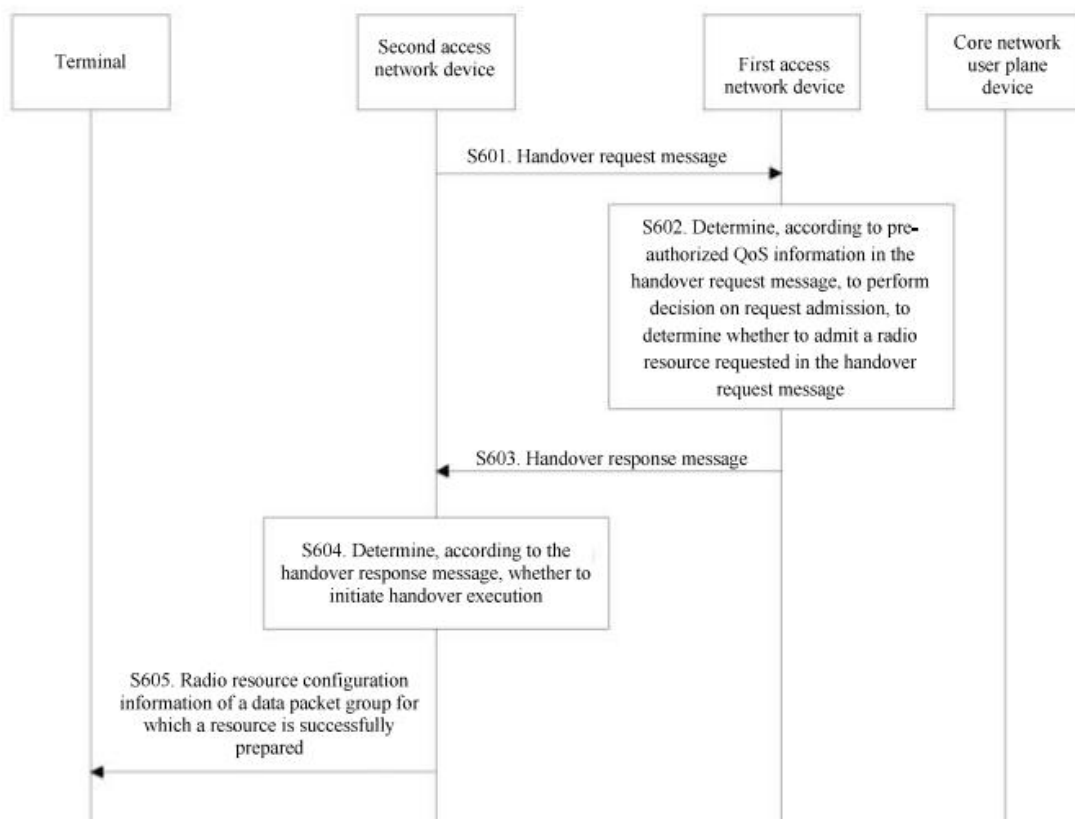
Similarly, Petitioners’ expert does not provide any analysis concerning a POSITA’s understanding of NAS protocols and their relationship to communication between a terminal and a core network entity in his discussion of the dependent claims. Pet., 11 (citing Kotzin, ¶¶124-26 (“makes no mention”)). Moreover, Dr. Kotzin expressly declared in his declaration that “a person of ordinary skill in the art would have been familiar with NAS and RRC messaging” and “the UE sends information about the network slice instance in an NAS message encapsulated in an RRC layer message, and the RAN uses the Temporary ID in the RRC layer message to route the NAS Message to the appropriate control plane network function.” Kotzin, ¶¶75-81. Thus, the statements in his declaration flatly contradict his opinion that a POSITA would have somehow been unaware of these technical features regarding a NAS message and RRC messaging in the relevant art of the ’631 patent while reading the 2016 KR document.

Thus, Petitioners have not shown a reasonable likelihood of success in demonstrating that the 2016 KR document does not support the dependent claims.

C. Ground 3 Based on Han and TS 36.300 Also Fails

As recited in independent claims 1, 7, and 13, a source base station (BS) decides whether to perform a handover, and transmits a handover request message

to a target base station when it is decided to perform the handover. In Ground 3, Petitioners rely on the Han reference to disclose these features. However, this is wrong. As disclosed and illustrated in Han, a “second” or “source-side access network device” transmits a handover request message to an “first” or “target-side access network device,” but does so without first deciding whether to perform a handover. Instead, as shown in Fig. 6 (reproduced in part below), the second, source-side access network device in Han does not determine whether to initiate a handover until step S604, after receiving a handover response message from the first, target-side access network device.



Han, Fig. 6 (reproduced in part). Petitioners acknowledge this defect of Han in failing to disclose or suggest every feature of the challenged independent claims, and therefore propose that it would have been obvious to “improve” Han by “decid[ing] to perform a handover prior to sending the handover request message.” Pet., 51. According to Petitioners, Han’s disclosed technique “would have been unnecessary and inefficient” because it would have “randomly sen[t] handover request messages to other base stations when it had not been determined that handover was imminent.” Pet., 51-52. But Petitioners’ interpretation of Han, and their proposed modification of Han overlook Han’s very purpose of the invention.

From the very first paragraph of Han’s **Background Art** section, Han discloses an emphasis on ensuring a certain “end-to-end quality of service” (or QoS). Han, 3. Han states, “when a terminal initiates a traffic whose the QoS needs to be ensured, a dedicated bearer needs to be established for the terminal to transmit data of the traffic.” *Id.* In some embodiments of Han, such as the embodiment illustrated in Fig. 5, “a radio resource is configured according to pre-authorized QoS information.” Han, 30. As described in S501, Han discloses “core network control plane device send[ing] first pre-authorized QoS information to a terminal, and send[ing] second pre-authorized QoS information to a first access network device” as an initial step of the method. This pre-authorized QoS information may be set “according to subscription information,” and “may be sent

in a protocol data unit (PDU for short) session establishment process.” *Id.* Each set of QoS parameters “may include a priority, a latency, and a packet loss rate.” Han, 31, 33 (“the QoS parameter may include one or more of a priority, a packet loss rate, a latency, a guaranteed bit rate (GBR for short), a maximum rate, a requested rate, a drop precedence of a single data packet, a priority of a single data packet, a session rate, and an allocation and retention priority (ARP for short).”). As further explained, the pre-authorized QoS information is used for transmitting data according to a minimum QoS. Through the embodiment of Fig. 5 and the use of the pre-authorized QoS information, Han discloses that “when the terminal needs to send uplink data, the terminal may directly send the data on the pre-established radio bearer, *thereby further increasing a data transmission start speed and improving user experience.*” Han, 44 (emphasis added).

This focus on QoS and user experience carries over into Han’s disclosure surrounding the handover process of Fig. 6. This embodiment is specifically directed to “an example in which *a radio resource is configured according to pre-authorized QoS information* in a handover process.” Han, 44 (emphasis added). Per Han, the “handover request message includes pre-authorized QoS information.” *Id.* Then, in step S602, the “first access network device receives the handover request message, and *determines, according to pre-authorized QoS information in the handover request message, to perform judgment* on request

admission, to determine whether to admit a radio resource requested in the handover request message.” Han, 46. Notably, in step S603, the first access network device will reject the handover request if it determines “that none of [the] resources requested in the handover request message is admitted.” Han, 47. Other reasons for failure include if “some data packet groups in the pre-authorized QoS information for which radio bearers need to be preestablished are not admitted by the first access network device,” “pre-establishment of a radio bearer with pre-authorized QoS is not supported, [or] a QoS parameter is not supported.” *Id.*

While the first access network device may reject the handover request based on a QoS failure (“a QoS parameter is not supported”), the second access network device will also consider the details of the first access network device’s handover response message in deciding whether to initiate handover execution (S604). Han, 48. Moreover, if the handover occurs, step S607 mirrors the embodiment of Fig. 5 because the “terminal sends data of the traffic to the first access network device ***according to first pre-authorized QoS information*** by using a radio resource configured by the first access network device.” Han, 48 (emphasis added). Thus, in both the establishment of a data connection between a terminal and an access network device, and the handover of a terminal from a second access network device to a first access network device, Han focuses on user experience and ensuring a QoS for the terminal.

Petitioners plainly overlook Han's disclosure that the second, source-side access network device uses the content of the handover response message, and the resources that are available from the first access network device in the decision-making process of whether to perform a handover. Petitioners' modification to Han, to commit to a handover prior to receiving a handover response and without knowing whether a pre-authorized QoS could be achieved following the handover, frustrates Han's entire purpose. *See, e.g.,* Han, 75-80 (describing the methods of embodiments 1-23 as directed to initiating and maintaining a pre-authorized quality of service for a terminal's data traffic). Indeed, it would be wholly inefficient to go through the steps of initiating a data connection with an access network device according to a pre-authorized QoS such as a disclosed in Han's Fig. 5, only to completely abandon those quality safeguards upon a mobile terminal's handover to another access network device. Petitioners' proposed modification of Han therefore fails to consider that Han prioritizes quality of service in deciding to perform a handover based on ensuring a pre-authorized quality of services offered by a access network device.

Finally, contrary to Petitioners' characterization of Han, there is no showing in the Petition that Han "randomly" sends out handover requests on an unnecessary and inefficient basis. Petitioners' use of these terms is pejorative and clearly driven to create a problem in Han where none exists.

Thus, even if TS 36.300 discloses embodiments where a source-side base station makes a hand-over decision prior to sending a handover request message, Han not only discloses that the source-side base station makes a hand-over decision but also is explicit in when the source-side base station makes that decision in its system in order to provide a pre-authorized quality of service (Qos) consistent with Han's traffic initiation procedures. Petitioners' proposed reinvention of Han's methods is hindsight-based, and should be rejected.

D. Ground 4 Based on Han in view of TS 36.300 and TR 38.801 Fails Because TR 38.801 Is Not Offered the Remedy the Deficiency Noted Concerning Ground 3

In Ground 4, Petitioners seek to add TR 38.801 to assert that the dependent claims are obvious in view of Han in view of TS 36.300 and TR 38.801. But TR 38.801 was not offered to, and does not, remedy the deficiency of Petitioners' proposed combination of Han and TR 38.801. Thus, the failure of Ground 3 is fatal to Ground 4.

E. Conclusion Regarding Petitioners' Grounds 1-4

Thus, the Petition fails with regard to Ground 1 and Ground 3 as to the independent claims, and Grounds 2 and 4 fail for similar reasons as Grounds 1 and 3.

V. The Board Should Deny Institution Under *Fintiv*

Notwithstanding the substantive defects of the Petition, the Board can and should deny the Petition by exercising its discretion under 35 U.S.C. § 314(a) because the correct balance of relative factors weighs in favor of denial.

When evaluating whether to deny a petition under Board discretion, the Board balances six factors:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the Petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 5-6 (PTAB Mar. 20, 2020).

“These factors relate to whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.” *Id.* In evaluating these factors, the Board takes “a holistic

view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.*

In addition, the USPTO Director issued an “Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation” (“Interim *Fintiv* Procedure”) dated June 21, 2022, which is addressed below with respect to *Fintiv* factors 2 and 4.

A balance of the *Fintiv* factors warrants denial of institution.

A. Factor 1 Favors Denial (Likelihood of Stay)

Factor 1—which considers whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted—favors denial of institution.

Petitioners have not moved for a stay of the district court litigation. Petitioners cite to a then-pending discovery dispute to suggest Factor 1 weighs against discretionary denial. Pet., 84. But Petitioners did not establish that the outcome of the discovery dispute—whether non-jurisdictional discovery may proceed against a KT Corporation prior to resolving KT Corporation’s jurisdictional dispute—will affect the trial date of September 8, 2025 set by the district court. Ex. 1025, 2. In fact, since the Petition was filed, the district court has twice granted motions for a protective order against non-jurisdictional discovery without any suggestion that the trial date would be adjusted. Ex. 2001;

Ex. 2002. Moreover, in the months after its Petition was filed, Petitioners have not requested a stay or that the trial date be adjusted. Under these circumstances, Factor 1 favors denial of institution or remains neutral.

Any stay is also unlikely due to the significant case progression (discussed in factor 3), scheduled jury trial preceding any final written decision (discussed in factor 2), and the timing of institution decisions on the ten other IPRs against patents asserted in the same litigations (discussed in factor 6). The first *Fintiv* factor therefore supports denying institution or remains neutral.

B. Factor 2 Favors Denial (Timing of Trial)

Fintiv factor 2 weighs in favor of denying institution because the district court is set to commence trial on September 8, 2025, nearly seven months before the Board's final decision would be expected to be due, on or about April 30, 2026. *See* Ex. 1025, 2. "If the court's trial date is earlier than the projected statutory deadline, the Board generally has weighed this fact in favor of exercising authority to deny institution under *NHK*." *Fintiv*, IPR2020-00019, Paper 11 at 9.

This timeline undisputedly favors denial. Indeed, the Board has previously held that a trial date which precedes a final written decision deadline by five, four and even one-to-two months favors discretionary denial. *See, e.g., Samsung Elecs. Co., Ltd. v. Mojo Mobility Inc.*, IPR2023-01092, Paper 11 at 11 (PTAB Jan 8, 2024) (denying institution, finding that a trial date "about five months before the

projected statutory deadline” favored discretion to deny); *Bentley Motors Ltd.*, *Jaguar Land Rover Ltd.*, IPR2019-01539, Paper 9 at 14 (PTAB Mar. 10, 2020) (denying institution where trial was set to occur five months before final written decision); *Immersion Sys. LLC v. Midas Green Techs., LLC*, PGR2021-00104, Paper 15 at 11 (PTAB Jan. 31, 2022) (jury trial starting four months ahead of final written decision favored discretionary denial); *see also NXP USA, Inc. v. Impinj, Inc.*, PGR2022-00005, Paper 18 at 8-9 (PTAB May 2, 2022) (two-month period between trial date and deadline for final decision weighed in favor of discretionary denial); *E-One, Inc. v. Oshkosh Corp.*, IPR2019-00161, Paper 16 at 6-9 (PTAB May 15, 2019) (one-month period between trial date and deadline for final written decision weighed in favor of discretionary denial); *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 12-13 (PTAB May 13, 2020) (second factor favors denial when “the currently scheduled District Court trial is scheduled to begin two months before our deadline to reach a final decision”); *eClinicalWorks, LLC v. Decapolis LLC*, IPR2022-00229, Paper 10 at 9 (PTAB Apr. 13, 2022) (favoring denial where beginning of jury trial was “roughly one to two months” before final decision was due).

Additionally, the USPTO’s Interim *Fintiv* Procedure provides that the “[p]arties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation

resides for the PTAB’s consideration ... the PTAB will also consider additional supporting factors, such as the speed and availability of other case dispositions.”

See Interim Fintiv Procedure, 8-9. Here, the September 2024 statistics for the median time-to-trial in the Eastern District of Texas show a period of 21.9 months. Ex. 2003 at 5, (available at https://www.uscourts.gov/sites/default/files/2024-12/fcms_na_distcomparison0930.2024.pdf). The median time-to-trial statistics for the district are thus consistent with the September 2025 trial date set out in Judge Gilstrap’s Docket Control Order, as the median time-to-trial statistics for the district predict a trial date in October 2025 (Ex. 2003) based on the December 29, 2023 filing date in district court. This small difference between the scheduled trial date and the statistical prediction—only about one month—still places the district court’s jury trial well before the estimated date of completion of this proceeding. Accordingly, *Fintiv* Factor 2 weighs significantly in favor of denial. *Samsung Elecs.*, IPR2023-01092, Paper 11 at 11-12 (using statistics to “confirm[] that the schedule set by the district court is credible and should be given weight”).

Petitioners’ contention that the statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides “do not apply to this case given the number of cases and number of defendants” (Pet. 85, n.6) ignores the nature of the median time-to-trial statistics, and is wrong. The combined nature of these statistics means that they provide a predicate for any

case, whether it is a case with a single defendant, a case with multiple defendants, or cases that are combined for discovery (like the parallel litigations here). Just as a patent owner cannot diminish the usefulness of such statistics by contending that its case is only a single-patent case with one defendant, petitioners cannot diminish the usefulness of these statistics by contending that their case is complex.

Also, the suggestion in the Petition that there would be “post-trial motions” in order to suggest a later completion date for the district court litigation is inconsistent with *Fintiv* and provides an incorrect measurement. *Fintiv* does not account for activities occurring at the USPTO following a Final Written Decision, such as requests for rehearing or requests for Director Review, when considering whether there would be an undesirable overlap of activities. Instead, the time posts for measurement set out in *Fintiv* compare the date of the expected Final Written Decision to the expected trial date.

Judge Gilstrap has already set the date for the initial jury trial, and that jury trial will conclude well before the Board's projected statutory deadline. *See* Ex. 1025. Additionally, because of the stage of the underlying case and the speed with which the Eastern District of Texas reaches case dispositions, there are likely to be district court determinations relating to the validity of the '631 Patent in advance of the Board's projected statutory deadline. Ex. 2003, 5. Indeed, the Court's Scheduling Order requires dispositive motions on issues such as (in)validity to be

filed by June 2, 2025, and requires defendants to identify its final invalidity theories by September 1, 2025. *See* Ex. 1025, 4 (setting the deadline for dispositive motions); *id.*, 2 (setting the deadline to disclose final invalidity theories).

Finally, Petitioners' attempt to minimize the closeness of the scheduled trial date with the suggestion that "jury selection would proceed with respect to only one of the three cases" (Pet., 84-85) does not reduce the weight in favor of discretionary denial in this proceeding. When presented with a similar situation and argument, the PTAB has held "[e]ven if the proceedings are staggered, at least one of the proceedings would likely begin and conclude well before our decision, making it highly likely that there will be duplicate efforts in evaluating the challenged claims based on the prior art." *AT&T Serv. Inc. v. ASUS Tech. Licensing Inc.*, IPR2024-00992, Paper 14 at 10-11 (PTAB Dec. 16, 2024) (weighing Factor 2 "substantially in favor of discretionary denial"); *see also AT&T Serv. Inc. v. ASUS Tech. Licensing Inc.*, IPR2024-01142, Paper 14 at 13 (PTAB Jan. 27, 2025); *AT&T Serv. Inc. v. ASUS Tech. Licensing Inc.*, IPR2024-01121, Paper 14 at 11-12 (PTAB Jan. 27, 2025).

Thus, *Fintiv* factor 2 substantially weighs in favor of discretionary denial.

C. Factor 3 Favors Denial (Investment in Parallel Proceedings)

Factor 3 also weighs in favor of denial because the district court and both Patent Owner and Petitioners will have expended considerable resources in the parallel litigation, including on the merits of Petitioners' invalidity positions, by the time the Board issues an institution decision. *See Sand Revolution II, LLC v. Cont'l Intermodal Grp.*, IPR2019-01393, Paper 24 at 10 (PTAB June 16, 2020) (noting that investment in invalidity contentions is relevant to this factor).

For factor 3, the Board considers “the amount and type of work already completed in the parallel litigation by the court and the parties at the time of the institution decision.” *Fintiv*, IPR2020-00019, Paper 11 at 9. “This investment factor is related to the trial date factor, in that more work completed by the parties and the court in the parallel proceeding tends to support the arguments that the parallel proceeding is more advanced, a stay may be less likely, and instituting would lead to duplicative costs.” *Id.*, 10.

Here, Patent Owner served infringement contentions on Petitioners in district court on March 18, 2024, allowing Petitioners ample time to prepare and serve their district court invalidity contentions on May 17, 2024, approximately two months later. Pet., 86; *see also* Exs. 2004-2008. Yet, Petitioners delayed until October 21, 2024—seven months after receiving infringement contentions—to file its Petition challenging the '631 patent. Despite noting the date that the invalidity

contentions were served in its Petition (Pet., 86), Petitioners provide no justification for the delay in filing their Petition. The PTAB has found when examining *Fintiv* that where “Petitioner has not presented any factual evidence to justify” a delay after being served with infringement contentions, Factor 3 weighs in favor of denial of institution. *See AT&T Serv.*, IPR2024-00992, Paper 14 at 12 (“the record shows that Petitioner waited five months to file the Petition after receiving Patent Owner’s infringement contentions, and Petitioner has not presented any factual evidence to justify this delay.”) (citing *Fintiv*, IPR2020-00019, Paper 11 at 11–12); *see also AT&T Serv.*, IPR2024-01142, Paper 14 at 13–15; *AT&T Serv.*, IPR2024-01121, Paper 14 at 12–13.

The facts here weigh even more in favor of denial than in the *AT&T Services* cases. Here, there was a delay of an additional two months from the date when the infringement contentions were served as compared to *AT&T Services*. Also, Petitioners served their own set of invalidity contentions in district court. As will be discussed with regard to factor 3 below, those infringement contentions overlap substantially with the Petition (and are even more comprehensive). Petitioners’ invalidity contentions include claim charts addressing the same references asserted by Petitioners in every ground of its Petition for every claim challenged in the co-pending litigation. *See, e.g.*, Exs. 2004–2008. Petitioners provide no justification for delaying five months to file its Petition when it had developed its invalidity

theories sufficiently to include them in a district court pleading over five months earlier. Patent Owner and Petitioners will have expended substantial resources in the parallel litigation, including on the merits of the invalidity positions, where—as detailed below—there is significant overlap of issues.

Indeed, given that the Board is projected to issue an institution decision by April 30, 2025, numerous labor-intensive activities such as these have taken place, or will take place, in the parallel litigations before that date. Fact discovery opened in early 2024 and is on-going relating to those issues, which is set to be completed on April 14, 2025, before the Board is expected to reach an institution decision in this IPR. Further, Petitioners will be required to prepare and serve their expert witness disclosures under Fed. R. Civ. P. 26(a)(2) relating to their invalidity contentions by April 21, 2025, and Patent Owner will be required to similar serve their infringement expert reports on that date.

As district court proceedings allow more invalidity defenses to be presented than in this proceeding, Petitioners' invalidity expert reports can be expected to present more comprehensive challenges to validity than presented in this proceeding. Indeed, the Petition alludes to an invalidity issue concerning indefiniteness, which cannot be presented in this proceeding. Pet., 11 (“Petitioners reserve the right to contend that claim 7 and its dependents are indefinite for improperly mixing method steps into apparatus claims in other forums.”); *see also*

Ex. 2004, 353, 359-60. Thus, the district court will be in the best position to resolve all of the validity issues relating to the '631 patent. Considering the timing of the litigation and the relative status of this IPR, efficiency is favored in the forum that can address all of the validity issues at the same time.

Additionally, Patent Owner and Petitioners will expend significant time and resources relating to claim construction prior to April 30, 2025. The parties have exchanged preliminary claim constructions (November 26, 2024), prepared a Joint Claim Construction Statement (December 17, 2024), completed claim construction discovery (January 14, 2025), served claim construction briefing and optional technical tutorials (beginning January 28, 2025). All of those activities will culminate in a claim construction hearing on March 11, 2025, which will tax the resources of Petitioners and Patent Owner, as well as the district court.

Finally, as noted in factor 2, the Court's Scheduling Order requires dispositive motions on issues such as (in)validity to be filed by June 2, 2025, and requires defendants to identify its final invalidity theories by September 1, 2025. *See* Ex. 1025, 4 (setting the deadline for dispositive motions); *id.*, 2 (setting the deadline to disclose final invalidity theories). Should the Board institute, the Parties will effectively duplicate the efforts expended in the District Court to address the validity of the '631 Patent.

These investments in the district court proceeding favor denial.

D. Factor 4 Favors Denial (Overlap of Issues)

Factor 4 also weighs in favor of discretionary denial because there is substantial overlap between the claims, arguments, and evidence raised in the Petition and in Petitioners' invalidity contentions in the parallel district court proceeding.

Petitioners challenge claims 1-18 of the '631 patent as obvious based on four references, R3-173152, Han, TR 38.801, and TS 36.300. Similarly, in district court, Petitioners' invalidity contentions challenge claims 1-18 of the '631 patent based on R3-173152, Han 222⁷, TR 38.801, alone and in combination with other references. *See* Ex. 2004, 8-9, 26-27 (cover pleading); Ex. 2005 (Appendix A); Ex. 2006 (Ex. A-1); Ex. 2007 (Ex. A-2); Ex. 2008 (Ex. A-3). While TS 36.300 is not expressly called out in the district court invalidity contentions, in the Petition's proposed combination of Han and TS 36.300, TS 36.300 is merely relied upon in an alternative manner, alleging Han also discloses the same feature as TS 36.300. *See, e.g.*, Pet., 52 ("To the extent the Board finds the limitation is not obvious in view of Han alone..."). Thus, there is substantial overlap between the Petition and

⁷ Han 222 and Han are substantially the same, as Han 222 is a U.S. counterpart to Han. Specifically, Han is a PCT publication based on PCT application PCT/CN2017/105046 and claims priority to Chinese national application 20160875317.9. *See* Han, 1 (items 21 and 30). Han 222 is a continuation of PCT application PCT/CN2017/105046 and claims priority to Chinese national application 20160875317.9. Ex. 2016 (items 63 and 30).

the district court proceeding, as the claims challenged and primary references relied upon are identical. Therefore, Petitioners' common prior art challenges to the claims renders the "overlap in issues between the two proceedings [] substantial." *Code200, UAB v. Luminate Networks, Ltd.*, IPR2020-01506, Paper 10 at 11-12 (PTAB Feb. 16, 2021).

Moreover, none of the Petitioners has offered a *Sotera* stipulation. *Inter Partes* Review is intended to be a "quick and cost effective alternative[] to litigation," not an avenue for Petitioners to argue invalidity a second time in a second venue. *WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1317 (Fed. Cir. 2018) (quoting H. Rep. No. 112-98, at 40, 48 (2011)). Indeed, Petitioners' failure to offer a *Sotera* stipulation, despite the substantial overlap between the proceedings, only highlights the concerns of duplicative efforts and conflicting outcomes raised by *Fintiv* and the USPTO's Interim *Fintiv* Procedure.

Moreover, Petitioners' assertion in district court of *additional* prior art and *additional* combinations of art than those asserted here does nothing to alter the degree of overlap between the Petition and its invalidity contentions. *See, e.g., Fintiv*, IPR2020-00019, Paper 15 at 15 (finding Petitioner's assertion of additional invalidity contentions "not relevant to the question of the degree of overlap for this factor").

Petitioners argue that there is not perfect overlap between this IPR and the district court cases “because there are 18 claims asserted in this case and a total of 113 asserted in the related district court cases” (Pet., 86), but this argument misses the mark. These 113 litigated claims include claims in patents other than the ’631 Patent, and the existence of other litigated claims does not diminish the perfect overlap between the claims in this IPR and these same 18 litigated claims. But even when there is not a perfect alignment between the claims in IPR and litigation, the Board has repeatedly ruled that the assertion of additional claims does nothing to mitigate “substantial” overlap in issues between the two proceedings where common prior art is presented and common independent claims are challenged. *See, e.g., Code200, UAB*, IPR2020-01506, Paper 10 at 11-12 (“In light of the common prior art asserted here and in the [] district court case, as well as the common challenge to the sole independent claim and all but two of the dependent claims of the [’384] patent, we agree with the Patent Owner that the overlap in issues between the two proceedings is substantial.”); *see also Teso LT UAB v. Luminati Networks Ltd.*, IPR2021-00122, Paper 12 at 10 (PTAB Apr. 20, 2021) (denial of institution favored where Petition’s prior art references were all identified in the district court invalidity contentions, the same independent claims were challenged in both proceedings, and “the *additional* claims challenged in the Petition are all dependent claims”).

Therefore, with this substantial overlap between the Petition and the parallel proceedings, there are particularly strong “concerns of inefficiency and the possibility of conflicting decisions” if the IPR is instituted. *See, e.g., Fintiv*, IPR2020-00019, Paper 11 at 12 (finding “concerns of inefficiency and the possibility of conflicting decisions [are] particularly strong” where there is substantial overlap).

Accordingly, factor 4 weighs strongly in favor of denial of institution. *See Teso LT UAB*, IPR2021-00122, Paper 12 at 10 (finding “the overlap in issues between the two proceedings is substantial” where common art and common challenges to the independent claim were presented in both proceedings); *see also eClinicalWorks*, IPR2022-00229, Paper 10 at 12 (finding factor 4 weighed in favor of denial where Preliminary Invalidity Contentions showed overlap of asserted claims, art and arguments asserted in the Petition); *U.S. Venture, Inc. v. Sunoco Partners Mktg. & Terminals L.P.*, IPR2020-00728, Paper 10 at 12-14 (PTAB Oct. 1, 2020) (finding overlap between primary references asserted in Petition and litigation weighed in favor of denial).

For each of these reasons, factor 4 strongly favors discretionary denial.

E. Factor 5 Favors Denial (Overlapping Parties)

Patent Owner is the plaintiff and Petitioners are involved in the parallel litigation (Ex. 1025), and “because the petitioner and the defendant in the parallel

proceeding are the same party, this factor weighs in favor of discretionary denial.”

Samsung Elecs. Co. v. Clear Imaging Research, LLC, IPR2020-01401, Paper 12 at 21-22 (PTAB Feb. 17, 2021) (quoting *Fintiv*, IPR2020-00019, Paper 15 at 15).

F. Factor 6 Favors Denial (Other Factors)

Also weighing in favor of denial are at least two other factors: the substantive reasons as presented in Section IV above, and the manner in which Petitioners' various IPR challenges have been presented.

The litigation dispute between Patent Owner and Petitioners involves 11 patents, and the three federal litigations involving those 11 patents were filed in the district court on a single day, December 29, 2023. But rather than present its IPR challenges in a single group, Petitioners filed their IPRs in a piecemeal fashion and on a slow-rolling basis. In total, over the period from October 18 to December 31, 2024, Petitioners filed eleven IPRs. Further, as of the filing date of this POPR, at least four IPR petitions have not yet received notices according a filing date. Therefore, these four IPR petitions do not yet have preliminary response due dates. The following table summarizes the dates the eleven IPRs were filed, the IPR proceeding number, the date a notice according a filing date was issued, the anticipated institution deadline, and the anticipated final written decision deadline⁸:

⁸ Google joined the Petitioners as an additional petitioner in each of these IPR proceedings except for IPR2025-00036 and IPR2025-00037.

IPR2025-00036 Patent Owner's Preliminary Response

Filing Date	IPR	Notice of Filing Date	Date of Institution Decision (Est.)	Date of Final Written Decision (Est.)
10/21/24	IPR2025-00036	10/30/24	4/30/25	4/30/26
10/18/24	IPR2025-00037	10/30/24	4/30/25	4/30/26
11/15/24	IPR2025-00083	12/9/24	6/9/25	6/9/26
11/15/24	IPR2025-00084	12/9/24	6/9/25	6/9/26
12/24/24	IPR2025-00137	1/17/25	7/17/25	7/17/26
11/27/24	IPR2025-00138	1/29/25	4/29/25	7/29/25
12/26/24	IPR2025-00290	TBD	TBD	TBD
12/27/24	IPR2025-00291	TBD	TBD	TBD
12/31/24	IPR2025-00292	TBD	TBD	TBD
12/31/24	IPR2025-00293	TBD	TBD	TBD
12/24/24	IPR2025-00317	1/17/25	7/17/25	7/17/26

While this IPR may be one of the first to reach a decision on institution, it will be one of many decisions on institution the Board will need to make relating to the dispute between the Parties. As the Board will approach the decisions serially, the strength of the *Fintiv* factors in favor of the Board exercising its discretion to deny institution will only become stronger. In particular, at least the first and third *Fintiv* factors will weigh more heavily in favor of denial as the estimated final written decision deadline for each IPR extends farther and farther beyond the anticipated trial date of September 8, 2025.

Moreover, the complexity of this global dispute between Petitioners and Patent Owner encourages resolution in a single forum, without the risk of inconsistent results. While the Board generally evaluates each petition on its own, district courts have additional tools available for resolving suits involving multiple

patents, including established procedures for such disputes, deadlines for narrowing issues including the asserted claims and the invalidity contentions, and driving resolution of the dispute as a whole. *Cf.* Pet., 86 (“The district court will likely reduce the asserted claims”). For example, as noted above, the district court has already consolidated the district court proceedings for “all pretrial issues” (Pet., 89; *see also* Ex. 1026) and the consolidated action is progressing at pace towards a September 2025 trial date.

Also, the district court can resolve more disputed issues than the limited nature of IPR proceedings, which can only address a limited set of validity challenges. While IPR proceedings were once thought to be vehicles to settle validity questions concerning a patent, history has informed that IPR proceedings often only address some validity issues, leaving others for the district courts to deal with. When a patent survives an IPR, it adds complexity to the proceeding as the district court must then weigh questions of the scope of IPR estoppel. *See, e.g., EIS Inc. v. IntiHealth Ger GmbH*, 2023 WL 6797905, 19-1227-GBW (D. Del. Aug. 30, 2023) (addressing scope of IPR estoppel). And for other validity issues beyond the reach of IPRs, like the indefiniteness issue Petitioners have alluded to in their Petition (Pet., 11) and the 35 U.S.C. § 112(a) and § 112(b) issues referenced in Petitioner’s district court invalidity contentions (Ex. 2004, 353, 359-60), the IPR proceeding will be of limited use.

Moreover, the merits of this Petition are weak as explained in Section IV. Far from presenting “a compelling unpatentability challenge,” *see Fintiv*, IPR2020-00019, Paper 11 at 13-14, the flaws in Petition are numerous. *See CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 24 (PTAB Mar. 17, 2023) (“to find compelling merits, the Board must provide reasoning to explain and support its determination as to compelling merits sufficient to allow the parties to challenge that finding and sufficient to allow for review of that decision.”)

In such circumstances, the Board has found that it “need not decide whether the merits of Petitioner’s asserted grounds are particularly strong because it would not impact [the] ultimate determination under Section 314(a)” and “the merits do not outweigh the other *Fintiv* factors.” *NXP USA*, PGR2022-00005, Paper 18 at 12-13 (finding that where factor 1 was neutral and factors 2-5 favored or slightly favored denial, factor 6 was neutral because it “would not impact [the] ultimate determination”); *Samsung Elecs.*, IPR2020-01401, Paper 12 at 23-25 (finding that where factors 1 and 4 slightly favored denial, factors 2 and 3 strongly favored denial, and factor 5 weighed in favor of denial, those factors outweighed any merits of the case considered in factor 6); *Apcon, Inc. v. Gigamon Inc.*, IPR2020-01579, Paper 9 at 26 (PTAB Mar. 16, 2021) (finding that the merits of the petitioner’s grounds do not outweigh the other factors in light of the strength of factors 2); *see also Fintiv*, IPR2020-00019, Paper 11 at 15 (“if the merits of the

grounds raised in the petition are a close[] call, then that fact has favored denying institution when other factors favoring denial are present”).

Accordingly, for the reasons stated above, including Factor 6 and each of the remaining *Fintiv* factors, the weight of these factors counsel in favor of the Board exercising its discretion to deny institution.

VI. CONCLUSION

For the reasons presented above, the Petition should be denied, and no *inter partes* review should be instituted.

Dated: January 30, 2025

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CERTIFICATE OF WORD COUNT

The undersigned certifies that the foregoing PATENT OWNER'S PRELIMINARY RESPONSE complies with the type-volume limitation in 37 C.F.R. § 42.24(b)(1). According to the word-processing system's word count, the brief contains 11,729 words, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a).

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CERTIFICATE OF SERVICE

Petitioner has consented to e-mail service in this proceeding. Pursuant to 37 C.F.R. §42.6, the undersigned certifies that on this date, a copy of the foregoing document was served by email upon the following counsel at the below email addresses:

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