

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TCL Communication Technology Holdings Limited
TCT Mobile International Limited
TCT Mobile, Inc.
TCT Mobile (US) Inc.
TCT Mobile (US) Holdings Inc.,

Petitioner,

v.

Mitsubishi Electric Corporation,
Patent Owner.

Case No.: IPR2023-00997
U.S. Patent No. 10,200,976

**PATENT OWNER'S PRELIMINARY RESPONSE
PURSUANT TO 35 U.S.C. § 313 AND 37 C.F.R. § 42.107**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	BACKGROUND	3
A.	The '976 Patent Discloses And Claims An Innovative Solution to Carrier Aggregation That Maximizes Efficient Use of Resources.....	3
III.	LEGAL STANDARDS	6
IV.	CLAIM CONSTRUCTION	8
V.	PERSON OF ORDINARY SKILL IN THE ART	8
VI.	RESPONSE TO PETITIONERS' ARGUMENTS	9
A.	Petitioner's Obviousness Ground 1 is Deficient.....	9
1.	Ground 1: Petitioner Fails to Provide an Adequate Motivation for Combining TS 36.300 With R2-104515 and Fails to Articulate Sufficient Reasoning for How They Are Combined.....	11
B.	Ground 2: Petitioner's Anticipation Arguments Based On Malladi Lack Merit.....	14
1.	Claim 2 Requires an Associated Cell With Uplink and Downlink Resources and a Non-Associated Cell with Downlink Resources Only	14
2.	Petitioner Fails to Explain With Particularity Why BST 120B of Malladi Corresponds to the Claimed Non- Associated Cell	15
3.	Petitioner Fails to Explain With Particularity Why an Embodiment of Malladi Would Include an Associated Cell With Uplink and Downlink Resources and a Non- Associated Cell with Downlink Resources Only.....	16
C.	Petitioner's Obviousness Ground 3 is Also Deficient	23
1.	Ground 3: Petitioner Fails to Provide an Adequate Motivation for Combining Malladi With TS 25.319 and Fails to Articulate Sufficient Reasoning for How They Are Combined.....	23

2.	Even If Combinable, Malladi and TS 25.319 Fail to Render Claim 2 Obvious.....	26
VII.	THE PETITION SHOULD BE DENIED ON DISCRETIONARY GROUNDS	30
A.	Ground 1 Presents the Same or Substantially the Same Art Presented to the Office, and Petitioner Has Not Demonstrated the Office Erred in Any Manner	31
1.	TS 36.300 V10.0.0 (EX1012) is the Same or Substantially the Same as TS 36.300 V10.1.0 (EX2003) Presented During Examination of the '976 Patent	31
2.	The Teachings of R2-104515 Cited as Relevant to Meeting Limitation 2[3] of Claim 2 Are the Same as and Redundant to TS 36.300 V10.0.0 (EX1012)	32
3.	Petitioner Did Not Demonstrate That the Office Erred in a Manner Material to the Patentability of Challenged Claim 2 in Regards to Ground 1	33
B.	Grounds 2 and 3 Rely on Prior Art That is Substantially the Same Art Presented to the Office, and Petitioner Has Not Demonstrated the Office Erred in Any Manner	34
1.	Malladi (Ground 2 and 3) and TS 25.319 (Ground 3) Are Redundant to TS 36.300 V10.0.0 (EX1012) and Are Therefore Substantially the Same as TS 36.300 V10.1.0 (EX2003) Presented During Examination of the '976 Patent.....	34
2.	Petitioner Did Not Demonstrate That the Office Erred in a Manner Material to the Patentability of Challenged Claim 2 in Regards to Grounds 2 and 3	35
VIII.	CONCLUSION.....	36

TABLE OF AUTHORITIES

CASES

<i>Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH,</i> IPR2019-01469 (PTAB Feb. 13, 2020).....	30, 32, 34-35
<i>Arendi S.A.R.L. v. Apple Inc.,</i> 832 F.3d 1355 (Fed. Cir. 2016)	7
<i>Belden Inc. v. Berk-Tek LLC,</i> 805 F.3d 1064 (Fed. Cir. 2015)	10
<i>In re Kahn,</i> 441 F.3d 977 (Fed. Cir. 2006)	8, 10, 13, 25
<i>In re Magnum Oil Tools Int’l, Ltd.,</i> 829 F.3d 1364 (Fed. Cir. 2016)	6, 13, 25
<i>In re NuVasive, Inc.,</i> 842 F.3d 1376 (Fed. Cir. 2016)	11
<i>In Re Schweickert,</i> 676 Fed. Appx. 988 (Fed. Cir. 2017).....	11
<i>Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.,</i> 821 F.3d 1359 (Fed. Cir. 2016)	6, 25
<i>Johns Manville Corp. v. Knauf Insulation, Inc.,</i> IPR2018-00827 (PTAB Oct. 16, 2018).	9, 11
<i>K/S Himpp v. Hear-Wear Techs., LLC,</i> 751 F.3d 1362 (Fed. Cir. 2014)	7
<i>KSR Int’l. Co. v. Teleflex Inc.,</i> 550 U.S. 398 (2007)	8, 10
<i>Nautilus Hyosung Inc. v. Diebold Self-service Systems Division of Diebold,</i> IPR2016-00633 (PTAB Aug. 22, 2016)	9

<i>Net MoneyIN, Inc. v. VeriSign, Inc.</i> , 545 F.3d 1359 (Fed. Cir. 2008)	7, 14, 22
<i>Personal Web Techs., LLC v. Apple, Inc.</i> , 848 F.3d 987 (Fed. Cir. 2017)	10, 11
<i>Securus Techs., Inc. v. Global Tel*Link Corp.</i> , 701 F. App'x 971 (Fed. Cir. 2017)	10
<i>Sirona Dental Sys. GmbH v. Institut Straumann AG</i> , 892 F.3d 1349 (Fed. Cir. 2018)	6, 11, 13, 25
<i>Unigene Labs., Inc. v. Apotex, Inc.</i> , 655 F.3d 1352 (Fed. Cir. 2011)	7, 10, 13

STATUTORY AUTHORITIES/RULES AND REGULATIONS

35 U.S.C. § 102	7, 14
35 U.S.C. § 103	7, 26
35 U.S.C. § 312	6, 34, 35
35 U.S.C. § 313	1
35 U.S.C. § 314(a)	2, 6
35 U.S.C. § 316(e)	6
35 U.S.C. § 325(d)	30, 33
37 C.F.R. § 42.107(a)	1

TABLE OF EXHIBITS

No.	Description
2001	Declaration of Todor Cooklev
2002	Markman Order from Parallel District Court Litigation
2003	3GPP TS 36.300 V10.1.0 (2010-09). Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (Release 10).
2004	CV of Todor Cooklev

I. INTRODUCTION

Pursuant to 35 U.S.C. § 313 and 37 C.F.R. § 42.107(a), Patent Owner Mitsubishi Electric Corporation (“Patent Owner” or “MELCO”) respectfully submits this Preliminary Response to the Petition for *Inter Partes* Review (Paper No. 1) (“the Petition”) filed by Petitioner TCL Communication Technology Holdings Limited, TCT Mobile International Limited, TCT Mobile, Inc., TCT Mobile (US) Inc., TCT Mobile (US) Holdings Inc. (collectively “Petitioner” or “TCL”). The Petition seeks *Inter Partes* Review (“IPR”) of claim 2 (“the Challenged Claim”) of U.S. Patent No. 10,200,976 (“’976 Patent”).

Petitioner’s obviousness theories in Grounds 1 and 3 rely on patently insufficient motivations to combine. Besides the exceedingly brief nature of the motivations to combine in Grounds 1 and 3, Petitioner does not come close to articulating adequate reasoning to combine the prior art. Petitioner also fails to explain how or why any teaching of the secondary reference should be incorporated into the teachings of the corresponding primary reference. With such deficient motivations to combine and no reasoning articulating how to combine the references, the Board cannot institute either Ground 1 or 3.

In Grounds 2 and 3, Petitioner also fails to provide evidence with sufficient particularity to meet its burden of demonstrating that claim 2 is unpatentable. Malladi, whether alone or in combination with TS 25.319, fails to disclose or suggest

the “second control process” that stops transmission of a quality notification signal when transmission of that signal coincides with transmission of a scheduling request signal. Moreover, in Ground 2, Petitioner applies different embodiments for alleged anticipation combined with a lack of any reasoned explanation for arranging the prior art in the same way as recited in claim 2. Accordingly, Petitioner’s assertion that claim 2 is anticipated by Malladi or obvious over Malladi in combination with TS 25.319 must fail.

Finally, Petitioner’s invalidity theories (Grounds 1-3) are based on prior art that was before the U.S. Patent and Trademark Office (“the Office”) during examination of the ’976 Patent or cumulative to that prior art. Not only does prior art relied on in Grounds 1-3 provide teachings no different than what was already considered during examination, but Petitioner has failed to identify any new teachings nor any errors committed during examination. On that basis, the Board should deny institution.

For all of these reasons, the Board should deny institution under 35 U.S.C. § 314(a) because Petitioner has not met its burden of demonstrating that it is more likely than not claim 2 of the ’976 Patent is unpatentable under any of Petitioner’s asserted grounds.

II. BACKGROUND

A. The '976 Patent Discloses And Claims An Innovative Solution to Carrier Aggregation That Maximizes Efficient Use of Resources

The '976 Patent describes a new and innovative system for implementing carrier aggregation in a communication system such as LTE that improves and maximizes efficient use of system resources. In carrier aggregation (CA) two or more component carriers (CCs) are aggregated to support wider transmission bandwidths of up to 100 MHz. EX1001, 9:6-9. CA supports contiguous CCs, non-contiguous CCs, and CCs in different frequency bandwidths. *Id.*, 9:17-19.

In a communication system in which CA is configured, the UE originally has a single radio resource connection (RRC) with a primary cell (PCell) that provides both uplink and downlink carriers. *Id.*, 9:29-35. A secondary cell (SCell), which is configured to form a pair of a PCell and a serving cell, can also provide both uplink and downlink carriers. *Id.*, 9:36-41. In each SCell, a UE is capable of using resources for uplink (UL) and resources for downlink (DL). *Id.*, 9:44-45. The number of DL resources is equal to or more than the number of UL resources, and no SCell is used for UL resources only. *Id.*, 9:46-47. SCells can be reconfigured, added, or removed through RRC. *Id.*, 9:59-60.

Fig. 13 shows an exemplary embodiment for implementing CA.

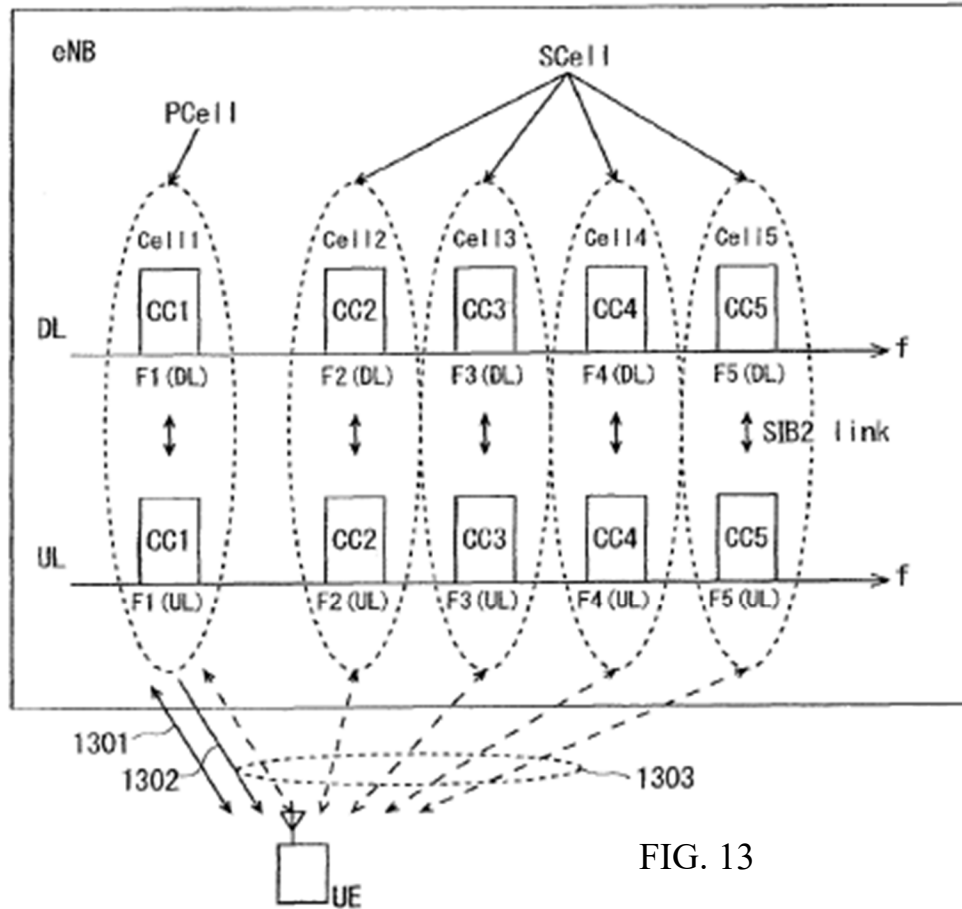


FIG. 13

As shown in Fig. 13 (above), a user equipment UE can communicate with base station eNB via various cells. UE camps on cell1 and performs RRC connection, which makes cell1 a PCell. *Id.*, 21:10-12. The eNB then notifies the UE of the information regarding CCs to be aggregated, whereby cell2 to cell5 become SCells. *Id.*, 21:13-21.

In addition to CA as shown in Fig. 13, it is recognized that there is no SCell configuration that includes only a UL CC without a DL CC associated with the UL CC, and there is also no SCell configuration in which a plurality of DL CCs are associated with one UL CC. *Id.*, 23:14-22. Yet, the '976 Patent recognized that

effectively using frequency resources in a communication system demands flexible allocation of frequency bands. *Id.*, 23:23-25. In addition, the '976 Patent recognized the growing demands for service requires different frequency bandwidths between DL and UL. *Id.*, 23:25-28. To satisfy those demands, CA can be implemented in which the number of DL CCs differs from the number of UL CCs. *Id.*, 23:28-30; *see also* EX2001, ¶38.

Based on this recognition, the '976 Patent discloses a system and method in which an eNB and a UE communicate with each other using a cell that includes a DL resource but not a UL resource. EX1001, 32:40-44. This configuration eliminates the need to always reserve a UL resource in the same frequency band as the DL resource. *Id.*, 32:44-46. As a result, that UL resource can be allocated to another cell, another operation, or another system, thereby improving the efficient use of frequency resources. *Id.*, 32:46-50; 34:12-15; 44:47-51; 45:61:64, 46:7-11; 48:64-49:2. This improved and innovative use of frequency allocation is neither disclosed nor suggested by the prior art. *See* EX2001, ¶39.

The '976 Patent claims priority to a Japanese patent application filed on January 7, 2011. EX1001, 1 (foreign application priority data). Petitioner does not dispute that the challenged claim is entitled to at least a priority date of January 7, 2011. *See* Pet. 20 (citing January 7, 2011 as the relevant date); EX1003 ¶56 (same).

III. LEGAL STANDARDS

“In an inter partes review, the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ 35 U.S.C. §316(e), and that burden never shifts to the patentee.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1375 (Fed. Cir. 2016). Specifically, the Petition must “identif[y] in writing **and with particularity**, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.”¹ 35 U.S.C. § 312(a)(3); *see also Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“[i]t is of the utmost importance that petitioners . . . adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’”). An IPR cannot be instituted unless “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a).

In addition, the Board must make its determination regarding institution based on what the Petition **actually presents** and not what it could have reasonably contained had it been reformulated. *Magnum Oil*, 829 F.3d at 1381 (holding that the Board is **not** “free to adopt arguments on behalf of petitioners that could have been,

¹ Emphases added in this Preliminary Response unless otherwise indicated.

but were not, raised by the petitioner during [a post-grant proceeding]”). The Board cannot “deviate from the grounds in the petition and raise its own” theories of invalidity. *Sirona Dental Sys. GmbH v. Institut Straumann AG*, 892 F.3d 1349, 1356 (Fed. Cir. 2018).

Petitioner raises grounds based on 35 U.S.C. §§ 102 and 103. For anticipation under 35 U.S.C. § 102, a reference must “disclose[] within the four corners of the document . . . all of the limitations claimed,” and that disclosure must be “arranged or combined in the same way as recited in the claim.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). Petitioner also cannot combine different embodiments in a single prior art or supplement missing limitations—no matter how minor—in proving anticipation. *See id.*

To prevail on obviousness under 35 U.S.C. § 103, Petitioner must demonstrate based on “record evidence” that the claimed “structural features . . . were known prior art elements.” *K/S Himpp v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365 (Fed. Cir. 2014). “[W]hile ‘common sense’ can be invoked, even potentially to supply a limitation missing from the prior art, it must still be supported by evidence and a reasoned explanation.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1363 (Fed. Cir. 2016). Moreover, “[o]bviousness requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim.” *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011).

“Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal courses of research and development to yield the claimed invention.” *Id.* These additional requirements cannot be met by “conclusory statements”—“there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006); *see also KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

IV. CLAIM CONSTRUCTION

Petitioner identifies three terms for construction. Subsequent to the Petition’s filing, the District Court issued a Markman order finding against each of Petitioner’s proposed constructions and agreeing with Patent Owner’s position that plain and ordinary meaning governs with no construction needed. EX2002, 14-16. Patent Owner maintains that these terms need no construction and need only apply the plain and ordinary meaning for each term. Nevertheless, as explained herein, the Petition lacks merit whether the Board applies plain and ordinary meaning or Petitioner’s constructions.

V. PERSON OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSA”) at the time of the ’976 Patent’s earliest priority date would have held at least a degree in electrical engineering,

computer engineering, computer science or a similar discipline, with at least two years of relevant industry or research experience, including experience designing, planning, or implementing cellular networks. Additional work or research experience can substitute for less or different education, and vice-versa. A person of ordinary skill in the art would also have had familiarity with the 3GPP LTE technical standards. EX2001, ¶22.

VI. RESPONSE TO PETITIONERS' ARGUMENTS

A. Petitioner's Obviousness Ground 1 is Deficient

Petitioners obviousness theory in Ground 1 fails to meet the Federal Circuit's obviousness standard applied by the PTAB. As explained by the PTAB, "[a]n assertion that something could be done does not articulate a reason why something would be done by one of ordinary skill in the art at the time of the invention and, therefore, raises a specter of impermissible hindsight bias in an obviousness analysis." *Nautilus Hyosung Inc. v. Diebold Self-service Systems Division of Diebold*, IPR2016-00633, Paper 9 at 21 (PTAB Aug. 22, 2016). In addition, the PTAB has held that neither "mere compatibility of the references" nor a showing "that the prior art references [were] analogous art or in the same field of endeavor as the challenged patent" were sufficient "to establish that the skilled artisan would have had reason to combine the teachings of the prior art as claimed in the challenged patent." *Johns Manville Corp. v. Knauf Insulation, Inc.*, IPR2018-00827, Paper 9 at

10 (PTAB Oct. 16, 2018). It is not enough to show that “a skilled artisan, once presented with the two references, would have understood that they could be combined.” *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993 (Fed. Cir. 2017). Similarly, “a broad characterization of [prior art references] as both falling within the same alleged field . . . without more, is not enough for [Petitioner] to meet its burden of presenting a sufficient rationale to support an obviousness conclusion.” *Securus Techs., Inc. v. Global Tel*Link Corp.*, 701 F. App’x 971, 977 (Fed. Cir. 2017).

According to the Federal Circuit, “obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (emphasis in original). Moreover, “obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal courses of research and development to yield the claimed invention.” *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). These additional requirements cannot be met by “conclusory statements”—“there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006); *see also KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 418

(2007). This obviousness standard established by the Federal Circuit applies equally to the Board when claims are asserted to be obvious based on combinations of prior art elements. *See, e.g., In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016); *In Re Schweickert*, 676 Fed. Appx. 988, 995 (Fed. Cir. 2017); *Sirona Dental Sys. v. Institut Straumann AG*, 892 F.3d 1349, 1358 (Fed. Cir. 2018).

1. Ground 1: Petitioner Fails to Provide an Adequate Motivation for Combining TS 36.300 With R2-104515 and Fails to Articulate Sufficient Reasoning for How They Are Combined

(a) Petitioner's Motivation to Combine TS 36.300 With R2-104515 is Wholly Insufficient

Petitioner's barebones recitation of a motivation to combine TS 36.300 with R2-104515 does not come close to meeting the standard required by the Federal Circuit. Petitioner's complete motivation to combine for Ground 1 is as follows:

It would have been obvious for a POSITA to consider the R2-104515 contribution because this contribution was published shortly after TS 36.300 and is requesting that a decision be made on how to modify the Carrier Aggregation (CA) functionality for the same release of the LTE standard as TS 36.300 (Release 10).

Pet. 45-46. Basic rationales that references are compatible, analogous, in the same field of endeavor, and/or could be combined (*see Johns Manville*, IPR2018-00827, Paper 9 at 10; *Personal Web Techs.*, 848 F.3d at 993) have all been found to be

insufficient motivations to combine. That it would have been obvious to “***consider the R2-104515***” does not even rise to the level of these inadequate basic rationales. Accordingly, Petitioner plainly fails to meet the minimum standard for a motivation to combine to render claim 2 unpatentable for obviousness in Ground 1.

It is also noted that R2-104515 addresses changes to a parameter called RadioResourceConfigCommonSecCell-r10, which is specified in TS 36.331, not TS 36.300. *See* EX1013, 2-4 (“36.331 CR” means Change Request to TS 36.331.) Even if there may be a reason to combine R2-104515 with TS 36.331, there is no motivation to combine with R2-104515 with TS 36.300.

**(b) No Articulated Reasoning for How TS 36.300
Combines With R2-104515**

Petitioner does not explain ***how*** TS 36.300 is combined with R2-104515. Petitioner’s motivation to combine simply indicates it would have been obvious to consider R2-104515. Pet. 45-46. But that motivation to combine does not articulate what teaching of R2-104515 would be applied to TS36.300 nor how such a teaching would be incorporated into TS 36.300. *Id.*

Similarly, while solely using R2-104515 to address Limitation 2[3], Petitioner again fails to articulate how any teaching of R2-104515 is applied in the asserted combination. Pet. 61-62. After asserting how TS 36.300 purportedly meets Limitation 2[3] (Pet. 56-61), Petitioner simply asserts that R2-104515 “provides additional support” for teaching the same limitation. Pet. 61. Petitioner does not

explain what is lacking from TS 36.300, does not explain what teaching of R2-104515 is any different than TS 36.300, and does not explain how any teaching of R2-104515 would be incorporated into TS 36.300. Without such an explanation, Petitioner fails to show how “a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal courses of research and development to yield the claimed invention” (*Unigene Labs.*, 655 F.3d at 1360) and thus fails to provide “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Kahn*, 441 F.3d at 988.

Petitioner’s deficient motivation to combine and lack of articulated reasoning for the asserted combination cannot be cured by the Board. Rather, the Board must make its determination regarding institution based on what the Petition ***actually presents*** and not what it could have reasonably contained had it been reformulated. *Magnum Oil*, 829 F.3d at 1381 (holding that the Board is ***not*** “free to adopt arguments on behalf of petitioners that could have been, but were not, raised by the petitioner during [a post-grant proceeding]”). The Board cannot “deviate from the grounds in the petition and raise its own” theories of invalidity. *Sirona Dental Sys.*, 892 F.3d at 1356.

With a deficient motivation to combine and no articulated reasoning for how or why the references are combined, Petitioner’s Ground 1 cannot meet the required

standard for showing claim 2 is unpatentable as obvious over TS 36.300 in view of R2-104515.

B. Ground 2: Petitioner’s Anticipation Arguments Based On Malladi Lack Merit

Petitioner fails to show that Malladi teaches a non-associated cell with downlink resources only. Moreover, Petitioner’s anticipation argument in Ground 2 cites to disparate portions of unconnected embodiments while failing to explain how or why those portions would be arranged in the manner recited in claim 2. For anticipation under 35 U.S.C. § 102, a reference must “disclose[] within the four corners of the document . . . all of the limitations claimed,” and that disclosure must be “arranged or combined in the same way as recited in the claim.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). Petitioner also cannot combine different embodiments in a single prior art or supplement missing limitations—no matter how minor—in proving anticipation. *See id.*

1. Claim 2 Requires an Associated Cell With Uplink and Downlink Resources and a Non-Associated Cell with Downlink Resources Only

Claim 2 of the ’976 Patent recites that in a communication terminal device performing radio communication with a base station device, wherein:

an associated cell [is] configured by the base station to include a resource for uplink and a resource for downlink . . . , and

a non-associated cell [is] configured by the base station to include only
another resource for downlink.

According to the plain and ordinary meaning of these limitations of claim 2, the base station configures the associated cell to include resources for both uplink and downlink but configures the non-associated cell to include downlink resources only.

See EX2001, ¶42

2. Petitioner Fails to Explain With Particularity Why BST 120B of Malladi Corresponds to the Claimed Non-Associated Cell

Petitioner asserts, without support, that BST 120B in Fig. 1 of Malladi (Pet. 63) purportedly corresponds to the claimed non-associated cell. Pet. 64 (“120B BST’ box is the claimed *non-associated cell*.”), 67 (“120B BST’ box is the claimed *non-associated cell* (non-serving cell.)” (emphasis in originals); EX1023, Fig. 1, ¶¶0061-0066. Petitioner further asserts that Malladi’s “non-serving cell” provides the same functionality of the claimed non-associated cell and that these terms are interchangeable (Pet. 68), but provides no reasoning for why Malladi’s non-serving cell provides the same functionality as the claimed non-associated cell, cites to the expert declaration that simply makes the same assertion without any additional reasoning (EX1003, ¶0163), and provides no citation at all for the assertion that the terms are interchangeable. Petitioner therefore fails to provide sufficient evidence

why a POSITA would have considered BST 120B to be claimed non-associated cell.

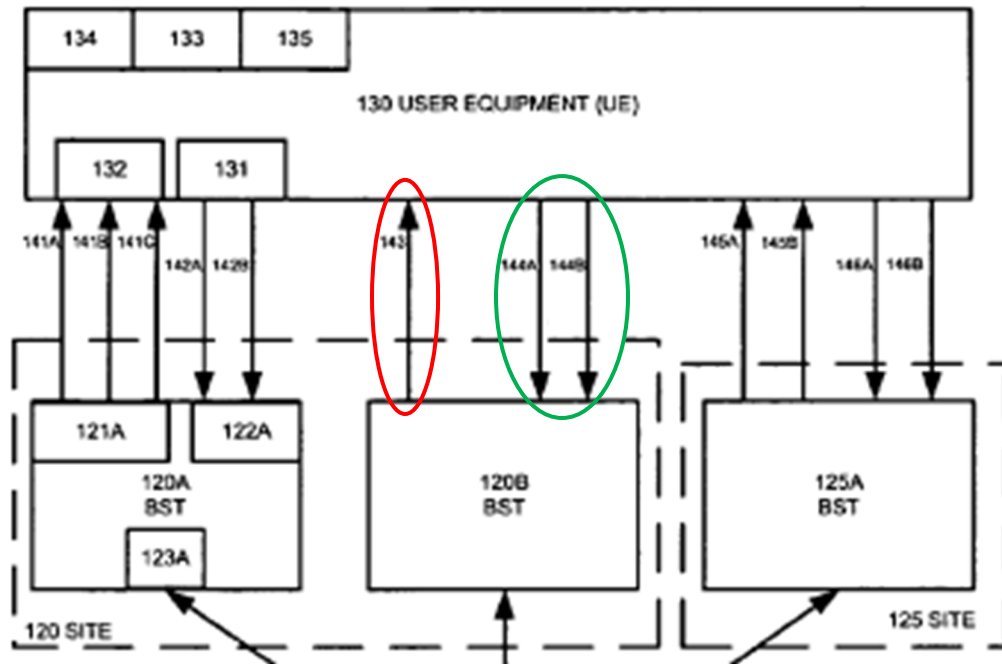
EX2001, ¶¶43, 44.

3. Petitioner Fails to Explain With Particularity Why an Embodiment of Malladi Would Include an Associated Cell With Uplink and Downlink Resources and a Non-Associated Cell with Downlink Resources Only

(a) Malladi Has No Embodiments Having a Cell with Only Downlink Resources Nor Does Petitioner Explain Why Malladi Would Have Such a Cell

Petitioner relies on a disclosure in Malladi's background prior art to assert that a Malladi embodiment would include a non-associated cell with downlink resources only without explaining *why* the non-associated cell would be configured with downlink resources only. That BST 120B cannot be the non-associated cell is confirmed by Fig. 1 of Malladi (excerpted and annotated below), which shows that BST 120B provides UE 130 with *both* downlink resources 143 (outlined in red) *and* uplink resources 144A, 144B (outlined in green).² See also EX1023, ¶0062; EX2001, ¶45.

² It is worth noting that, while Petitioner cited this section of Malladi (Pet. 64, 67, 71), Petitioner seems to misapprehend that BST 120B also includes uplink resources.



To support its assertion that BST 120B provides only downlink resources to UE 130, Petitioner first contends that “[n]o *uplink resource* is allocated between the UE and the *non-associated cell*” and cites to the expert declaration at ¶¶0172-0173. Pet. 71 (emphasis in original). The cited expert declaration paragraphs are reproduced below:

172. Malladi discloses this limitation as described above for Limitations 2[pre], 2[1] and 2[2].

173. Additionally, Malladi discloses that its multi-carrier system can allocate two downlink carrier *resources*—one from the serving (*associated*) cell and one from the non-serving (*non-associated*) cell, and only one uplink carrier *resource* is connected to the serving (*associated*) cell, which means that the *only another resource* is the *downlink resource* allocated to the non-serving (*non-associated*) cell. In other words, no *uplink resource* is allocated between the UE and the *non-associated cell*.

EX1003, ¶¶0172-0173. Petitioner's expert declaration thus provides nothing more than the same conclusory statement that no uplink resource is allocated between the UE and the non-associated cell without any citation to Malladi nor any reason why no uplink resource is allocated. Moreover, the purported absence of an uplink resource between the UE and the non-associated cell (asserted to be BST 120B) flies in the face of Fig. 1 and Malladi's explicit description of uplink resources 144A, 144B between UE 130 and BST 120B. EX1023, ¶0062; EX2001, ¶45-46. Petitioner thus fails to provide sufficient evidence to support this contention that no uplink resource is allocated between UE 130 and the BST 120B, the purported non-associated cell.

Petitioner then cites to a paragraph in Malladi's Background to contend that the non-associated cell would be configured with downlink resources only. In its

Background, Malladi at ¶0008 notes that “the number of forward link carriers may differ from the number of reverse link carriers in a multi-carrier system.” EX1023, ¶0008. Malladi further notes that the number of downlink carriers N may exceed the number of uplink carriers M , the number of uplink carriers M may exceed the number of downlink carriers, or the numbers of the uplink M and downlink N carriers may be the same in a multi-carrier system. *Id.* While indicating that N or M may equal 1, it does not indicate that either one can be 0. *Id.*; EX2001, ¶47.

Based on this **Background** disclosure, Petitioner further contends that:

The last sentence in the paragraph below discloses this limitation because it states that the number of uplink carriers defined as the variable “ M ” can be equal to one. Thus, for an asymmetric multi-carrier system, as required by this limitation (*See* Section V.A.4.e, above, for asymmetric definition), the number of downlink carriers defined by the variable “ N .” *If N (total DL carriers) is 2, as required by this limitation, then M (total uplink carriers) can be 1.* Here, “ M ” could also be a value of zero following this rule, but a POSITA would have understood that having no uplinks between a base station and a UE would not be a feasible configuration and as explained below with the “albeit less likely” phrase. *Id.* at ¶174.

Pet. 71.

As noted in bold, Petitioner asserts that, consistent with Background ¶¶0008, *if* the total downlink carriers is 2, then the total uplink carriers *can be* 1. Except for the requirement of claim 2 itself, Petitioner does not explain why any communication system in Malladi would have this speculative arrangement of carriers (2 DL, 1 UL), and more particularly, why such a speculative arrangement would be across *a combination* of associated and non-associated cells. No embodiment of Malladi has any pair of cells with this speculative arrangement, Petitioner does not cite to any example in Malladi of such an arrangement, nor does Petitioner provide any reason why a POSITA would configure a communication system with such an arrangement of carriers. Petitioner also fails to connect this speculative arrangement to any embodiment of Malladi or why, with such a speculative arrangement, the non-associated cell (as opposed to the associated cell) would be the cell with no uplink carrier. Indeed, all Petitioner has shown is that a communication system *could have* 2 downlink carriers and 1 uplink carrier, but not why it *would have* such an arrangement nor why such arrangement could or would exist across two cells instead of within one cell as taught by Malladi. *See also* EX2001, ¶¶48-50.

**(b) Petitioner Improperly Equates Malladi's Carriers
With the Claimed Resources**

Petitioner also mistakenly conflates Malladi's "carriers" with the "resources" recited in claim 2. As shown in Malladi Fig. 1, each cell (BST 120A, 120B, 125A) includes at least one uplink *carrier* and at least one downlink *carrier*, where each carrier 141-146 corresponds to a different frequency. EX1023, ¶0062. A cell includes uplink resources when it includes one or more uplink carriers, and a cell includes downlink resources when it includes one or more downlink carriers. EX2001, ¶51. Accordingly, as long as a cell has at least one uplink carrier and at least one downlink carrier, the cell has both uplink resources and downlink resources. *Id.*

That each cell in Malladi includes at least one uplink carrier and at least one downlink carrier as shown in Fig. 1, and thus both uplink and downlink resources, is also completely consistent with Malladi's ¶0008. *Id.*, ¶52. That paragraph indicates that a cell can include the same or different number of uplink (M) and downlink (N) carriers and that M and N can each be one. EX1023, ¶0008. Fig. 1 shows BST 120A having three (3) downlink carriers 141A-141C and two (2) uplink carriers 142A-142B, BST 120B having one (1) downlink carrier 143 and two (2) uplink carriers 144A-144B, and BST 125A having two (2) downlink carriers 145A-145B and two (2) uplink carriers 146A-146B. Fig. 1 thus illustrates each example of carrier distribution in a cell described in Malladi's ¶0008: N>M (BST 120A);

M>N (BST 120B); M=N (BST 125A); and M=1 or N=1 (BST 120B). *See* EX2001, ¶52.

But what Malladi never teaches or even suggests is having a cell with *no* uplink carriers. Petitioner’s speculative arrangement of two downlink carriers and one uplink carrier wrongly and without evidence assumes that is the total number of carriers across two cells. Yet, as illustrated by Fig. 1 and supported by Malladi’s ¶0008, the varying arrangements of uplink and downlink carriers are in *each* cell, *each* cell has at least one uplink carrier and at least one downlink carrier, and thus *each* cell has both uplink and downlink resources. *See id.*, ¶53.

(c) Petitioner Fails to Show Malladi Must be Arranged as Claimed

Finally, by citing solely to the Background in regards to differing numbers of downlink and uplink carriers, Petitioner has failed to provide evidence with particularity that any embodiment of Malladi *must* be “arranged or combined in the same way as recited in the claim.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d at 1371. Rather, Petitioner has improperly attempted to combine different embodiments (Background vs. Summary and Detailed Description) in a single prior art reference, Malladi, to prove anticipation. *See id.*; *see also* EX2001, ¶54.

For all of these reasons, Petitioner has failed to show sufficient evidence that Malladi anticipates claim 2 of the ‘976 Patent. Accordingly, Ground 2 must fail.

C. Petitioner's Obviousness Ground 3 is Also Deficient

Like Ground 1, Petitioners obviousness theory in Ground 3 similarly fails to meet the Federal Circuits obviousness standard for a motivation to combine. Moreover, even if combinable, both Malladi and TS 25.319 fail to disclose or suggest a non-associated cell having downlink resources only as required by claim 2. *Id.*, ¶56.

1. Ground 3: Petitioner Fails to Provide an Adequate Motivation for Combining Malladi With TS 25.319 and Fails to Articulate Sufficient Reasoning for How They Are Combined

(a) Petitioner's Motivation to Combine Malladi With TS 25.319 is Lacking

Petitioner's motivation to combine Malladi with TS 25.319 in Ground 3 is even briefer than the insufficient motivation to combine in Ground 1 and likewise fails to meet the standard required by the Federal Circuit. Petitioner's complete motivation to combine for Ground 3 is as follows:

A POSITA would have been motivated to modify Malladi based on the teachings of TS 25.319 to comply with the required functionality for 3G UMTS Release 9.

Pet. 73. In similar fashion to Ground 1, Petitioner's motivation to combine does not identify what teachings of TS 25.319 are relevant, how any such teachings would be applied to modify Malladi, nor how "comply[ing] with the required functionality for 3G UMTS Release 9" would motivate a POSITA to use any teachings of TS 25.319

in Malladi. Petitioner thus fails to articulate its reasoning for combining Malladi and TS 25.319 other than a conclusory statement of “comply[ing] with the required functionality for 3G UMTS Release 9.”

At best, since Petitioner indicates that both Malladi and TS 25.319 relate to operations in a 3G UMTS network and carrier aggregation (Pet. 73), Petitioner’s rationale to combine the references is limited to them being compatible, analogous, or in the same field of endeavor, all of which have been found to be insufficient motivations to combine to render a claim unpatentable for obviousness. Petitioner therefore fails to meet the minimum standard for a motivation to combine to render claim 2 unpatentable for obviousness in Ground 3.

(b) No Articulated Reasoning for How Malladi Combines With TS 25.319

Except for the conclusory statement that Malladi combined with TS 25.319 discloses Limitation 2[3] (Pet. 77), Petitioner fails to provide any explanation for how Malladi combines with TS 25.319. After asserting that Malladi purportedly meets Limitation 2[3] in Ground 2 (Pet. 70-72), Petitioner asserts that TS 25.319 also purportedly meets Limitation 2[3] in Ground 3. Pet. 74-77. But in Ground 3, Petitioner:

- does **not** identify anything lacking from Malladi;
- does **not** identify anything in TS 25.319 that adds to or cures any deficient teaching of Malladi;

- does **not** explain how any teaching of TS 25.319 would be incorporated into Malladi; and
- does **not** supply any reasoning for how or why a POSITA would incorporate a teaching of TS 25.319 into Malladi.

Indeed, Petitioner simply leaves the Board to guess about every aspect of how TS 25.319 might be combined with Malladi.

Petitioner has therefore failed to identify with particularity the evidence supporting obviousness in Ground 3 (*see Intelligent Bio-Systems*, 821 F.3d at 1369) and failed to provide “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Kahn*, 441 F.3d at 988. Moreover, like Ground 1, Petitioner’s deficient motivation to combine and lack of articulated reasoning for the asserted combination in Ground 3 cannot be cured by the Board. Rather, the Board must make its determination regarding institution based on what the Petition **actually presents** and not what it could have reasonably contained had it been reformulated. *Magnum Oil*, 829 F.3d at 1381 (holding that the Board is **not** “free to adopt arguments on behalf of petitioners that could have been, but were not, raised by the petitioner during [a post-grant proceeding]”). The Board cannot “deviate from the grounds in the petition and raise its own” theories of invalidity. *Sirona Dental Sys.*, 892 F.3d at 1356.

With a deficient motivation to combine and no articulated reasoning for how or why the references are combined, Petitioner's Ground 3 cannot meet the required standard for showing claim 2 is unpatentable as obvious over Malladi in view of TS 25.319.

2. Even If Combinable, Malladi and TS 25.319 Fail to Render Claim 2 Obvious

Since Petitioner's motivation to combine is deficient as explained above, the combination of Malladi and TS 25.319 cannot render claim 2 obvious. But even if combinable, Malladi and TS 25.319 still fail to meet the required standard for showing claim 2 is unpatentable as obvious under 35 U.S.C. § 103.

(a) Malladi Fails to Disclose or Suggest a Cell With Downlink Resources Only

As explained in § VII.B.3, Malladi has no embodiment and no teaching in which a cell is configured to have downlink resources only. Rather, in each embodiment and as expressly taught by Malladi, every cell has at least one uplink carrier and at least one downlink carrier. *See* Malladi, ¶0008, ¶0062, Fig. 1. Because each cell has at least one uplink carrier and at least one downlink carrier, Malladi thus teaches that each cell has **both** uplink and downlink resources and not downlink resources only as required by claim 2. *See* EX2001, ¶57.

**(b) TS 25.319 Likewise Fails to Disclose or Suggest a Cell
With Downlink Resources Only**

TS 25.319 has no teachings of a cell having downlink resources only. Petitioner's assertion that TS 25.319 does provide such a teaching relies on a mistaken interpretation and understanding of a passage in TS 25.319. Petitioner's evidence not only fails to teach or suggest a cell having downlink resources only, but in fact confirms that the cells are configured with both uplink and downlink resources. *See id.*, ¶58.

Petitioner's sole evidence to support that TS 25.319 teaches a secondary cell having only downlink resources erroneously attributes "zero or one" as a modifier to secondary uplink carriers instead of its actual modifying of Serving E-DCH cell. This sole evidence is excerpted below from the Petition at 76:

The passage below states that a *communication terminal device* (UE) can have “zero or one” when referring to the number of secondary uplink carriers (*uplink resource*) on the secondary cell. Thus, for this limitation, the Serving E-DCH cell (*associated cell*) and the Secondary Serving E-DCH cell (*non-associated cell*) would both have a *downlink resource* and only the Serving E-DCH cell (*associated cell*) would have an *uplink resource*. Ex. 1003 at ¶192.

Serving E-DCH cell: Cell from which the UE receives Absolute Grants from the Node-B scheduler. A UE has one Serving E-DCH cell.

[**Secondary E-DCH Active Set:** In **Dual Cell E-DCH operation**, the set of cells on the secondary downlink carrier where E-DCH is carried for one UE.

Secondary Serving E-DCH cell: In **Dual Cell E-DCH operation**, cell from which the UE receives Absolute Grants from the Node-B scheduler on the secondary downlink. A UE can have zero or one Serving E-DCH cell on the secondary uplink carrier.]

Ex. 1015 at p. 7, Section 3.1.1 (highlighting added).

As noted in the initial statement highlighted in yellow, Petitioner asserts that the excerpted passage from TS 25.319 states that “zero or one” refers to the number of secondary uplink carriers on the secondary cell. But the applicable passage Petitioner highlighted in blue is that a “UE can have *zero or one Serving E-DCH cell* on the secondary uplink carrier.” TS 25.319 thus teaches that “zero or one” Serving E-DCH cell can be “on the secondary uplink carrier,” not that a secondary cell can have zero or one secondary uplink carriers. In other words, in addition to Secondary Serving E-DCH cell being on the secondary uplink carrier, the Serving E-DCH can also be on the secondary uplink carrier. *See* EX2001, ¶59. TS 25-319 confirms that multiple cells can be on the same carrier as the excerpted passage also

defines Secondary E-DCH Active Set as “the *set of cells on the secondary downlink carrier* where E-DCH is carried for one UE.” *See id.*

With this proper understanding of this passage in TS 25.319, Petitioner plainly fails to cite evidence in TS 25.319 to support having a cell with downlink resources only. In fact, in the only other citation to TS 25.319 in Ground 3, Petitioner highlights the “technical purpose of the *Enhanced Uplink is to improve the performance of uplink* dedicated and common (FDD and 1.28Mcps TDD only) transport channels.” Pet. 75 (excerpting TS 25.319 at 9). Section 5 Requirements in TS 25.319 also lists all of the enhancements and improvements in “uplink performance” provided by the “Enhanced Uplink” feature. EX1015, 10. That TS 25.319 is literally directed to improving *uplink* performance further erodes Petitioner’s assertion of TS 25.319 teaching a cell having no uplink resources. *See id.*, ¶60.

(c) Since both Malladi and TS 25.319 Fail to Disclose or Suggest a Cell With Downlink Resources Only, the Combination Cannot Render Claim 2 Obvious

As both Malladi and TS 25.319 fail to teach a cell having downlink resources only, the combination necessarily fails to teach the same. And since the combination fails to teach a cell having downlink resources only, as required by claim 2, Petitioner’s Ground 3 cannot show claim 2 is unpatentable as obvious over Malladi in view of TS 25.319. *See id.*, ¶61.

VII. THE PETITION SHOULD BE DENIED ON DISCRETIONARY GROUNDS

Since Petitioner's Grounds rely on prior art that is the same or substantially the same to prior art presented to the Examiner during prosecution of the '976 Patent without identifying any error by the Office, the Board should deny institution under 35 U.S.C. § 325(d). Under the two-part framework set forth in *Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, the Board has discretion to deny institution if "the same or substantially the same art previously was presented to the Office" and the petitioner failed to "demonstrate that the Office erred in a manner material to the patentability of challenged claims." IPR2019-01469, Paper 6 at 7 (PTAB Feb. 13, 2020) (precedential). Each Ground relies on the same or substantially the same prior art presented during examination, the Petition does not identify any teaching in the relied upon prior art that is not present in the prior art during examination, and the Petition does not identify any error by the Office during examination. Accordingly, the Board should deny institution of the Petition on discretionary grounds under 35 U.S.C. § 325(d).

A. Ground 1 Presents the Same or Substantially the Same Art Presented to the Office, and Petitioner Has Not Demonstrated the Office Erred in Any Manner

1. TS 36.300 V10.0.0 (EX1012) is the Same or Substantially the Same as TS 36.300 V10.1.0 (EX2003) Presented During Examination of the '976 Patent

Petitioner's assertion that TS 36.300 V10.0.0 (EX1012) was neither cited nor considered during prosecution (Pet. 79) is both deceptive and internally contradicts its own statement that TS 36.300 V10.1.0 (EX2003) is cited as "Prior Art Document" in the '976 Patent and that TS 36.300 V11.2.0 (EX1024) cited in Patent Owner's Infringement Contentions relies on essentially the same language as TS 36.300 V10.0.0 (EX1012). Pet. 46-47. TS 36.300 V10.1.0 (EX2003) is substantially the same as TS 36.300 V10.0.0 (EX1012) and includes disclosures identical or virtually identical to the portions of TS 36.300 V10.0.0 (EX1012) cited in Ground 1. Every figure and every text portion of 36.300 V10.0.0 (EX1012) cited in Ground 1 (Pet. 45-62) is either identical to the corresponding portion of TS 36.300 V10.1.0 (EX2003) or virtually identical with no meaningful difference.

In addition, it is indisputable that TS 36.300 V10.1.0 (EX2003) was presented to the Office during examination of the '976 Patent. Not only was TS 36.300 V10.1.0 (EX2003) listed as a reference cited in the '976 Patent (EX1001, 3), TS 36.300 V10.1.0 (EX2003) was discussed extensively in the specification of the '976 Patent. *See* EX1001, 2:16-28; 2:62-3:17; 4:37-6:65; 7:57-8:2; 9:3-9; 14:16-

25; 16:24-35; 17:57-62; 18:21:33; 19:66-20:18; 47:26-33. Because 36.300 V10.0.0 (EX1012) is substantially the same as TS 36.300 V10.1.0 (EX2003), and 36.300 V10.1.0 (EX2003) was presented to the Office during examination of the '976 Patent, the reliance on TS 36.300 V10.0.0 (EX1012) in Ground 1 satisfies the first prong of the two-part framework set forth in *Advanced Bionics*.

2. The Teachings of R2-104515 Cited as Relevant to Meeting Limitation 2[3] of Claim 2 Are the Same as and Redundant to TS 36.300 V10.0.0 (EX1012)

Although Ground 1 asserts unpatentability of claim 2 based on the combination of TS 36.300 V10.0.0 (EX1012) and R2-104515, Ground 1 cites no teaching of R2-104515 relevant to meeting claim 2 that is not already present in 36.300 V10.0.0 (EX1012). Petitioner cites to R2-104515 solely in regards to Limitation 2[3] of claim 2 and no other limitation of claim 2. Pet. 61-62. In addressing Limitation 2[3], Petitioner admits citing R2-104515 simply “**provides additional support** that an SCell (Secondary or non-associated cell) can be configured with only a “downlink resource” (no uplink resource)” (Pet. 61), a teaching already asserted by Petitioner as being taught by TS 36.300 V10.0.0 (EX1012). Pet. 56-61. While Petitioner notes that R2-104515 describes three different options for “how to indicate UL absence of secondary cells” (Pet. 62), such description is completely irrelevant to claim 2 of the '976 Patent.

Since R2-104515 merely provides additional support for the same teaching already provided by TS 36.300 V10.0.0 (EX1012), R2-104515 is the same as or substantially the same as TS 36.300 V10.0.0 (EX1012) in regards to claim 2 of the '976 Patent. Accordingly, the combination of TS 36.300 V10.0.0 (EX1012) and R2-104515 in Ground 1 provides the same or substantially the same art (i.e., TS 36.300 V10.1.0 (EX2003) previously presented to the Office.

3. Petitioner Did Not Demonstrate That the Office Erred in a Manner Material to the Patentability of Challenged Claim 2 in Regards to Ground 1

In addressing discretionary denial under 35 U.S.C. § 325(d), Petitioner does not identify or even suggest an Office error of any kind. *See* Pet. 79. Petitioner merely asserts that TS 36.300 V10.0.0 (EX1012) and R2-104515 were not “cited during prosecution of the '976 Patent (Ex. 1001), and there is no evidence that the Examiner considered these references” (Pet. 79), which plainly fails to identify any error by the Office. This assertion also ignores the fact that the virtually identical TS 36.300 V10.1.0 (EX2003) was not only identified as a cited reference in the '976 Patent, but also was discussed extensively in the specification of the '976 Patent, which is substantial evidence that TS 36.300 V10.1.0 (EX2003) was both considered by the Examiner and presented to the Office during examination.

With no error identified, Petitioner's Ground 1 meets both prongs of the two-part framework set forth in *Advanced Bionics*, thus making discretionary denial appropriate under 35 U.S.C. § 312(d) regarding Ground 1.

B. Grounds 2 and 3 Rely on Prior Art That is Substantially the Same Art Presented to the Office, and Petitioner Has Not Demonstrated the Office Erred in Any Manner

1. Malladi (Ground 2 and 3) and TS 25.319 (Ground 3) Are Redundant to TS 36.300 V10.0.0 (EX1012) and Are Therefore Substantially the Same as TS 36.300 V10.1.0 (EX2003) Presented During Examination of the '976 Patent

Malladi and TS 25.319 are redundant and cumulative to TS 36.300 V10.1.0. While Malladi and TS 25.319 were not cited nor presented during examination of the '976 Patent, all teachings in Malladi and TS 25.319 cited by Petitioner in Grounds 2 and 3 are already present in TS 36.300 V.10.1.0, which was presented during examination of the '976 Patent. Moreover, Petitioner has not identified any material differences of Malladi and TS 25.319 as compared to TS 36.300 V.10.1.0.

In fact, as explained in §§ VI.B.3 and VI.C.2, *infra*, the teachings of Malladi and TS 25.319 are inferior to TS 36.300 V10.1.0. While Malladi does teach that the number of uplink and downlink carriers in a cell can differ, Malladi in no way discloses or suggests that a cell can have a downlink carrier with no uplink carrier. *See* § VII.B.3. TS 25.319 does not even teach that the number of uplink and downlink carriers in a cell can differ and has no teachings whatsoever of a cell with

only a downlink carrier. Malladi and TS 25.319 are therefore, at best, cumulative and redundant to TS 36.300 V10.1.0.

2. Petitioner Did Not Demonstrate That the Office Erred in a Manner Material to the Patentability of Challenged Claim 2 in Regards to Grounds 2 and 3

As noted previously, the Petitioner made no attempt to argue the Examiner had erred at all. *See* Pet. 79. Accordingly, with no error identified, Petitioner's Grounds 2 and 3, like Ground 1, meet both prongs of the two-part framework set forth in *Advanced Bionics*, thus making discretionary denial appropriate under 35 U.S.C. § 312(d) for Grounds 2 and 3 as well. And since discretionary denial is appropriate under 35 U.S.C. § 312(d) for all three Grounds of the Petition, the Board should exercise its discretionary power to deny institution of this Petition regardless of whether it finds any of Petitioner's grounds persuasive.

VIII. CONCLUSION

In view of the foregoing, Patent Owner respectfully submits that the Board should deny institution of all Grounds of the Petition.

Dated: September 14, 2023

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CERTIFICATE OF LENGTH (37 C.F.R. §§ 42.24(D))

The undersigned hereby certifies that, according to the word-processing system used to prepare the foregoing document, this document has 7275 words and thus complies with the applicable word limit.

Dated: September 14, 2023

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CERTIFICATE OF SERVICE (37 C.F.R. §§ 42.6(E), 42.105(A))

The undersigned hereby certifies that the foregoing document was served in its entirety on September 14, 2023 upon the following parties via Electronic Mail addresses jeremy.peterson@pvuslaw.com, bradford.cangro@pvuslaw.com, and TCLMELCOIPRService@pvuslaw.com:

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