

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

KT CORPORATION (Patent Owner) and
PEGASUS WIRELESS INNOVATION LLC (Exclusive Licensee)

Case No. IPR2025-00083
U.S. Patent No. 10,638,463

PETITIONERS' REPLY

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CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. §42.24

CERTIFICATE OF SERVICE

I. INTRODUCTION

Petitioners submit this Reply to Patent Owner’s Response (Paper 37) (“POR”). Patent Owner (“PO”) disputes only two limitations—identified herein as claim elements 1[e] and 1[f]—in contesting the prior art references relied upon by Petitioners. PO’s argument hinges on improper, inconsistent interpretations of the same term “each” in element 1[e] vs. element 1[f]. PO’s expert Dr. Sharony confirmed that PO’s argument hinges on these improper and inconsistent claim interpretations. Regardless, elements 1[e] and 1[f] are clearly disclosed or rendered obvious by the prior art relied upon in the Petition under any claim interpretation.

PO also disputes Petitioners’ stated motivations to combine references relied upon in the Petition, but these disputes rely on PO’s misapprehension of the cited references, as confirmed by uncontested, sworn testimony of Petitioners’ expert Dr. Roy. The references themselves provide explicit motivations for their combinations. PO’s arguments are undermined by its own admissions, and by Dr. Sharony’s testimony which appears to stem from limited practical experience in 5G telecommunications.

Petitioners have established by substantial evidence that all Challenged Claims are unpatentable.

II. CLAIMS AT ISSUE AND STATEMENT OF PRECISE RELIEF REQUESTED

Petitioners request cancellation of claims 1-9 (“the Challenged Claims”) of U.S. Patent No. 10,638,463 (“the ’463 Patent”) on the grounds set forth in the Petition:

- **Ground 1**: Claims 1-9 are unpatentable under 35 U.S.C. § 103 over International Publication No. WO 2019/030929 A1 (“Takeda”) and U.S. Patent No. 10,736,085 (“Yan”)
- **Ground 2**: Claims 1-9 are unpatentable under 35 U.S.C. § 103 over U.S. Patent Publ. No. 2014/0056278 (“Marinier”), Yan, and 3GPP Submission No. R1-1711853 (“R1-1711853”)

III. CLAIM CONSTRUCTION

PO’s contentions regarding claim construction are irrelevant to a finding that the claims are unpatentable.

Petitioners explained that “a controller configured to determine one of UL control channel resource sets contained in the UL control channel resource set configuration information, and determine one of UL control channel resources configuring the determined one UL control channel resource set” should be interpreted as a means-plus-function term. Pet., 5-7. PO disputes this contention. POR, 12-13. However, the Board need not resolve this dispute because PO presents no argument relating to validity that relies on the construction of this term. As

explained in the Petition, even if the Board adopts a plain and ordinary meaning construction for the term “controller,” the grounds presented in the Petition still illustrate that the claimed “controller” is disclosed in the prior art. Pet., 7. If the Board adopts the District Court’s construction pertaining to the related ’000 Patent that “configured to” means “capable of performing the function without modification” (*see* EX1044), then this limitation is still met by Petitioners’ invalidity grounds which demonstrate that the prior art discloses controllers that are not only capable of performing, but that are described as performing, the recited functions without modification.

PO also asserts that “under 5G NR, *only one bandwidth part may be activated* for a user equipment.” POR, 13 (emphasis added). PO does not explain how this 5G NR issue relates to the claims, or how it aligns with the claim requirement that “*each UL BWP is activated* through downlink (DL) control information.” The Challenged Claims are not expressly limited to 5G methods and equipment. The ’463 Patent expressly states that “it is possible to define a plurality of downlink and/or uplink BWPs to be simultaneously activated.” EX1001, 7:22-27. Thus, the claimed requirement that “each UL BWP is activated” encompasses a scenario in which more than one bandwidth part is activated for a user equipment without regard to 5G. PO’s expert Dr. Sharony acknowledged under oath that the claim “doesn’t say 5G” and that he was “not in a position to say that 5G satisfies” the claim limitations. EX1050,

54:15-55-16 (“I didn’t do analysis to check that each and every limitation of claim 1 is satisfied by 5G”). PO’s contentions regarding the requirements of 5G do not limit the scope of the Challenged Claims.

IV. ALL CHALLENGED CLAIMS ARE UNPATENTABLE

A. The Prior Art Discloses the Claim Limitations that Were the Basis for Allowance During Prosecution

The POR does not rebut the evidence in the Petition that the Challenged Claims are unpatentable. The Challenged Claims issued due to the inclusion of two limitations indicated as allowable by the Examiner: element 1[e] “wherein the UL control channel resource sets are configured for each UL bandwidth part (BWP) configured for the user equipment”; and element 1[f] “wherein the each UL BWP is activated through downlink (DL) control information.” Pet., 10-11. The Petition demonstrates that both limitations were taught by the prior art.

For Ground 1, Takeda (EX1007) discloses “one or more *BWPs configured for the user terminal*,” with each UL BWP having multiple uplink resources configured to transmit UL signals. Pet., 32-34 (citing EX1007, ¶¶ 95-98, 103, 112, FIGS. 8-9). Takeda further discloses that “[t]he user terminal may *control activation and/or deactivation of one or more UL BWPs configured in the user terminal* based on... for example, *DCI* [downlink control information] (UL grant)....” Pet., 35 (citing EX1007, ¶¶ 120, 139). Thus, the allowable subject matter in the

Challenged Claims is expressly disclosed by Takeda. Pet., 32-25 (citing EX1002, ¶¶ 147-156).

For Ground 2, Marinier (EX1011) likewise discloses that “*each BW part may include corresponding PUCCH and PUSCH resources*,” meaning that each BWP is configured to transmit uplink information. Pet., 52 (citing EX1011, ¶ 130.) Marinier also discloses DCI that includes a UL grant that “direct[s] the WTRU to transmit over on [sic] an uplink (UL) channel...” Pet., 53 (citing EX1011, ¶¶ 62, 103). In combination with Marinier, R1-1711853 (EX1012) further states that activation of UL bandwidth parts is performed “by means of DCI (explicitly and/or implicitly).” Pet., 54 (citing EX1012, ¶ 228). Thus, the allowable subject matter in the Challenged Claims is also expressly disclosed by the prior art of Ground 2. Pet., 51-54 (citing EX1002, ¶¶ 220-228).

The Challenged Claims are therefore unpatentable.

B. Ground 1: Claims 1-9 Would Have Been Obvious Over Takeda in View of Yan

PO asserts that “the ‘each’ language in elements 1[e] and 1[f] of these challenged claims render them patentable over the asserted Grounds.” POR, 16. PO is wrong. PO fails to provide a consistent interpretation of the term “each” in elements 1[e] vs. element 1[f]. PO also fails to provide any cogent explanation as to how these elements distinguish the Challenged Claims over the prior art. The prior art clearly discloses Elements 1[e] and 1[f] under any claim interpretation.

1. PO's Attempt to Distinguish Takeda Fails Given that PO's Argument Hinges on Its Faulty, Inconsistent Interpretations of the Same Term "Each" in Element 1[e] vs. Element 1[f]

Takeda discloses "each UL BWP" as recited in element 1[e] and "*the* each UL BWP" as recited in element 1[f] when properly construed. PO's attempt to distinguish Takeda therefore fails.

First, PO does not explain why the disclosure of *one* UL BWP in Takeda does not meet the claim limitation of "*each* UL BWP." The claims do not expressly require a plurality of BWPs. By the plain language, the phrase "each UL bandwidth part (BWP) configured for the user equipment" in element 1[e] could be satisfied by a UE that is configured with a single UL BWP. The '463 Patent discloses embodiments having one UL BWP: "[s]pecifically, in the NR, *one* or more BWPs may be configured through one serving cell from a view of a UE." EX1001, 7:6-7; 8:22-27, 8:40:42. If only one UL BWP is configured for the UE, then the claim can be satisfied by configuring UL control channel resource sets for that BWP, and activating that BWP—and there is no dispute that Takeda provides disclosure of one UL BWP that is configured and activated. *See* Pet., 11-12 (citing EX1007, FIG. 8) and 32 (citing EX1002, ¶ 149: "Takeda show that multiple UL resources are configured for a single UL BWP"). Thus, by the plain language of the claim, Takeda's disclosure of an embodiment having one configured and activated UL BWP is sufficient to satisfy elements 1[e] and 1[f].

Second, even under PO's faulty construction requiring "each BWP" to require multiple BWPs, PO's argument regarding "each" is inconsistent in applying this requirement. Dr. Sharony testified that the reference to "each" UL BWP in element 1[e] means that the claim requires more than one BWP. EX1050, 76:4-77:7. Dr. Sharony went on to explain that "each" in element 1[e] means that "each and every" BWP has to be configured. EX1050, 80:4-18. But Dr. Sharony adopted a different interpretation of the same language—"each UL BWP"—in discussing element 1[f]. In the content of that claim element, Dr. Sharony repeatedly asserted that "only one [BWP] is activated." EX1050, 83:6-12, 96:3-9.

By contrast with Dr. Sharony, Petitioners' expert Dr. Roy applied a consistent definition of the "each" claim language in his analysis of the prior art. Regarding element 1[e], Dr. Roy explained that "Takeda explicitly discloses that UL resources are configured for BWPs, and Yan's resource allocation method would be used for selecting among the UL resources that are configured for *each BWP*." Pet., 34 (citing EX1002, ¶ 153). Regarding element 1[f], Dr. Roy opined that Takeda was not limited to activating "only one" BWP: "Takeda explicitly states '[t]he user terminal may control activation and/or deactivation of one *or more UL BWPs* configured for the user terminal." Pet., 35 (citing EX1002, ¶ 156).

Third, PO assumes that the Challenged Claims require "*many* bandwidth parts configured for a user equipment" but that "*only one* bandwidth part may be

activated,” and asserts patentability based on its construction. POR, 13-14 (emphasis added). The Challenged Claims are not so limited. Element 1[e] recites “configured for *each* UL bandwidth part (BWP)” and element 1[f] recites “*the each* BWP is activated”. Claim 1 does not require configuring any specific number of BWP(s); nor does Claim 1 require activating any specific number of BWP(s). Under any reading, Claim 1 cannot be read to mean that “each” in element 1[e] requires configuring more than one BWP whereas “the each” in element 1[f] requires activating only one BWP, as PO contends. PO’s construction is at odds with the express language of elements 1[e] and 1[f] in which “each” in element 1[e] provides antecedent basis for “*the each*” in element 1[f]. The ’463 Patent discloses that “in the NR, *one or more* BWPs may be configured” (EX1001, 7:6-7)—just like the prior art (*see, e.g.,* EX1002, ¶ 156). *See also* EX1001, 7:16-25, 8:22-27, 8:40-42. PO cites the prosecution history (POR, 15-16) but fails to explain what, if any, claim scope was disclaimed/disavowed and what intrinsic evidence requires PO’s inconsistent “many” vs. “only one” constructions of “each” in elements 1[e] and 1[f].

PO’s arguments are fatally undermined by Dr. Sharony’s interpretation that the phrase “each UL BWP” in element 1[e] means that all UL BWPs must be configured, but that “the each UL BWP” in element 1[f] means that only one UL BWP is activated. EX1050, 99:3-100:8. PO’s interpretation as asserted by Dr.

Sharony is inconsistent with the plain and ordinary meaning of the claim language, and lacks support in the intrinsic evidence.

2. Takeda Discloses Elements 1[e] and 1[f] Under Any Construction

When the “each” language in elements 1[e] and 1[f] is interpreted consistently, there can be no dispute that these elements are present in Takeda. Takeda expressly discloses an embodiment in FIG. 9 that has two UL BWPs, UL BWP#1 and UL BWP#2. Pet., 32-34 (citing EX1007, ¶¶ 112, 117, FIGS. 8-9).

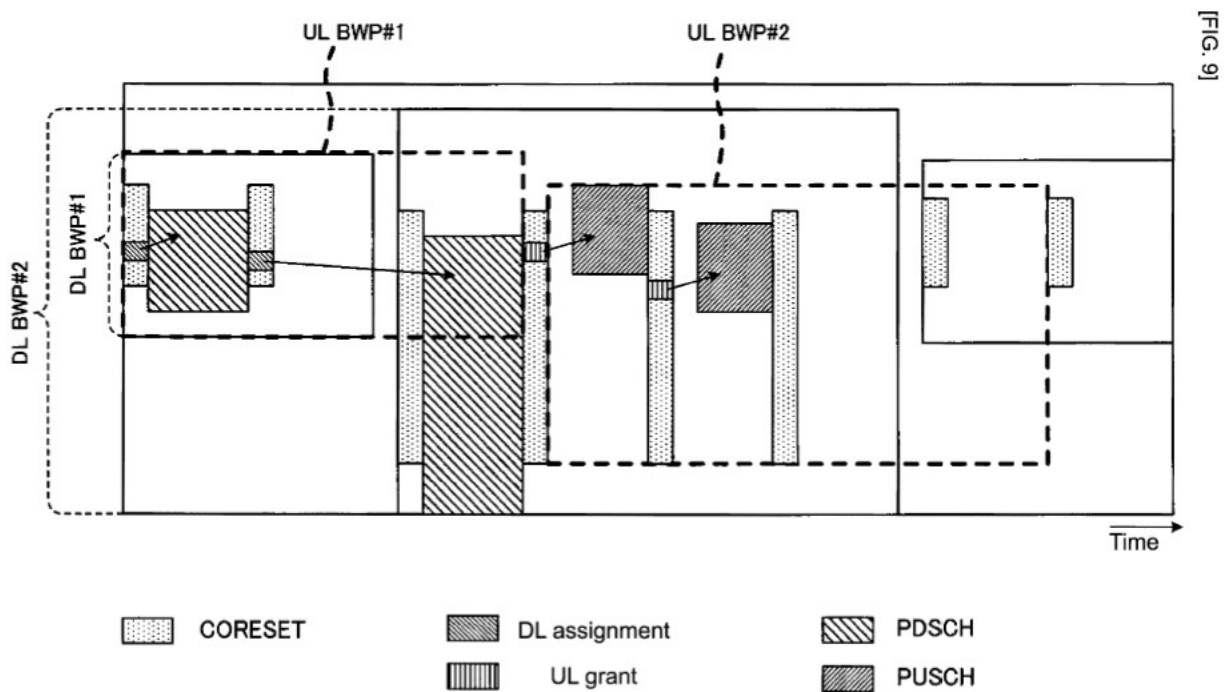


Figure 9 of Takeda

Takeda teaches a plurality of the BWPs in Fig. 9 (i.e., both BWPs) that have respective control channel resource sets (e.g., PUCCH and/or PUSCH), meaning that each UL BWP is configured to transmit UCI. *Id.* (citing EX1007, ¶¶ 107, 112, 117,

FIGS. 8-9). A POSITA would have understood that both UL BWPs of Takeda *must* be configured at least because both UL BWPs can be activated to transmit UCI, as Dr. Sharony testified. EX1050, 124:4-6 (“Q. The BWP has to be configured in order to be activated, right? A. Yes.”). Dr. Roy testified that Takeda expressly discloses “BWPs *configured* for the user terminal 20 to communicate with the radio base stations”. EX1002, ¶76 (citing EX1007, [0015] (“a plurality of BWPs ... may be *configured* per carrier in user terminals”), [0115] (“a plurality of UL BWPs are *configured* in a user terminal”) (emphases added). *See also* Pet., 16 (“Takeda’s configuration of BWPs”). Therefore, Takeda discloses that each UL BWP (i.e. UL BWP#1 and UL BWP#2) is configured.

Takeda discloses elements 1[e] and 1[f] even under PO’s inconsistent “more than one” vs. “only one” constructions of the term “each”. Takeda discloses configuring each of the plurality (i.e. both) of the BWPs in Fig. 9. Takeda then teaches activating only one BWP. EX1007, ¶ 113 (“the user terminal may deactivate UL BWP #1 and activate UL BWP #2.”). Thus, Takeda discloses configuring more than one BWP (both BWP #1 and BWP #2) but activating only one BWP, thereby satisfying PO’s inconsistent “more than one” vs. “only one” construction of the term “each”.

Takeda also discloses that both UL BWPs may be active at the same time: “Even when UL BWP # 2 is activated, UL BWP # 1 may be kept active.” *Id.*, ¶ 114.

Thus, if the Challenged Claims are interpreted to require multiple UL BWPs to be configured and the same (“the each”) multiple BWPs to be activated, Takeda provides express disclosure of these features. Pet., 32-35 (citing EX1002, ¶¶ 147-156).

If the Challenged Claims are interpreted to require all BWPs to be configured, Takeda discloses this as well (*see, e.g.*, Takeda’s Figure 9 in which all UL BWPs are configured).

The prior art discloses elements 1[e] and 1[f] under any interpretation.

3. The Petition Sets Forth Multiple Bases for Combining Yan with Takeda

PO argues that a POSITA would not have combined Yan (EX1010) with Takeda. POR, 16-27. However, PO fails to address the basis for such combination as expressly detailed in the Petition.

Yan is relied on in the Petition as teaching elements 1[a] through 1[d] (and corresponding elements in independent claims 4 and 7). Pet., 23-25, 29, 31-32. PO does not dispute that Yan teaches these elements. They are not addressed in the POR, and Dr. Sharony acknowledged under oath during his deposition that he provided no opinion on elements 1[a] through 1[d]. EX1050, 66:22-6, 68:18-21, 69:22-70:3, 70:17-19.

Instead, PO contends that “Yan fails to disclose any BWPs....” POR, 16-17. But Yan is not relied on in the Petition as teaching multiple BWPs. Because Takeda

teaches multiple BWPs (EX1007, ¶ 103 (“a plurality of UL BWPs”)) Yan is only relied on as disclosing a transmission method for a single frequency band, which a POSITA would have been motivated to apply to each of Takeda’s BWPs.

The Petition details that a POSITA would have been motivated to apply the transmission protocol of Yan to Takeda’s BWP embodiment to address “UCI mismatch,” in which varying UCI sizes result in underutilizing or overutilizing UL channel capacity. Pet., 15-16. PO does not dispute that Yan provides a solution to this problem of UCI mismatch. POR, 23 (“Yan’s scheme also adjusts resources capacity to match the UCI size”). Instead, PO argues that “Takeda does not suffer the problems of UCI mismatch” because it “is based on the 5G NR framework.” POR, 19. PO’s argument is contradicted by the testimony of its own expert. According to Dr. Sharony, a POSITA would not have been able to glean from Takeda’s disclosure how it dealt with the recognized issue regarding UCIs of different sizes. *Id.*, 176:12-14, 178:4-6. Dr. Sharony testified that Takeda is silent on the issue of handling UCI of different sizes. EX1050, 175:15-176:11. This is consistent with the declaration of Petitioner’s expert Dr. Roy, who explained that “mismatch of UL channel resource allocation and UCI size is a risk in transmissions in BWPs of 5G (as disclosed in Takeda).” Pet., 13-15 (citing EX1002, ¶ 107). Lacking such a teaching in Takeda, a POSITA would have turned to Yan to address the problem of UCI mismatch, as explained in the Petition.

Dr. Sharony questioned whether Takeda adhered to all aspects of the 5G NR framework in the first place. When specifically asked whether Takeda handles UCI size issues “the same as is done in 5G,” Dr. Sharony testified that “we don’t know that from Takeda.” *Id.*, 175:15-22. At other points, Dr. Sharony testified that Takeda handles UL resources differently from 5G: “Q. The resource mapping in Takeda, is that different from 5G? A. Yes.” EX1050, 117:9-118:2. PO’s expert testimony is therefore confusing and unreliable. PO’s expert testimony lacks credibility in asserting that Takeda cannot be relied upon with regard to the problem of UCI mismatch simply because Takeda is “based on the 5G NR framework.”

A second motivation Petitioner cites for combining Yan with Takeda would have been to reduce UE power consumption. Pet., 15-17. PO acknowledges that “Takeda... is concerned with reducing UE power consumption... by activating and deactivating bandwidth parts.” POR, 3. However, PO nonetheless argues that this motivation would not have encouraged combination with Yan on the ground that such a combination “may increase the UE’s processing load and energy or power consumption.” POR, 23.

PO’s argument misses the point because it addresses a different factor in UE power consumption. As acknowledged by Dr. Sharony, a UE’s power consumption is not merely based on “processing load” for received messages; it is also based on power consumed during transmission. EX1050, 128:2-10. Takeda addresses power

consumption during transmission. The Petition explicitly recognized “Takeda’s stated goal of reducing EU power consumption *when transmitting UL signals*.” Pet., 15 (citing EX1007, ¶ 13). In managing power consumption during *transmission*, a POSITA would have recognized the potential for “Yan’s resource allocation method... to select a UL resource *for transmitting UCI*” to “provide[] power use efficiencies.” Pet., 15-16 (citing EX1009, 2:7-10). Because PO’s arguments only address power consumption for receiving data, PO fails to address the express motivation present in Takeda, or rebut the motivation detailed in the Petition that combining Takeda and Yan would have improved power consumption for *transmitting* data.

The Petition provides a third motivation for combining Takeda and Yan as the recognized desire to provide backwards compatibility in the UEs of Takeda “[b]y using the same resource allocation methodology in 4G LTE and 5G NR.” Pet., 14-15. PO disputes the existence of any motivation to incorporate “4G LTE-standards solutions into a system designed to operate according to 5G NR standards.” POR, 26. PO’s expert disagrees. To the contrary, Dr. Sharony described such backwards compatibility as “very” useful for a UE, agreeing that “it would be useful to have your UE able to communicate according to both the 5G protocol and the 4G protocol.” EX1050, 178:16-179:3, 180:10-13. Dr. Sharony even recognized that earlier, “non-standalone” UEs had the same functionality as Petitioners’ proposed combination,

namely, “the ability to communicate under both standards.” *Id.*, 181:6-182:16. Dr. Sharony’s testimony aligns with the declaration of Dr. Roy, who explained that “it would have been beneficial to allow a 5G non-standalone operation mode to reuse 4G principles of resource allocation for UL transmission from a UE having 4G LTE, but not 5G NR capabilities.” Pet., 14-15 (citing EX1002, ¶ 106). The experts in this case therefore agree that backwards compatibility would have provided further motivation to combine the identified prior art references.

4. The Combination of Takeda and Yan Includes Every Feature of the Challenged Claims

PO does not dispute the fact that Yan discloses elements 1[a] through 1[d] of independent claim 1 (and corresponding elements in independent claims 4 and 7). For reasons already set forth, Takeda discloses elements 1[e] and 1[f]. Accordingly, every limitation of claim 1 is present in the combination of Takeda and Yan.

PO seeks to sidestep this issue by attacking the references individually, arguing that Takeda lacks the limitations disclosed by Yan, and that Yan lacks the limitations disclosed by Takeda. PO argues that “Takeda does not disclose distinct UE-specific UL control channel resource sets” (POR, 27) but does not dispute that such resource sets are taught by Yan. Pet., 25 (citing Yan, FIG. 1). PO likewise argues that “Yan fails to disclose any BWPs” (POR, 16) and “only sends resource sets for the active component carrier” (POR, 28). However, the record is clear that Takeda teaches multiple BWPs which can be activated. Combining Yan’s teaching

of allocating UL control channel resources in an active frequency band with Takeda's teaching of multiple BWPs leads to the obvious result that "the POSITA would have implemented the resource allocation methods of Yan with the BWP configurations of Takeda." Pet., 23-24 (citing EX1002, ¶ 128). Nothing further is required by independent claim 1.

PO does not address the remaining independent claims or the challenged dependent claims. Accordingly, the prior art of Ground 1 renders obvious each element of independent claim 1, such that all Challenged Claims are unpatentable over Takeda in view of Yan.

C. Ground 2: Claims 1-9 Would Have Been Obvious Over Marinier in View of Yan and Further in View of R1-1711853

PO's arguments regarding Ground 2 substantially overlap with those of Ground 1 and fail for the same reasons. Those arguments specific to Ground 2 are addressed below.

1. Marinier Discloses Elements 1[e] and 1[f]

PO argues that "Marinier... fails to disclose a concept of a BWP that is configured but not activated for a user terminal." POR, 29. However, this argument fails to track the claim language. Element 1[e] requires that *each UL BWP* be configured, and element 1[f] requires that *each UL BWP* be activated. The Challenged Claims do not recite "a concept of a BWP that is configured but not activated for a user terminal." As such, PO's argument lacks merit.

PO argues that “Marinier does not use the BWP concept at all in the 5G NR sense.” POR, 30. Once again, PO’s argument does not track the claim language. The Challenged Claims do not require BWPS “in the 5G NR sense.” The Challenged Claims are not limited to 5G technology. Marinier explicitly recites bandwidth parts using the same terminology as the Challenged Claims: “the bandwidth (BW) utilized by the different serving sites may be divided into a plurality of BW parts.” Pet., 52 (citing EX1011, ¶ 130). This disclosure satisfies the claims’ requirements.

With respect to element 1[e], Marinier discloses that UL control channel resource sets are configured for each of its BW parts: “*each BW part may include corresponding PUCCH and PUSCH resources.*” Pet., 52 (citing EX1011, ¶ 130). With respect to element 1[f], Marinier discloses that each of its BW parts (containing PUCCH resources) is used for communication between serving sites and WTRUs. Pet. 53 (citing EX1011, ¶¶ 130, 147). A POSITA would have understood that a bandwidth part “containing” a PUCCH used for UL transmission would have to be *activated* to perform the UL transmission. Pet., 53.

PO tacitly concedes that Marinier teaches activating each of its BWPs. PO acknowledges that “*Marinier is directed to frequency channels or frequency bands that are activated* specifically for handling concurrent transmissions to avoid interference and collisions.” POR, 30. Dr. Sharony’s sworn testimony acknowledges that Marinier uses DCI to tell each of its component frequency bands when to

transmit UCI: “the DCI is telling each component carrier in Marinier when to transmit that information. Is that correct? A. Yes.” EX1050, 199:17-200:7. Once again, Dr. Sharony’s testimony echoes that provided by Dr. Roy: “The WTRU uses the UL grant in the DCI to select the PUCCH resource from ‘dedicated PUCCH resources’” for sending the UCI. Pet., 52-53 (citing EX1002, ¶ 226). A POSITA would understand that using DCI to tell each BW part in Marinier when to transmit UCI constitutes “activating” each UL BWP through DCI, as required by element 1[f]. Pet., 53 (citing EX1002, 225-228).

PO’s argument that Marinier “never activates a BWP entity” (POR, 31) is based on its incorrect contention that the “BW parts” disclosed by Marinier are not “BWPs” as required by the claim. The Board should reject this argument, as Marinier discloses the subject matter of elements 1[e] and 1[f].

2. The POR Does Not Rebut the Bases in the Petition for Combining Yan and R1-1711853 with Marinier

PO does not dispute the motivation in the Petition for modifying Marinier based on R1-1711853. PO limits its arguments on Ground 2 to opposing the combination of Marinier and Yan, stating that a POSITA would not have been motivated to incorporate Yan’s teachings “ensuring that UL resources are used efficiently” into the BWP regime of Marinier. POR, 32.

PO’s arguments are contradicted by Dr. Sharony’s sworn testimony conceding that Marinier is concerned with ensuring that the uplink resources used

for transmitting UCI do not conflict or overlap. EX1050, 203:10-204:14. This directly supports Petitioners' argument that a POSITA would have looked to Yan to avoid the "mismatch of UL channel resource capacity and UCI size" which could result in such conflicts in Marinier. Pet., 44-45 (citing EX1002, ¶ 201). Moreover, PO admits that both Marinier and Yan are 4G LTE technologies (POR, 4). PO's admission supports Petitioners' argument that a POSITA would have had a reasonable expectation of success in combining Marinier and Yan. Pet., 45-46.

Effectively acknowledging that the combination is appropriate, PO argues that the claimed features would be absent "even if Yan were combined with Marinier/R1-1711853." POR, 33. PO's argument is contradicted by its own admissions. PO admits, in the context of combining Marinier and Yan, that Yan "would instruct a POSITA to only *configure resource sets for* the component carrier (i.e., *the active channel*)." POR, 5 (emphasis added). PO further acknowledges elsewhere that "*each bandwidth portion* of Marinier's frequency partition *is active*." POR, 4. Thus, by its own reasoning, PO admits that Yan "would instruct a POSITA to configure resource sets" for "*each bandwidth portion*" of Marinier. This combination satisfies element 1[e] of independent claim 1.

D. PO's Complaints About Alleged Deficiencies in the Petition Are Without Merit

PO asserts that the Petition is facially deficient. POR, 33-39. PO regurgitates the same arguments regarding claim elements 1[e] and 1[f] which fail for reasons already discussed.

Concerning element 1[f], PO asserts that “Petitioners’ challenge is limited to quoting two sentences from Takeda *without analysis*.” POR, 34. However, the Petition details reasons why the claim limitation in question would have been obvious in view of the cited portion of Takeda. *The claim limitation recites “the each UL BWP is activated through downlink (DL) control information” and the cited portion of Takeda recites essentially the same subject matter: “[t]he user terminal may control activation and/or deactivation of one or more UL BWPs configured for the user terminal based on the explicit or implicit indication information. The explicit indication information may be, for example, DCI [downlink control information] (UL grant).”* Pet., 35 (citing EX1007, ¶¶ 120, 139). This disclosure alone satisfies the claimed element. PO overlooks the additional analysis provided in the relevant paragraphs of the Roy Declaration (EX1002), which are cited in the Petition. *See* Pet., 35 (citing E. 1002, ¶¶ 154-56 (“Activation is performed through DCI when the UE receives, from the BS, ‘DL control information containing information that indicates one of one or more BWPs....”). Dr. Roy’s uncontested testimony is credible, reliable and based upon practical

experience, which demonstrates that this claim element is satisfied by the cited prior art.

PO's arguments regarding the sufficiency of the Petition as to Ground 1 are again based on an erroneous interpretation of "each" as already discussed. POR, 35-36. PO fails to establish that the term "each" requires more than one UL BWP. Regardless, Takeda discloses "one or *more UL BWPs*" (e.g., Figure 9) and satisfies "each" under any interpretation. Pet., 34-35.

PO presents similar arguments as to Ground 2, arguing that "Marinier fails to disclose that 'UL control channel resource sets are configured for each' such UL BWP configured for a user equipment." POR, 38. PO is mistaken. The Petition expressly cites Marinier's disclosure that "each BW part may include corresponding PUCCH and PUSCH resources," which are control channel resource sets. Pet., 52 (citing EX1011, ¶¶ 130, 147). The Petition details that "[t]he BWPs may be specifically configured for each WTRU." *Id.* Thus, Marinier satisfies claim element 1[e]. Pet., 51-52 (citing EX1002, ¶ 223).

PO argues that Ground 2 is deficient because "Marinier fails to correlate DCI with activation of a UL BWP...." POR, 38. As already discussed, this argument is contradicted by Dr. Sharony's testimony that the DCI in Marinier tells each component carrier when to transmit UCI. EX1050, 199:17-200:7. PO also fails to

account for Petitioners' reliance on R1-1711853 as separately teaching this limitation. Pet., 52-53 (citing EX1012, 2).

In summary, the Petition with supporting exhibits including expert testimony present substantial evidence to support a finding that all claim limitations are disclosed and suggested by the prior art, and that the Challenged Claims are unpatentable.

E. PO's Expert Lacks Experience with 5G

PO's expert Dr. Sharony lacks sufficient experience with the 5G telecommunication standard to support PO's arguments regarding that standard. Dr. Sharony testified that the 5G standard was developed by the 3GPP organization during the 2015-2020 timeframe. EX1050, 46:9-47:10; *see also* EX1035, EX1036. But since the start of this timeframe, Dr. Sharony has performed essentially no work in the telecommunications sector, having last consulted in a telecommunications role around 2015. *Id.*, 30:6-15, 31:20-32:5. Dr. Sharony has authored no publications regarding telecommunications since 2012. EX2005, 54. Dr. Sharony did not attend any 3GPP conferences relating to the development of 5G. EX1050, 45:12-21, 46:6-8. The extent of Dr. Sharony's telecommunications experience since 2015 consists of having taught a course about 5G around four times. *Id.*, 19:15-20:3, 29:15-19. Lacking substantive practical experience in developing, consulting, or publishing on the 5G standard, Dr. Sharony lacks sufficient basis to support PO's arguments

regarding the requirements of 5G or its connection to the cited prior art references. The Board should not credit PO's arguments regarding 5G over those supported by Petitioners' expert Dr. Sumit Roy, who is an expert on 5G and whose experience includes serving as Program Lead for the US Department of Defense on 5G programs. EX1002, ¶ 12.

V. CONCLUSION

The Challenged Claims of the '463 Patent are unpatentable.

Date: January 6, 2026

Respectfully submitted,

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APPENDIX A - LIST OF EXHIBITS

EXHIBIT	DESCRIPTION
1001	U.S. Patent No. 10,638,463
1002	Declaration of Dr. Sumit Roy
1007	Certified Translation of International Publication No. WO 2019/030929 A1
1009	Certified Translation of International Publication No. WO 2017/024554 A1
1010	U.S. Patent No. 10,736,085 B2
1011	U.S. Patent Application Publication No. US 2014/0056278 A1
1012	Activation/deactivation of bandwidth part
1035	Icaro Da Silva, <i>et al.</i> , “Tight integration of new 5G air interface and LTE to fulfill 5G requirements” <i>IEEE</i> (2015)
1036	Patrick Marsch, <i>et al.</i> , “5G Radio Access Network Architecture: Design Guidelines and Key Considerations” <i>IEEE Communications Magazine</i> (November 2016)
1044	Claim Construction Order signed on July 3, 2025 (Dkt. 416 filed July 7, 2025) in <i>Pegasus Wireless Innovation LLC v. Verizon Communications Inc. et al</i> , No. 2:23-cv-00640 (E.D. Tex.)
1050	Deposition Transcript of Jacob Sharony, Ph.D., dated November 20, 2025 with errata sheet
2005	Declaration of Jacob Sharony, Ph.D.

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that the foregoing Reply contains 5,043 words, excluding the parts which are exempted by 37 C.F.R. §42.24.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this 6th day of January, 2026, a true and correct copy of the foregoing **PETITIONERS' REPLY** is being served by electronic mail to Patent Owner's counsel as follows:

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