

PETITIONERS' DEMONSTRATIVES FOR ORAL ARGUMENT

March 5, 2026

Google LLC et al. v. KT Corporation and Pegasus Wireless Innovation LLC
Case No. IPR2025-00083
U.S. Patent No. 10,638,463

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Issued: April 28, 2020



Independent Claim 1

All claims rise or fall with Claim 1

1[pre] →

1[a] →

1[b] →

1[c] →

1[d] →

1[e] →

1[f] →

21	US 10,638,463 B2	22
What is claimed is:		5. The method according to claim 4, wherein the one of the UL control information is on a size of
1. A method of transmitting uplink (UL) control information by a user equipment, the method comprising:		receiving, from a base station, UL control channel resource set configuration information for UL control information transmission;
		determining one of UL control channel resource sets contained in the UL control channel resource set configuration information;
		determining one of UL control channel resources contained in the determined UL control channel resource set; and
		transmitting UL control information through the determined UL control channel resource,
		wherein the UL control channel resource sets are configured for each UL bandwidth part (BWP) configured for the user equipment, and
		wherein the each UL BWP is activated through downlink (DL) control information.
receiving the UL control information through one of UL control channel resources configuring one of UL control channel resource sets contained in UL control channel resource set configuration information, wherein the UL control channel resource sets are configured for each UL bandwidth part (BWP) configured for the user equipment, and wherein the each UL BWP is activated through downlink (DL) control information.		9. The user equipment according to claim 7, wherein the receiver receives, from the base station, DL control information containing information that indicates the one of the UL control channel resources for the UL control information transmission, wherein the one of the UL control channel resources is indicated from the base station through the DL control information.
		* * * * *

EX1001.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Buchanan Ingersoll & Rooney PC

The '463 Patent

Problem/Solution:

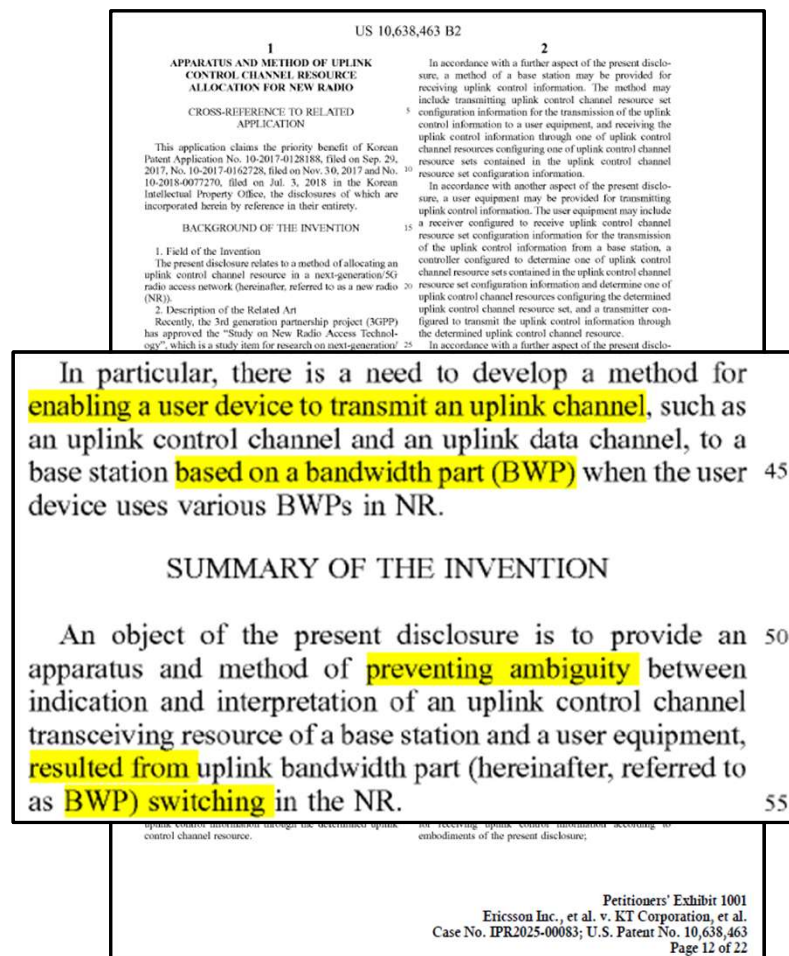
Transmit on an uplink (UL) control channel of a user equipment (UE) to a base station (BS), while preventing “ambiguity” in the UL transmission due to bandwidth part (BWP) switching.

The “ambiguity” solution includes:

the UE receiving “uplink control channel resource set configuration information” from the BS to configure a BWP using known 4G techniques, and

activating the BWP through downlink control information (DCI) from the DS.

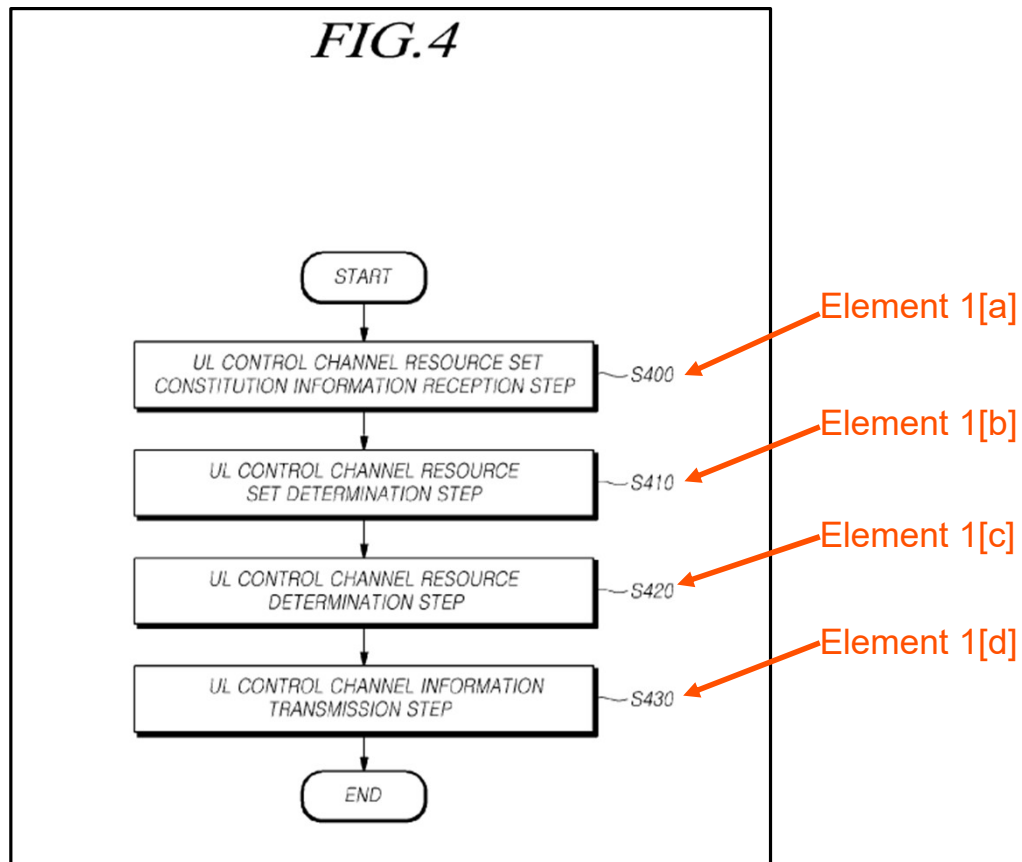
EX1001, 1:42-67.



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The '463 Patent's Claim 1, Elements 1[a]-1[d]



**All Disclosed by Yan
(undisputed by Patent Owner)**

Pet, pp. 2-3; EX1001, Fig. 4.

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Grounds 1 and 2

Ground 1

Claims 1-9 are unpatentable over Takeda (EX1006, EX1007) and Yan (EX1010)

Takeda discloses BWP concepts “applicable to” 4G and 5G (Pet. at 14, citing EX1007, [0239]).

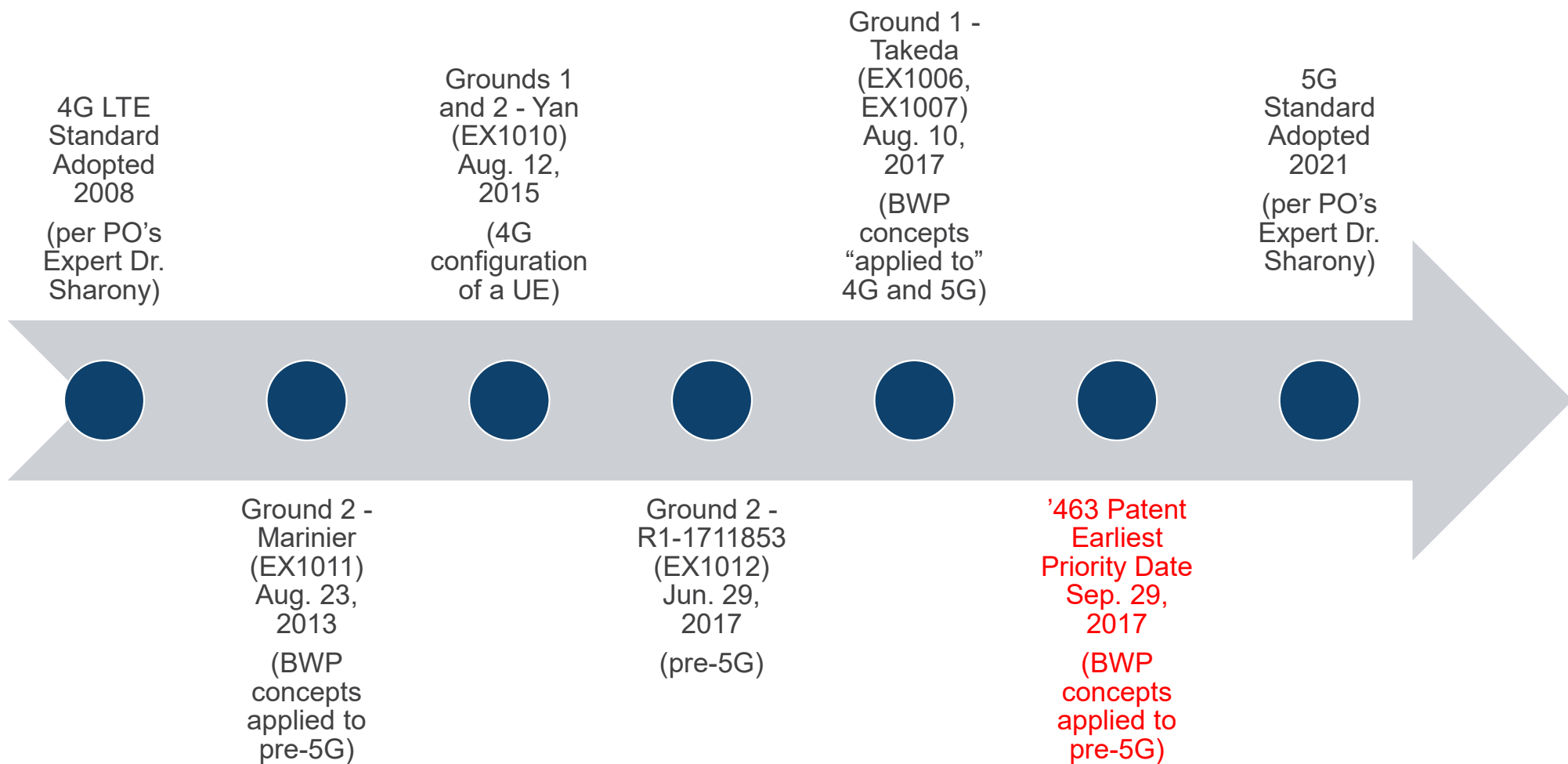
Yan discloses known 4G resource allocation concepts of Claim 1 for configuration of a UE, Elements 1[a]-1[d]. (Pet. at 24-25 and 29-32).

Ground 2

Claims 1-9 are unpatentable over Marinier (EX1011), Yan (EX1010), and R1-1711853 (EX1012)

Marinier discloses known BWP concepts applicable to pre-5G LTE (Pet. at 43-44 and 52).

Yan discloses known 4G resource allocation concepts of Claim 1 for configuration of a UE, Elements 1[a]-1[d]. (Pet. at 24-25 and 29-32).



Ground 1 Takeda's System (EX1006, EX1007)

“BWP” concepts
applied to 4G and 5G

Pet, pp., 8, 34; EX1006, EX1007.

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may be included.

[0118] In this way, the UL signals that are necessarily configured in each UL BWP may be different, and the UL signals that a user terminal can transmit in each UL BWP may be different. For example, in FIG. 10, the user terminal may control transmission of the PRACH and/or the PUCCH in UL BWP #1, and may control transmission of at least one of the PUSCH, SRS, and DMRS in UL BWP #2.

[0119] In FIG. 10, the UL signal that is always configured in each UL BWP can be made different, and thus when a plurality of UL BWPs are configured in the user terminal, it is possible to efficiently transmit the UL signal in each UL BWP.

[0120] <Activation/Deactivation Control>

The user terminal may control activation and/or deactivation of one or more UL BWPs configured in the user terminal based on the explicit or implicit indication information. The explicit indication information may be, for example, a DCI (UL grant) or a MAC CE including a resource allocation field set to a specific value (for example, 0).

message that is transmitted from the wireless base station in response to a higher layer control message when the user terminal transmits the control message using the resources specified by the UL grant included in the RAR. The user terminal that received the message 4 transitions from an idle state to an RRC connected state.

[0122] Also, the user terminal may control deactivation of the UL BWP by using a timer (joint timer or UL timer). The control of deactivation of the

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[0237] In the present specification, a specific operation described as being performed by a base station may be performed by an upper node (upper node) of the base station in some cases. In a network consisting of one or a plurality of network nodes (network nodes) having a base station, it is apparent that various operations performed for communication with a terminal may be performed by the base station, one or more network nodes other than the base station (for example, conceivably but not limited to, an MME (mobility management entity), S-GW (serving-gateway), or the like), or a combination thereof.

[0238] Each aspect/embodiment described in the present specification may be used alone, may be used in combination, or may be switched and used in

[0239] The aspects/embodiments described in the present specification may be applied to a system using LTE (long term evolution), LTE-A (LTE-advanced), LTE-B (LTE-beyond), SUPER 3G, IMT-Advanced, 4G (4th generation mobile communication system), 5G (5th generation mobile communication system), FRA (future radio access), New-RAT (radio access technology), NR (new radio), NX (new radio access), FX (future generation radio access), GSM® (Global System for Mobile Communications), CDMA2000, UMB (ultra mobile broadband), IEEE 802.11 (Wi-Fi®), IEEE 802.16 (WiMAX®), IEEE 802.20, UWB (ultra-wideband), Bluetooth®, and other suitable wireless communication methods, and/or an expanded next generation system based on these.

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Ground 2 Marinier (EX1011)

“BW parts” (BWP)
concept applied to
pre-5G

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the UE-specific search space of the secondary BWP and may not monitor the DL assignment in the UE-specific search space of the primary BWP.

[0059] FIG. 4 is a diagram illustrating one example of a second fallback mechanism according to the first aspect. Note that for FIG. 4, differences from FIG. 2 will be mainly described. FIG. 4 is different from FIG. 2 in that DL BWP #1, which is the primary BWP, is kept active and activation or deactivation of DL BWP #2, which is the secondary BWP, is controlled.

[0060] In FIG. 4, CORESET #1 may be configured in DL BWP #1, and CORESET #2 may be configured in DL BWP #2. The CORESET #1 may include a common search space and a UE-specific search space. Conversely, CORESET #2 may not include the common search space and may include the UE-specific search space.

[0061] In FIG. 4, the user terminal activates DL BWP #2 based on the DCI (DL assignment) for DL BWP #2 detected in the common search space

[0062] For example, the WTRU may receive grants (e.g., dynamic grants via a Physical Downlink Control Channel (PDCCH), semi-persistent scheduling (SPS) grants, other uplink grants, etc.) from each of the two scheduling sites. The grants may direct the WTRU to transmit over on an uplink (UL) channel (e.g., Physical Uplink Control Channel (PUCCH), Physical Uplink Shared Channel (PUSCH)), and two or more grants may allocate resources to the WTRU that overlap in the frequency and/or time domain(s). In such a situation, the WTRU may be unable to comply with the grant transmitted from one or more of the sites.

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US 2014/0056278 A116Feb. 27, 2014

[0125] In an example, a WTRU may include a request to use reduced symbol transmission in a service request indication sent to a serving site. For example, a WTRU may include a list used in the same subframe if the transmission/reception of the physical channels occurs in different resource blocks (e.g., a first physical channel associated with a first MAC instance is

[0130] As an example, frequency segregation may be performed in order to transmit to multiple serving sites in the same subframe. Frequency segregation may be used in addition to time segregation and/or without time segregation. For example, if a partially overlapping time segregation scheme is utilized, frequency segregation may also be utilized, for example for subframes for which there is partial overlap and/or for all subframes. For example, a WTRU may be configured with one of more frequency subband subsets for one or more serving sites. For example, if a first cell of a first serving site operates in the same frequency band and/or component carrier of a second cell of a second serving site, the MAC instances associated with the different serving sites may be configured to use different subband subsets within the frequency band/component carrier. In an example, the bandwidth (BW) utilized by the different serving sites may be divided into a plurality of BW parts. Each serving site may be configured to utilize one or more of the BW parts for communicating with the WTRU. For example, each BW part may be treated as a component carrier in carrier aggregation. For example, each BW part may include corresponding PUCCH and PUSCH resources. Some bandwidth parts may include PUCCH without a PUSCH (e.g., for CSI reporting to a serving site) and/or PUSCH without PUCCH.

Petitioners' Exhibit 1011
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Pet, pp. 9, 53; EX1011, ¶¶[0062], [0130].

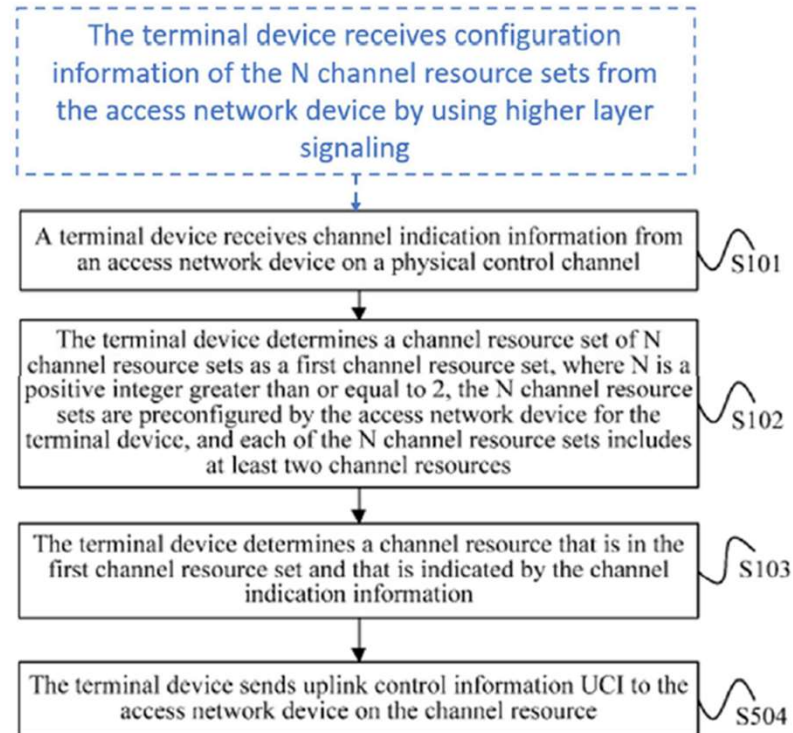
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Grounds 1 and 2 Yan FIG. 1 (EX1010)

Configuration of an “uplink
(UL) control channel”

Ex. 1010, FIG. 1 (annotated)



Ground 2 R1-1711853 (EX1012)

3GPP TSG RAN1 NR Ad-Hoc#2
Qingdao, P.R. China June 27th – 30th,
2017
Agenda Item: 5.1.7

Activation/deactivation

Ericsson, [Intel, M

Proposal

- **Activation/deactivation of DL/UL bandwidth** parst can be
 - by means of higher-layer signaling
 - System information, dedicated RRC signaling
 - **by means of DCI** (explicitly and/or implicitly) or MAC CE [one to be selected]
 - By means of DCI could mean
 - Explicit: Indication in DCI (FFS: scheduling assignment/grant or a separate DCI) triggers activation/deactivation
 - Implicit: Presence of DCI (scheduling assignment/grant) in itself triggers activation/deactivation
 - This does not imply that all these alternatives are to be supported.
 - by means of timer
 - Activation/deactivation when UE has not received downlink scheduling assignment within a certain time
 - according to configured time pattern

Element 1[f]

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Pet, pp. 9-10; EX1012.

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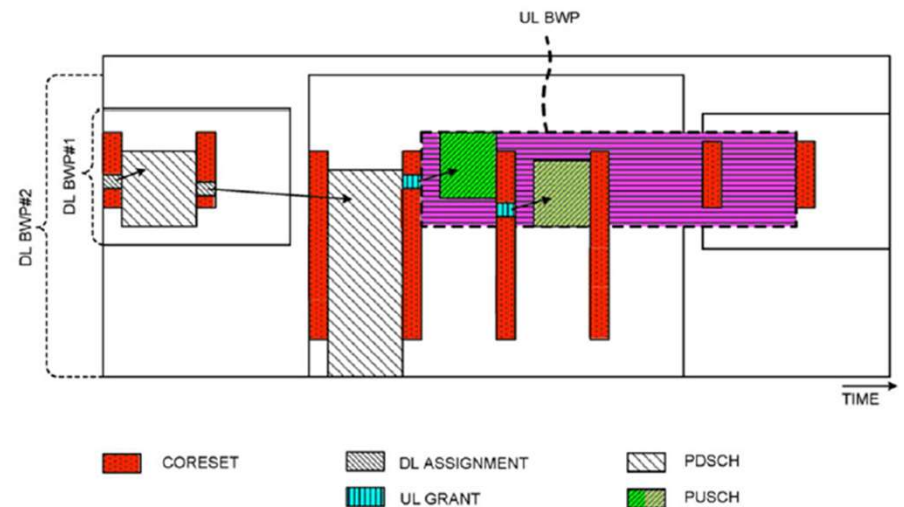
Ground 1: Element 1[pre]

Takeda Discloses Element 1[pre]:

- UE “terminal device”
- “controls transmission of a UL data channel.”
Id., [0004], [0140] (“Uplink control information (UCI)... is transmitted on the PUSCH or the PUCCH”).

Not Disputed by Patent Owner

Ex. 1007, FIG. 8 (annotated)



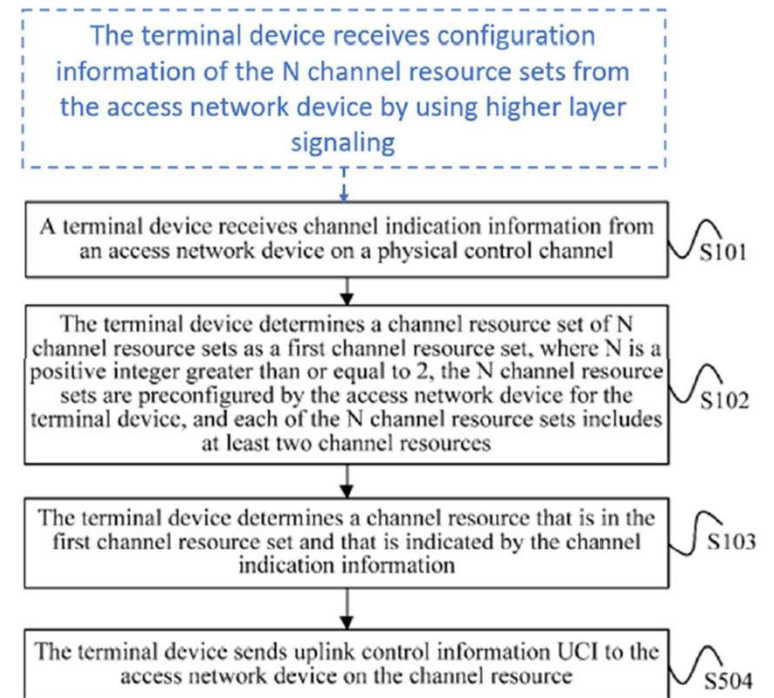
Ground 1: Elements 1[a], 1[b]

Yan Discloses Elements 1[a], 1[b]:

- 1[a] Before FIG. 1, Step S101 the UE receives “configuration information of the N channel resource sets from the access network device by using higher layer signaling”; “N channel resource sets are preconfigured by the access network device for the terminal device”
Ex. 1010, 19:5-12; Ex. 1009, 25:20-24.
- 1[b] Step S102: “[t]he terminal device determines a channel resource set of N channel resource sets as a first channel resource set... the N channel resource sets are preconfigured by the access network device for the terminal device, and each of the N channel resource sets includes at least two channel resources.” *Id.*

Not Disputed by Patent Owner

Ex. 1010, FIG. 1 (annotated)



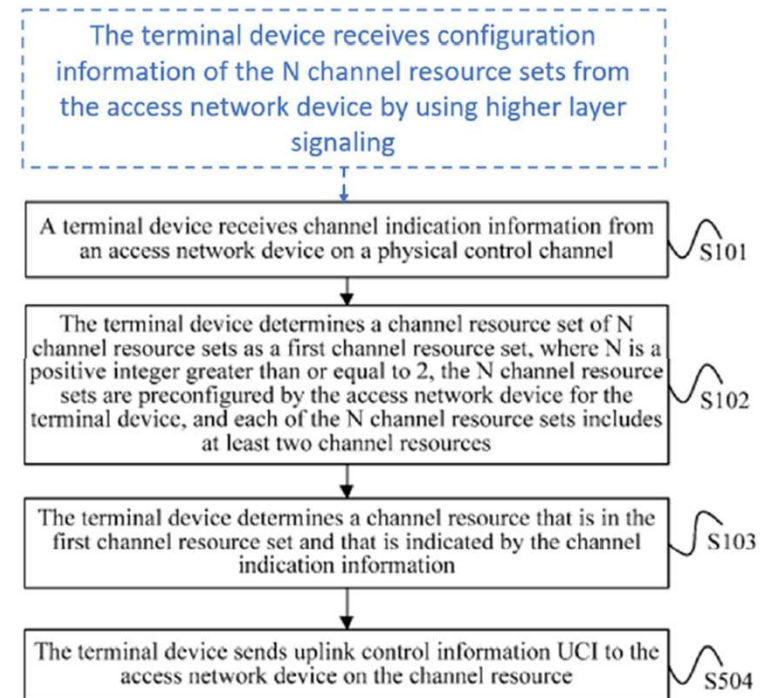
Ground 1: Elements 1[c], 1[d]

Yan Discloses Elements 1[c], 1[d]:

- 1[c] Yan's FIG. 1, Step S103: "[t]he terminal device determines a channel resource that is in the first channel resource set and that is indicated by the channel indication information." Ex. 1010, 20:27-42; Ex. 1009, 26:28-27:4.
- 1[d] Yan's FIG. 1, Step S104: "[t]he terminal device sends uplink control information UCI to the access network device on the channel resource." Ex. 1010, 12:25-33, 20:43-50, 22:42-50, 25:65-26:11, 26:47-67; Ex. 1009, 16:21-26, 27:24-28, 30:17-22, 35:2-10, 36:2-14.

Not Disputed by Patent Owner

Ex. 1010, FIG. 1 (annotated)



Ground 1: Elements 1[e], 1[f] - “each”, “the each”

PO's Inconsistent “Each” Interpretation

- The POR asserted: “many bandwidth parts configured for a user equipment” but “only one bandwidth part may be activated.” POR, 13-14 (emphasis added).
- The POR attempted to distinguish Claim 1[e]-1[f] over Takeda based on different interpretations of the same term “each” in 1[e] vs 1[f].

POR, pp. 16-17

IPR2025-00083 Patent Owner's Response

a combination of asserted art. Ex. 1004, 159-167. In response, the application amended the independent claims to incorporate these features and to distinguish over the prior art relied upon by the examiner in the stated rejections. Ex. 1004, 68-74.

As the applicant convincingly argued to the examiner concerning a reference to Yiu applied by the examiner, Yiu “merely teaches about BWP but fails to teach i) receiving any information about each UL BWP” Ex. 1004, 73 (emphasis in original). The applicant also argued that Yiu “does not teach activating each UL BWP through DL control information.” Id. (emphasis in original). In these arguments, which were accepted by the examiner as sufficient to overcome the rejections (Ex. 1004, 50-51), the applicant focused on and emphasized the “each” language in these amendments. For reasons discussed below, at least the “each” language in these challenged claims render them patentable over the asserted Grounds.

B. The Petition's Alleged Motivation to Insert Yan into a BWP Environment Uniformly Fails

i. Yan is Focused on an Activated Spectrum Encompassing the Spectrum Bandwidth, not Configured BWPs

Petitioners allege that Yan's teachings for avoiding UCI mismatch support a reason to combine Yan with Takeda in Ground 1, and Yan with Marinier and RI-1711853 in Ground 2. However, it is undisputed that Yan fails to disclose any

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IPR2025-00083 Patent Owner's Response

BWPs, and also therefore fails to disclose a concept of a BWP that is configured but not activated for a user terminal. Sharony, ¶55.

Rather, Yan teaches a POSITA to have resource sets for the active spectrum that is usable by a user terminal. Sharony, ¶66. In other words, even if Yan were combinable with Takeda and Marinier/RI-1711853, the teaching that would be understood by a POSITA would be to have resource groups for the BWP that is to be activated and used by the user terminal. *Id.* Yan is directed to 4G LTE scheme (Ex. 2006, 61:21-22 (“Yan was written intended to LTE”)) and does not disclose or suggest to a POSITA to even consider which BWPs may be configured for a user equipment. Sharony, ¶67.

Petitioners cite to Takeda's [0103] for its disclosure of “one or more BWPs configured for the user terminal.” Pet., 34 (citing Takeda, [0103]). But “one or more” is not the same as “each.” Sharony, ¶85. As Dr. Roy testified at deposition, a UE could have two configured BWPs at the same time, but he did not know how many BWPs could be configured for a user terminal at a given time. Ex. 2006, 82:7-12 (“I would have to go back and look at the specification to answer your question.”); *id.*, 80:13-14 (“That means a UE for a particular subframe, okay, may have two bandwidth parts configured.”). Further, Yan looks only at the component carrier, and does not recognize the concept of BWPs that are configured for a UE. Sharony, ¶65.

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Ground 1: Elements 1[e], 1[f] - “each”, “the each”

PO’s Inconsistent “Each” Interpretation

The POR argued that Takeda’s disclosure of “one or more” BWPs is “not the same as ‘each’” BWP in Claim 1.

POR, pp. 16-17

IPR2025-00083 Patent Owner’s Response a combination of asserted art. Ex. 1004, 159-167. In response, the applicant amended the independent claims to incorporate these features and to distinguish over the prior art relied upon by the examiner in the stated rejections. Ex. 1004, 74. As the applicant convincingly argued to the examiner concerning the prior art to Yiu applied by the examiner, Yiu “merely teaches about BWP but fails to teach activating a BWP through DL control information.” Ex. 1004, 73 (emphasis in original). The applicant also argued that Yiu “does not teach activating a BWP through DL control information.” Id. (emphasis in original). The applicant’s arguments, which were accepted by the examiner as sufficient to overcome the rejections (Ex. 1004, 50-51), the applicant focused on and emphasized the language in these amendments. For reasons discussed below, at least the language in these challenged claims render them patentable over the asserted grounds. B. The Petition’s Alleged Motivation to Insert Yan into a BWP Environment Uniformly Fails i. Yan is Focused on an Activated Spectrum Encompassing Spectrum Bandwidth, not Configured BWPs Petitioners allege that Yan’s teachings for avoiding UCI mismatch is the reason to combine Yan with Takeda in Ground 1, and Yan with Marinier/1711853 in Ground 2. However, it is undisputed that Yan fails to disclose – 16 –	IPR2025-00083 Patent Owner’s Response BWPs, and also therefore fails to disclose a concept of a BWP that is configured but not activated for a user terminal. Sharony, ¶55. Rather, Yan teaches a POSITA to have resource sets for the active spectrum that is usable by a user terminal. Sharony, ¶66. In other words, even if Yan were combinable with Takeda and Marinier/RI-1711853, the teaching that would be understood by a POSITA would be to have resource groups for the BWP that is to be activated and used by the user terminal. Id. Yan is directed to 4G LTE scheme (Ex. 2006, 61:21-22 (“Yan was written intended to LTE”)) and does not disclose or suggest to a POSITA to even consider which BWPs may be configured for a user equipment. Sharony, ¶67. Petitioners cite to Takeda’s [0103] for its disclosure of “one or more BWPs configured for the user terminal.” Pet., 34 (citing Takeda, [0103]). But “one or more” is not the same as “each.” Sharony, ¶85. As Dr. Roy testified at deposition, a UE could have two configured BWPs at the same time, but he did not know how many BWPs could be configured for a user terminal at a given time. Ex. 2006, 82:7-12 (“I would have to go back and look at the specification to answer your question.”); id., 80:13-14 (“That means a UE for a particular subframe, okay, may have two bandwidth parts configured.”). Further, Yan looks only at the component carrier, and does not recognize the concept of BWPs that are configured for a UE. Sharony, ¶65. – 17 –
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Ground 1: Element 1[e]

PO's Expert interpreted the two occurrences of the term "each" in Elements 1[e], [f] inconsistently

Re 1[e]: Dr. Sharony testified:

"each" UL BWP means that the claim requires more than one BWP. EX1050, 76:4-77:7.

Re 1[e]: Dr. Sharony testified: "each" means that "each and every" BWP has to be configured. EX1050, 80:4-18.

Pet., pp. 32-35; EX1050, 77:2-5, 80:4-18.

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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1 you it is referring to a plurality.
2 Q. So the use of "each" here tells you
3 that the claim is referring to a plurality of
4 bandwidth parts?
5 A. Yes.
6 Q. More than one?
7 A. Yes.
8 Q. The claim says that the uplink control
9 channel resource sets are configured for each
10 uplink bandwidth part. Is that right?
11 A. Yes.
12 Q. What does it mean to configure an
13 uplink control channel resource set for a
14 bandwidth part?
15 A. So we said, in each bandwidth part we
16 have multiple sets. So these sets, resource sets,
17 are configured for each. It's pair bandwidth
18 part. Each bandwidth part would have these sets,
19 for example.
20 Q. And in element 1[e] you are
21 configuring the uplink control channel resource
22 sets in each bandwidth part?

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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1 that is configured for the UE, for each of these
2 bandwidth part we have also the control channel
3 resource sets that are configured.
4 Q. You mentioned "every" there. Does
5 "each" basically mean the same as "every" here?
6 A. Again?
7 Q. You used the word "every" bandwidth
8 part. The claim says each uplink bandwidth part.
9 I am asking, when you read "each uplink bandwidth
10 part" in the claim, that means every bandwidth
11 part has to be configured?
12 MR. HELGE: Object to form.
13 A. It is per bandwidth part. So, each
14 bandwidth part. It's each and every one.
15 Q. Each and every one has to be
16 configured according to the claim?
17 MR. HELGE: Objection to form.
18 A. Yes.
19 Q. Does the claim require them to be
20 configured at the same time, or can they be
21 configured at different times? Maybe some are
22 configured at one time and another is configured

Ground 1: Element 1[f]

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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PO's Inconsistent "Each" Interpretation

Re 1[f]: Dr. Sharony testified "the each" means "only one [BWP] is activated." EX1050, 83:6-12, 96:3-9.

Pet., pp. 32-35; EX1050, 83:6-12, 96:3-9.

1 They are not going now to send the configuration
2 information because there is no time. You have to
3 be -- so it has to be kind in one step, in
4 advance. So, you have all the bandwidth part
5 configured even though only one is active.
6 Q. So in your view, the claim requires
7 that all the bandwidth parts are configured at the
8 same time?
9 A. But only one is active.
10 Q. I understand. But they are all
11 configured at the same time?
12 A. They are configured.
13 Q. It doesn't come out and say that,
14 though, but that is how you are reading the claim?
15 A. It is a method claim, and it says that
16 you receive -- it doesn't say receive in part 1
17 or -- sometime you see like "the first
18 configuration information" then "the second
19 configuration information," so you understand
20 different steps. But here it basically refers to
21 it as one shot.
22 Q. And you are referring to element 1[a]

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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1 Q. But not bandwidth parts?
2 A. Not bandwidth parts.
3 Q. Does element 1[f] require that each
4 uplink bandwidth part be activated at the same
5 time?
6 A. Only one is activated.
7 Q. It says "each," right?
8 A. Yes. Each, but you don't have like
9 two bandwidth parts activated together.
10 Q. Does the claim say that?
11 MR. HELGE: Object to form.
12 Q. Where does the claim say that?
13 MR. HELGE: Object to form.
14 A. The claim doesn't say that. It just
15 says that each has to be activated through the
16 DCI. You can...
17 Well, we know based on the
18 specification that we activate one. There is the
19 notion of configured and activated, and not
20 necessarily the configured are all activated.
21 Q. The claim says that each uplink
22 bandwidth part is configured, right?

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Buchanan Ingersoll & Rooney PC

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Ground 1: Elements 1[e], 1[f]

PO's Inconsistent "Each" Interpretation

The POR asserted: "many bandwidth parts configured for a user equipment" but "only one bandwidth part may be activated."
POR, 13-14 (emphasis added).

Claim 1 does not recite that "each" in element 1[e] requires more than one BWP, but "the each" in element 1[f] requires only one BWP.

- PO's construction contradicts the plain, ordinary, and express language of elements 1[e] and 1[f].
- "each" in element 1[e] provides antecedent basis for "the each" in element 1[f].
- Dr. Sharony acknowledged under oath that the claim "doesn't say 5G" or that 5G satisfies" the claim limitations (Pet. Reply, pp. 3-4; EX1050, 54:15-55:16.)

PO's attempt to distinguish Claim 1[e]-1[f] over Takeda was not addressed in PO's Sur-Reply.

POR, pp.13-14.

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IPR2025-00083 Patent Owner's Response

and determine one of UL control channel resources configuring the determined one UL control channel resource set." Sharony, ¶48.

Patent Owner raises one other issue that bears on claim construction, namely the claim's requirement of "each UL bandwidth part (BWP) configured for the user equipment." Patent Owner's expert and Patent Owner's expert agree that there may be many bandwidth parts configured for a user equipment (Sharony, ¶49).

"Patent Owner raises one other issue that bears on claim construction, namely the claimed requirement of 'each UL bandwidth part (BWP) configured for the user equipment.' ... there may be many bandwidth parts configured for a user equipment ..., but under 5G NR, only one bandwidth part may be activated for a user equipment."

identifying BWP #2 instead, "the user terminal may deactivate UL BWP #1 and activate UL BWP #2." Takeda, [0113]. A POSITA would understand that in Takeda's Fig. 9, the user terminal is configured for both UL BWP #1 and UL BWP #2, despite the fact that only one UL BWP is activated at a given time. Indeed, Takeda discloses that "although the active BWP is changed [as shown] in FIG. 11,

- 13 -

- 14 -

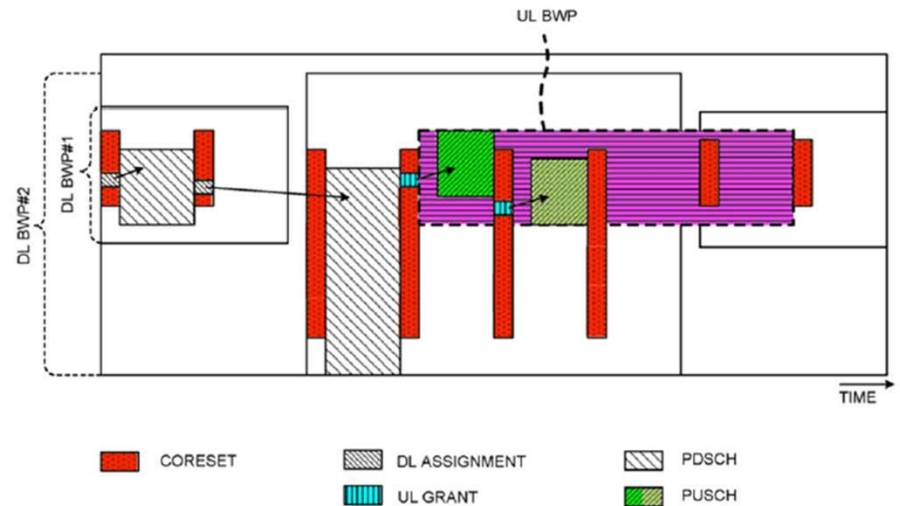
Ground 1: Element 1[e]

Takeda Discloses Element 1[e] under any construction:

FIG. 8

- multiple UL resources are configured for a single UL BWP.
- multiple uplink resources transmit UL signals (PUSCHs) within a single UL BWP.
- Therefore, sets (encompassing multiple UL resources) are configured for a BWP.
- BWPs are configured for the user terminal. Ex. 1007, [0095]-[0098] (describing “maximum bandwidth” and “minimum bandwidth” for “one or more BWPs configured for the user terminal”), [0103] (UL BWP), [0112] (plural UL BWPs).

Ex. 1007, FIG. 8 (annotated)



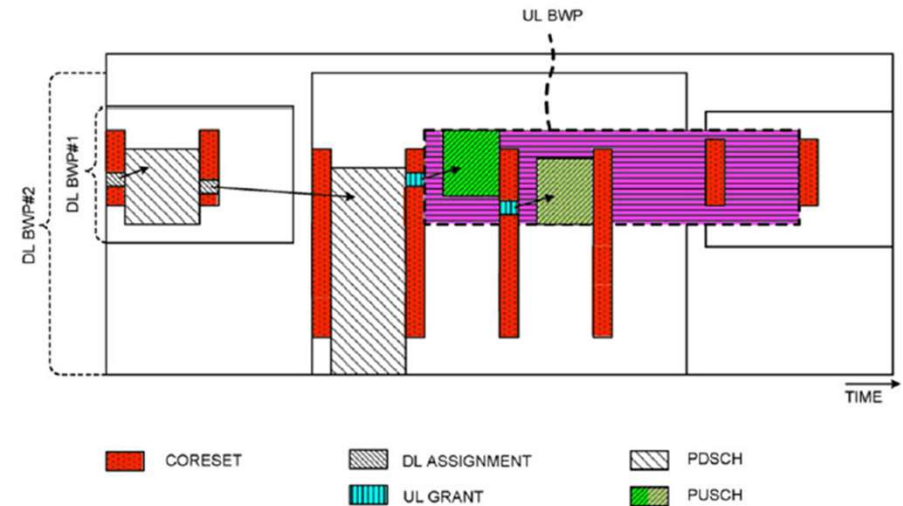
Ground 1: Element 1[f]

Takeda Discloses Element 1[f] under any construction:

FIG. 8

- “[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).” *Id.*, [0120], [0139].
- Therefore, sets (encompassing multiple UL resources) are configured for a BWP.

Ex. 1007, FIG. 8 (annotated)



Ground 1: Elements 1[e], 1[f]

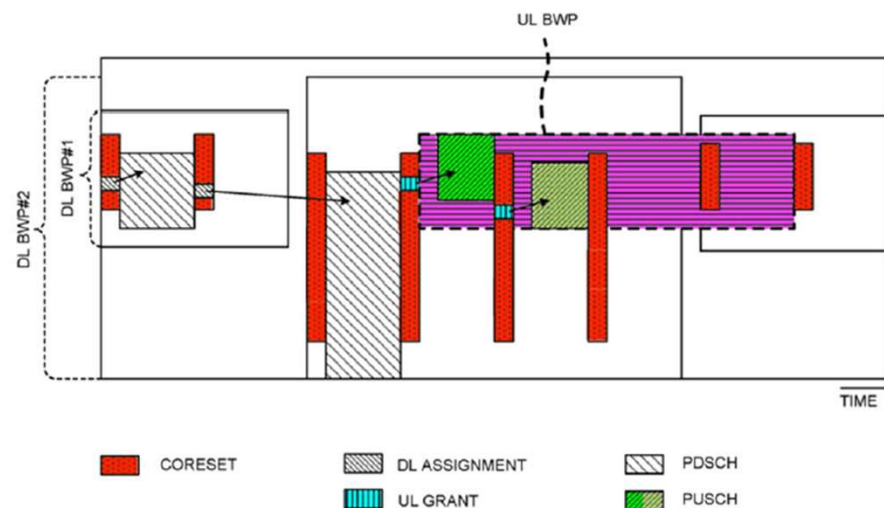
Takeda Discloses Elements 1[e] and 1[f] under any construction – One BWP Embodiment (FIG. 8):

The '463 Patent claims do not require multiple BWPs:

'463 Patent discloses embodiments have one UL BWP – “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.

Takeda's FIG. 8 discloses a first embodiment with 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”).

Ex. 1007, FIG. 8 (annotated)



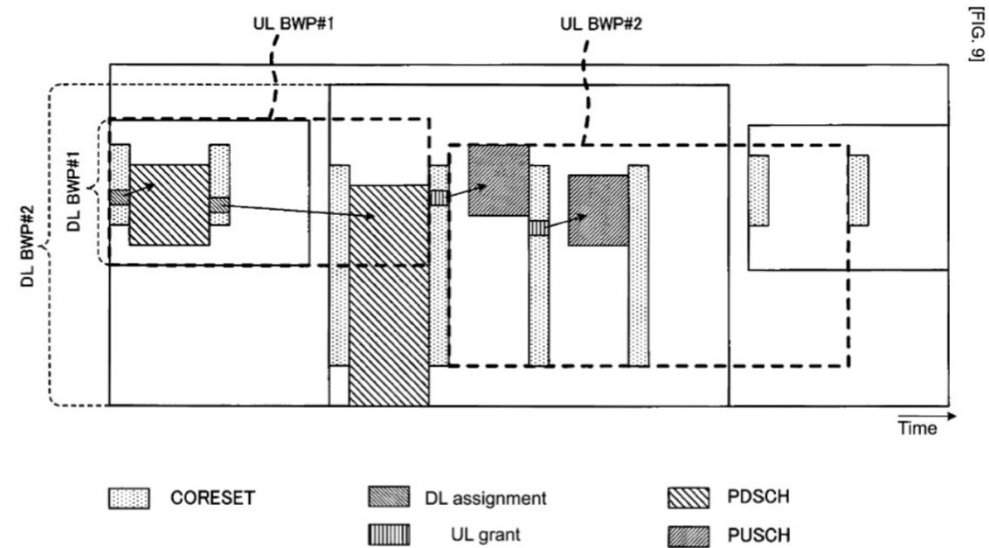
Ground 1: Elements 1[e], 1[f]

Takeda Discloses Elements 1[e] and 1[f] under any construction – Multiple BWP Embodiment (FIG. 9)

Takeda's FIG. 9 discloses a second embodiment with **two** UL BWPs, UL BWP#1 and UL BWP#2. Pet., 32-34 (citing EX1007, ¶¶ 112, 117, FIGS. 8-9).

Takeda teaches activating only one BWP.
EX1007, ¶ 113

(“the user terminal may deactivate UL BWP #1 and activate UL BWP #2.”).

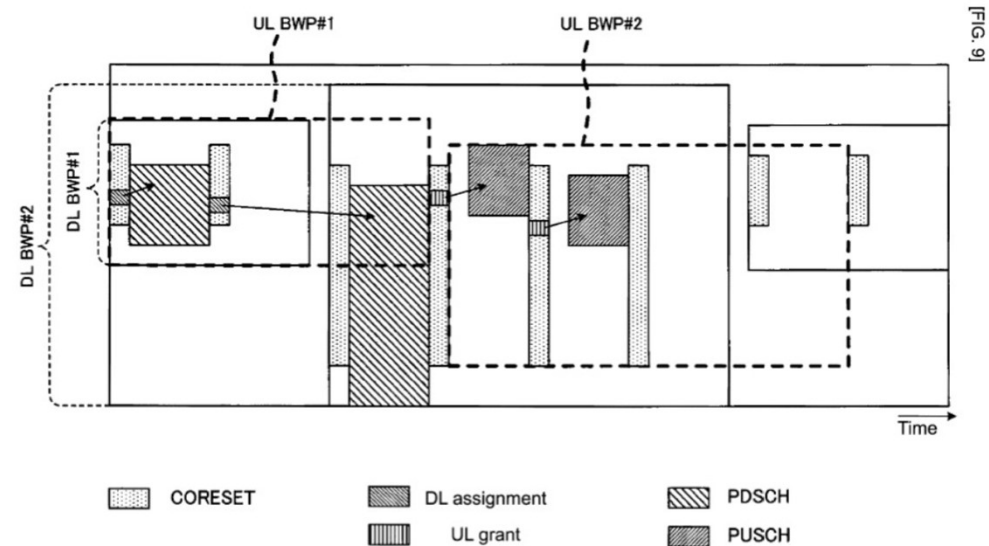


Ground 1: Elements 1[e], 1[f]

Takeda Discloses Elements 1[e] and 1[f] under any construction – Multiple BWP Embodiment

Takeda 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.

Takeda discloses Elements 1[e] and 1[f] under any construction of “each.”



Motivation to Combine Ground 1:

Motivation - expressed within the cited Prior Art Documents of Grounds 1 and 2

- **Takeda** discloses 4G, 5G and 5G BWP concepts “applied to” 4G, 5G (Pet. at 14, citing EX1007, [0239]).
- **Yan** discloses known 4G resource allocation concepts of Claim 1, Elements 1[a]-1[d]. (Pet. at 24-25 and 29-32; POR at 17).
- A POSITA would have been motivated to modify Takeda by strategically allocating UL channel resources within the BWPs of Takeda based on Yan’s teachings (Pet. at 13).

Motivation to Combine Ground 1:

Dr. Sharony: Takeda “is silent on the resource sets for each configured BWP.”

Yan discloses “a transmission method for a single frequency band, which a POSITA would have been motivated to apply to each of Takeda’s BWPs.”

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025 112

1 other experts and deposition and the references.
2 Q. Can I direct you to -- go ahead.
3 A. I have my signature on this document
4 so I am responsible for whatever I opined here,
5 so --
6 Q. When you say "this document," you are
7 referring to your declaration, Exhibit 2005?
8 A. Yes.
9 Q. Can I direct you to page 2 of the
10 Patent Owner's Response?
11 A. Yes. 2.
12 Q. Looking at the first full paragraph on
13 that page, do you see, four lines down, there is a
14 sentence that reads, "For example, while Takeda
15 discloses BWP-dependent resource mapping, Takeda
16 does not disclose distinct UE-specific PUCCH
17 (physical uplink control channel) resource sets"?
18 A. Yes, I see that.
19 Q. You see that sentence?
20 A. Yes.
21 Q. Do you have an understanding of what
22 is meant by "Takeda discloses BWP-dependent

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025 113

1 resource mapping"?
2 A. Takeda is talking about activation,
3 deactivation of BWP, the bandwidth parts. But he
4 is silent on the resource sets for each configured
5 BWP. No mention of resource sets that we
6 discussed before.
7 Q. The resource sets you are referring
8 to --
9 A. Like Figure 3B. I like to see that.
10 all the time because
11 pictorial way what
12 Q. When you're
13 talking about the
14 sets?
15 A. Yes.
16 Q. What does
17 mapping" mean?
18 A. So if you
19 Figure 8 or 9 in Takeda
20 part, parts, and then
21 basically map resource
22 uses a shared channel

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025 148

1 A. And then -- long story short, Takeda
2 is silent on configured resource set for every
3 BWP. It's not there.
4 Q. I just want to understand how
5 activating in Takeda works. Let's jump to
6 paragraph 104 of Takeda.
7 A. Yes.
8 Q. Paragraph 104 starts, "Activation or
9 deactivation of each UL BWP," right?
10 A. 104?
11 Q. Yes.
12 A. Okay.
13 Q. Do you see that?
14 A. "Activation or deactivation of each."
15 Yes.
16 Q. So when Takeda activates a UL BWP,
17 that means it is sending UCI through that UL BWP,
18 right?
19 A. It has to know which resource to use.
20 The BWP is not enough. It's like -- remember
21 Figure 3B in the '463? You have a BWP. So if I
22 tell you, "You operate in the BWP," you tell me,

Motivation to Combine Ground 1:

- Dr. Sharony: acknowledges that Takeda “is silent” on details re: UL control channel configuration details such as “UCI size” issue.
- Dr. Sharony: acknowledges that Takeda’s “resource mapping” [of BWPs] is “different from 5G” (Yan is pre-5G).

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

1 Q. And that is how it is done in 5G?

2 A. Yes.

3 Q. Is that how it is done in Takeda, or

4 is Takeda different from 5G?

5 A. Takeda is silent. We didn't see the

6 resource sets in Takeda. That is why you brought

7 Yan, which is incompatible completely with Takeda.

8 Let me say it out loud again. 4G,

9 incompatible with 5G, and a POSITA will never

10 bring it to 5G unless he is tainted by hindsight.

11 Q. And I wasn't asking about Takeda and

12 Yan --

13 A. No, I have to say it because it's

14 clear.

15 Q. Does Takeda handle this UCI size issue

16 the same as is done in 5G, or does Takeda do

17 something different, or can you just not tell from

18 Takeda?

19 A. Takeda is silent on the -- we know

20 that -- the '463 and the 5G, they have the

21 resource sets. So, we know that. We don't know

22 that from Takeda.

22 Q. The resource mapping in Takeda, is

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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h.D.
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Takeda does

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that different from 5G?

A. Yes.

Q. How are bandwidth parts mapped in 5G?

A. Bandwidth parts have -- specifically,

they have four bandwidth parts and they use four

resource sets in each bandwidth part. So you have

like 16 sets of resources and each -- and each set

has 4 resources, PUCCH resources. So all together

you have 64, 64 mapping of resources. And this is

done, as we said, configured for the UE.

Q. So they are all configured for the UE,

but in 5G only one bandwidth part is active at a

time. Is that right, in 5G?

A. Yeah. In 5G, one is active -- one

bandwidth part is active at a time. At the end

you have to choose -- I said the whole bucket has

64 resources, 4 multiplied by 4 multiplied by 4,

again Figure 3B in the '463.

When you activate a bandwidth part,

you reduce it to 16 because you have 4 sets and 4

resources per set. And then through the DCI, it

will tell you also which resource to use within

Reply, p. 13; EX1050, 117:9-118:2.

Pet. Reply, p. 13; EX1050, 175:15-22.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Buchanan Ingersoll & Rooney PC

Motivation to Combine Ground 1:

Exemplary Motivations to Combine

- **Backwards Compatibility** of UE for Roaming (i.e., communicate using 4G or 5G BS)
- Configuration and use of a BWP that is Activated by DCI to **Reduce Power Consumption** During Transmission
- Configuration and use of a BWP that is Activated by DCI to **Avoid UCI Mismatch and Channel Ambiguity**

Motivation to Combine Ground 1:

Backwards Compatibility: UE Ability to Roam and Communicate Using DCI of Either a 4G or 5G BS

- Takeda's disclosure applies to both 4G and 5G telecommunications systems.
- It would have been beneficial to allow a 5G UE operating in a non-standalone mode to reuse 4G principles of resource allocation from 4G LTE.

POR, pp. 26-27; Pet. Reply, pp. 14-15; EX1007, ¶¶[239].

WO 2019/030929 54 PCT/JP2017/029223

[0237] In the present specification, a specific operation described as being performed by a base station may be performed by an upper node (upper node) of the base station in some cases. In a network consisting of one or a plurality of network nodes (network nodes) having a base station, it is apparent that various operations performed for communication with a terminal may be performed by the base station, one or more network nodes other than the base station (for example, conceivably but not limited to, an MME (mobility management entity), S-GW (serving-gateway), or the like), or a combination thereof.

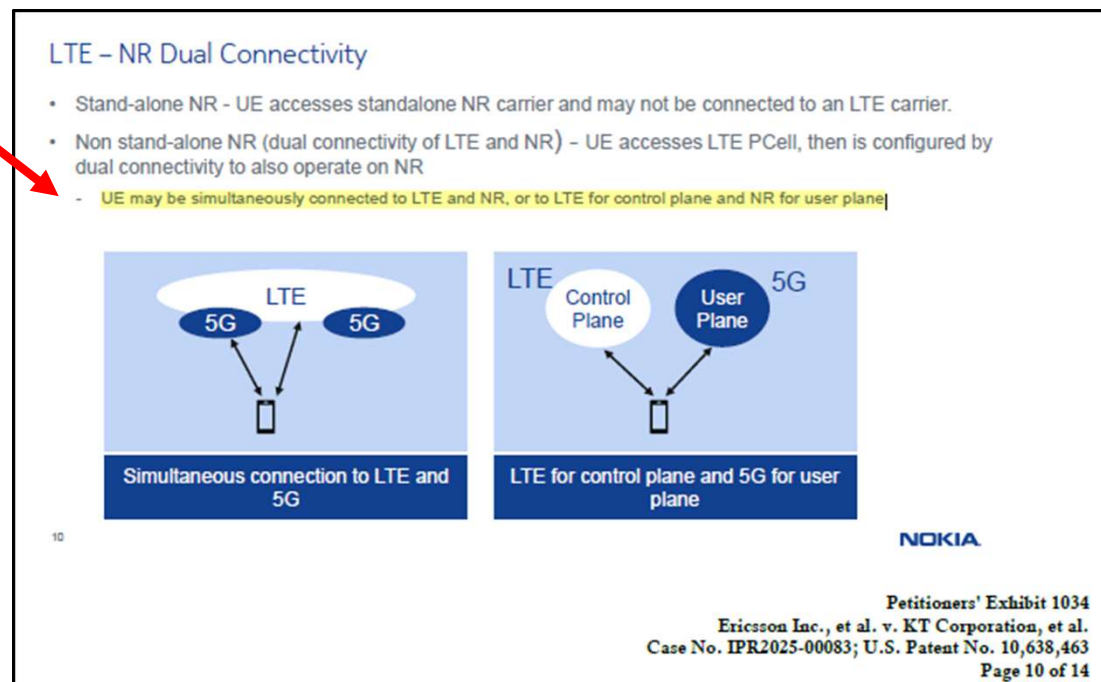
[0238] Each aspect/embodiment described in the present specification may be used alone, may be used in combination, or may be switched and used in accordance with execution. Furthermore, the order of processing procedures, sequences, flowcharts, and the like of each aspect/embodiment described in the present specification may be switched as long as there is no contradiction. For example, the methods described in the present specification present elements of various steps in an example order and are not limited to the particular order presented.

[0239] The aspects/embodiments described in the present specification may be applied to a system using LTE (long term evolution), LTE-A (LTE-advanced), LTE-B (LTE-beyond), SUPER 3G, IMT-Advanced, 4G (4th generation mobile communication system), 5G (5th generation mobile communication system), FRA (future radio access), New-RAT (radio access technology), NR (new radio), NX (new radio access), FX (future generation radio access), GSM® (Global System for Mobile Communications), CDMA2000, UMB (ultra mobile broadband), IEEE 802.11 (Wi-Fi®), IEEE 802.16 (WiMAX®), IEEE 802.20, UWB (ultra-wideband), Bluetooth®, and other suitable wireless communication methods, and/or an expanded next generation system based on these.

Petitioners' Exhibit 1007
Ericsson Inc., et al. v. KT Corporation, et al.
Case No. IPR2025-00083; U.S. Patent No. 10,638,463
Page 56 of 78

Motivation to Combine Ground 1: Backwards Compatibility

- A POSITA would have known: dual network connectivity requires 5G-enabled device having radios capable of supporting 5G and 4G LTE.
- By using the same resource allocation methodology in 4G LTE and 5G NR, UEs and BSs do not need distinct protocols for connecting to each network type.
- Dr. Sharony: backwards compatibility is “very” useful for a UE, for example, in areas that do not have sufficient 5G coverage,
- Dr. Sharony: recognizes “non-standalone” UEs have “the ability to communicate under both standards.”



Motivation to Combine Ground 1: Improve Transmission Power Consumption

Dr. Sharony acknowledges:
UE power consumption is also based on power consumed during transmission.

Transcript of Jacob Sharony, Ph.D. Conducted on November 20, 2025		128
1	section so you would consume less power.	
2	Q.	You'd still consume some power
3	transmitting?	
4	A.	Yes, of course.
5	Q.	The UE consumes power by receiving and
6	processing data. Is that correct?	
7	A.	Receiving and processing data.
8	Q.	And it consumes power by transmitting
9	data?	
10	A.	Transmitting also, yes.
18	Q.	This paragraph, is this one of the
19	areas of Takeda that recognizes the importance of	
20	reducing power consumption?	
21	A.	Yes.
22	Q.	And it says, "When the user terminal

Dr. Sharony acknowledges:
Takeda was concerned with power consumption in the context of configuring its BWPs.

Transcript of Jacob Sharony, Ph.D. Conducted on November 20, 2025		129
1	always uses the entire carrier, power consumption	
2	may be enormous." Is that right?	
3	A.	Yes.
4	Q.	"Therefore, in future wireless
5	communication systems, semi-statically configuring	
6	(configuring) one or more frequency bands within	
7	the carrier in user terminals is being	
8	considered." Right?	
9	A.	Yes.
10	Q.	By "frequency bands" it explains it
11	means bandwidth parts?	
12	A.	Yes.
13	Q.	So this concern about power
14	consumption is in the context of how we are	
15	configuring bandwidth parts?	
16	A.	Yes. It is one of the reasons, yes.
22	A.	Okay.

Pet. Reply, pp.13-15; EX1050, 128:2-10, 129:13-16.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Buchanan Ingersoll & Rooney PC

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Motivation to Combine Ground 1:

Improve Transmission Power Consumption

Takeda recognizes the need for 5G systems involving multiple BWPs to reduce power consumption *during transmission*.

Pet., pp. 15-16; EX1007, ¶13.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

WO 2019/0309295PCT/JP2017/029223

of a wireless base station and a user terminal according to the present embodiment.

Embodiments of Invention

[0013] In future wireless communication systems (for example, NR, 5G, or 5G+), allocating carriers (also referred to as component carriers (CCs), system bands, or the like) having a bandwidth (for example, 100 to 400 MHz) wider than that of existing LTE systems (for example, LTE Rel. 8-13) is being considered. When the user terminal always uses the entire carrier, power consumption may be enormous. Therefore, in future wireless communication systems, semi-statically configuring (configuring) one or more frequency bands within the carrier in user terminals is being considered. Each frequency band in the carrier is also referred to as a bandwidth part (BWP: Bandwidth Part), a partial band, or the like.

[0014] FIG. 1 is a diagram illustrating a configuration example of a BWP. As illustrated in FIG. 1A, user terminals may be configured with one BWP per carrier.

[0015] Also, as illustrated in FIG. 1B, a plurality of BWPs (here, 2BWP #1 and #2) may be configured per carrier in user terminals. As illustrated in FIG. 1B, the multiple BWPs configured for the user terminal may have different bandwidths. Furthermore, at least a portion of the frequency bands may overlap between the plurality of BWPs. For example, in FIG. 1B, BWP #1 is a portion of the frequency band of BWP #2.

[0016] Also, the user terminal may control activation/deactivation of at least one BWP. Activation of a BWP means that the BWP is in a usable state (or transitions to the usable state), and is also referred to as activation, validation, or the like of configuration information (configuration) of the BWP (BWP configuration information). In addition, deactivation of a

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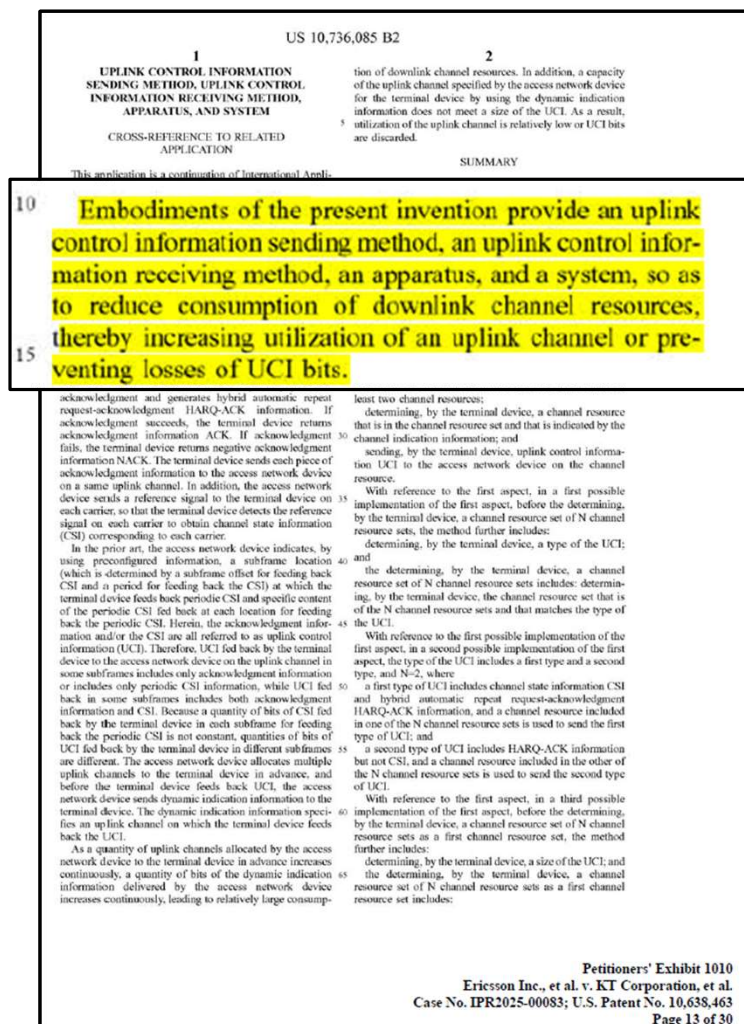
Motivation to Combine Ground 1:

Improve Transmission Power Consumption

- Yan's UL resource allocation method provides flexibility for UEs to select a UL resource for transmitting UCI based on the predicted size of the UCI, which would also provide power use efficiencies.
- A POSITA would have been motivated to modify Takeda's method for transmitting UL signals to incorporate Yan's resource allocation method to more efficiently use UE power reserves. Pet, p. 15, EX1002, ¶106.

Pet., pp. 15-16; EX1010, col 2, ll. 10-15.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE



Buchanan Ingersoll & Rooney PC

Motivation to Combine Ground 1:

Avoid UCI Mismatch

- PO does not dispute that Yan provides a solution to the problem of UCI mismatch: “Yan’s scheme also adjusts resources capacity to match the UCI size.” POR, 23
- Dr. Sharony testified: Takeda is silent on the issue of handling UCI of different sizes. EX1050, 175:15-176:11. Id., 176:12-14, 178:4-6.
- 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.

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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1 is...
2 Q. In Yan it's dynamic?
3 A. Yes.

4 Q. In Takeda, we don't know how it deals
5 with different sizes of UCI?
6 A. Right.

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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1 Q. So we don't know -- reading Takeda, we
2 don't know how Takeda handles UCI of different
3 sizes?
4 A. He just mention, you know, the
5 activation/deactivation of BWPs and, you know,
6 avoid the blind decoding to not spend too much
7 power. But he is just bringing -- if you recall
8 Figure 8 and 9, the uplink grant to activate a
9 certain BWP. But from there it's not clear what's
10 happening. But no mentioning of the resource sets
11 per BWP configure.

9 A. Yes.
10 Q. In the middle of page you see the
11 sentence that reads, "Backwards compatibility is
12 achieved by having a user equipment that is able
13 to comply with multiple standards, such as both 5G
14 NR and 4G LTE"?
15 A. Yes.
16 Q. What does backwards compatibility
17 mean?
18 A. That you would be able to talk two
19 languages.
20 Q. In the case of a UE, that means it
could communicate according to a 5G standard and a
4G LTE standard?

12 Q. And no mention of how Takeda deals
13 with UCI of different sizes?
14 A. No mention.

17 next, the top of page 24. It says, "Yan also aims
18 to minimize signalling overhead and simplify
19 control channel configuration."
20 Do you see that?
21 A. Yes.
22 Q. What does "minimize signalling

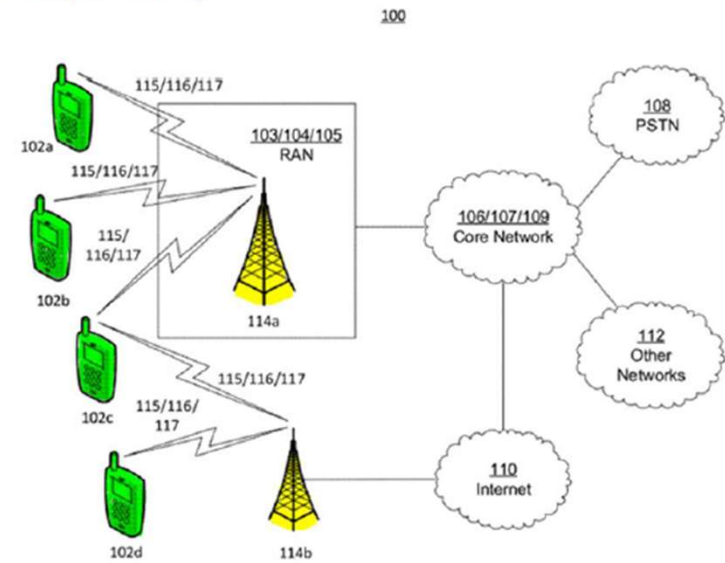
Ground 2: Marinier in View of Yan and R1-1711853

Element 1[pre]

Not Disputed by Patent Owner

Marinier: a WTRU “may include user equipment (UE)” and may “transmit uplink control information (UCI).” EX1011, [0064], [0105].

Ex. 1011, FIG. 1A (annotated)

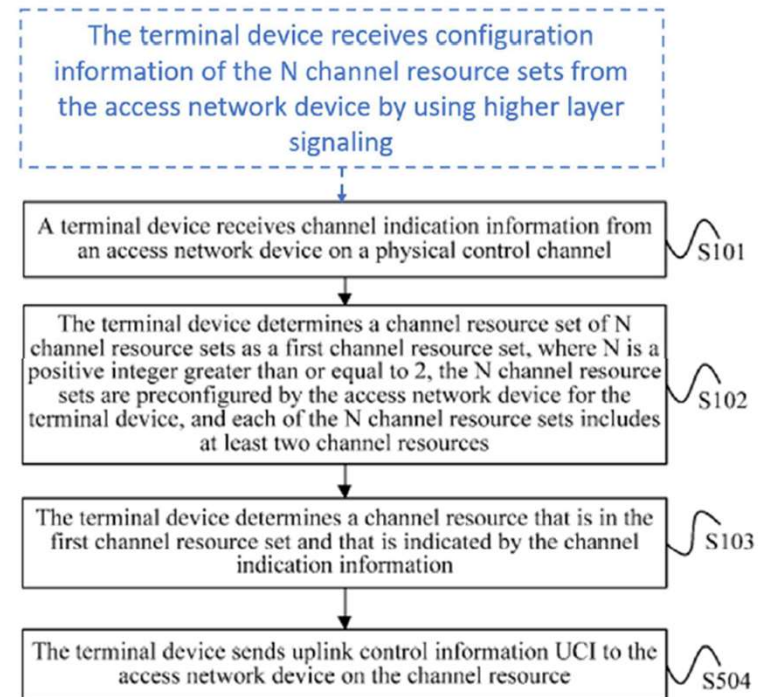


Ground 2: Elements 1[a], 1[b], 1[c], 1[d]

- See Ground 1.

Not Disputed by Patent Owner

Ex. 1010, FIG. 1 (annotated)



Pet., pp. 23-26, 29, Ex. 1010, 11:48-54, 20:1-42, 22:7-25; Ex. 1009, 15:29-16:8, 26:28-27:23, 29:24-30:5

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Buchanan Ingersoll & Rooney PC

Ground 2: Elements 1[e], 1[f]

Elements 1[e] and 1[f] Undisputed in Sur-Reply

IPR2025-00083 Patent Owner's Response

a combination of asserted art. Ex. 1004, 159-167. In response, the application amended the independent claims to incorporate these features and to distinguish over the prior art relied upon by the examiner in the stated rejections. Ex. 1004, 68-74.

As the applicant convincingly argued to the examiner concerning a reference to Yiu applied by the examiner, Yiu “merely teaches about BWP but fails to teach i) receiving any information about each UL BWP” Ex. 1004, 73 (emphasis in original). The applicant also argued that Yiu “does not teach activating each UL BWP through DL control information.” Id. (emphasis in original). In these arguments, which were accepted by the examiner as sufficient to overcome the rejections (Ex. 1004, 50-51), the applicant focused on and emphasized the “each” language in these amendments. For reasons discussed below, at least the “each” language in these challenged claims render them patentable over the asserted Grounds.

B. The Petition's Alleged Motivation to Insert Yan into a BWP Environment Uniformly Fails

i. Yan is Focused on an Activated Spectrum Encompassing the Spectrum Bandwidth, not Configured BWPs

Petitioners allege that Yan's teachings for avoiding UCI mismatch support a reason to combine Yan with Takeda in Ground 1, and Yan with Marinier and RI-1711853 in Ground 2. However, it is undisputed that Yan fails to disclose any

– 16 –

IPR2025-00083 Patent Owner's Response

C. Ground 2 Lacks Credible Motivation and Even if Combined, the Asserted References Fail to Disclose or Suggest Every Claimed Feature

As noted above, it is undisputed that Yan fails to disclose any BWPs, and also therefore fails to disclose a concept of a BWP that is configured for a user terminal. Sharony, ¶89. While Petitioners propose to combine Marinier with Yan, Marinier also fails to disclose a concept of a BWP that is configured but not activated for a user terminal. Id. Marinier describes multi-MAC-instance uplink operation from a wireless transmit/receive unit (WTRU) to multiple serving sites and is directed to 4G LTE technology, not 5G NR technology. Sharony, ¶56. Marinier's relevant disclosure regarding bandwidth parts appears in [0130], quoted below:

In an example, the bandwidth (BW) utilized by the different serving sites may be divided into a plurality of BW parts. Each serving site may be configured to utilize one or more of the BW parts for communicating with the WTRU. For example, *each BW part may be treated as a component carrier in carrier aggregation.* For example, each BW part may include corresponding PUCCH and PUSCH resources. Some bandwidth parts may include PUCCH without a PUSCH (e.g., for CSI reporting to a serving site) and/or PUSCH without PUCCH.

– 29 –

Ground 2: Element 1[e]

- Marinier: BWPs for communicating between a WTRU and a serving site. Ex. 1011, [0130].
- BWPs specifically configured for each WTRU, such that each BWP includes configured UL resources (e.g. PUCCH and PUSCH resources). Ex. 1011, [0147].

Pet., pp. 51-52; EX1011, ¶[0130].

US 2014/0056278 A1	16	Feb. 27, 2014
[0125] In an example, a WTRU may include a request to use reduced symbol transmission in a service request indication sent to a serving site. For example, a WTRU may include a list of subframes and/or an indication of which subframes it is requesting to use a reduced number of symbols for. [0126] In an example, a WTRU may semi-statically indicate (e.g., via RRC signaling) a list of subframes where a symbol (e.g., first, last, etc.) may be dropped. The indication may be specific to each MAC instance. For example, the WTRU may send a first message/indication to a first serving site associated with a first MAC instance that indicates a first plurality of subframes which may be used for reduced symbol transmissions, and a second message/indication to a second serving site associated with a second MAC instance that indicates a second plurality of subframes which may be used for reduced symbol transmissions. The indication may also be transmitted using MAC and/or physical layer signaling. [0127] In an example, a WTRU may indicate to the network (e.g., one or more serving sites) that there may be overlap in some subframes between two MAC instances. The network		
used in the same subframe if the transmission/reception of the physical channels occurs in different resource blocks (e.g., a first physical channel associated with a first MAC instance is transmitted to a first serving site in a first resource block, and a second physical channel associated with a second MAC instance is transmitted to a second serving site in a second resource block). In an example, physical channels associated with different MAC instances may be used in the same subframe if the transmission/reception of the physical channels involves transmission of different types of physical channels (e.g., PUCCH for one serving site and PUSCH for another serving site). In an example, physical channels associated with different MAC instances may be used in the same subframe if the transmission/reception of the physical channels may be separated using one or more transmission properties (e.g., cover code for PUCCH, orthogonal DM-RS, etc.). [0130] As an example, frequency segregation may be performed in order to transmit to multiple serving sites in the same subframe. Frequency segregation may be used in addition to time segregation and/or without time segregation. For		
frequency band/component carrier. In an example, the bandwidth (BW) utilized by the different serving sites may be divided into a plurality of BW parts. Each serving site may be configured to utilize one or more of the BW parts for communicating with the WTRU. For example, each BW part may be treated as a component carrier in carrier aggregation. For example, each BW part may include corresponding PUCCH and PUSCH resources. Some bandwidth parts may include		
indicated set of subframes. [0129] In an example, physical channels for more than one MAC instance/serving site may be used for transmissions in the same subframe. As an example, physical channels associated with different MAC instances may be used in the same subframe if the transmission/reception of the physical channels occurs in different frequency channels and/or frequency bands (e.g., a first physical channel associated with a first MAC instance is transmitted to a first serving site in a first frequency band, and a second physical channel associated with a second MAC instance is transmitted to a second serving site in a second frequency band). In an example, physical channels associated with different MAC instances may be		
given serving site. [0132] A WTRU may be configured to transmit signals that span multiple BW parts. For example, a single SRS sequence may be transmitted over a full BW of a cell and/or serving site, which may span a plurality of BW parts. In an example, a WTRU may transmit different SRSs (e.g., each with its own set of parameters) for each BW part. [0133] The transmission power utilized by the WTRU may be specific to which BW part is used for transmission. For example, a WTRU may be configured with an independent maximum transmit powers (e.g., P_{CMAX}) per BW part. For example, the WTRU may perform UL transmission power control independently for each BW part. In another example,		
Petitioners' Exhibit 1011 Ericsson Inc., et al. v. KT Corporation, et al. Case No. IPR2025-00083; U.S. Patent No. 10,638,463 Page 23 of 43		

Ground 2: Element 1[f]

- Marinier: UL “grants” (i.e. DCI) transmitted via PDCCH to “direct the WTRU to transmit over on [sic] an uplink (UL) channel (e.g., Physical Uplink Control Channel (PUCCH), Physical Uplink Shared Channel (PUSCH)).” EX1011, [0062], [0103].
- Upon receipt of a UL “grant” (i.e. DCI) the WTRU transmits a PUCCH transmission to a serving site. Id., [0105].
- Marinier teaches that the UE activates the BW part using DCI (i.e. a UL grant).

Pet., pp. 53; EX1011, ¶[0062].

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to roam between different ASNs and/or different core networks. The MIP-HA 184 may provide the WTRUs 102a, 102b, 102c with access to packet-switched networks, such as the Internet 110, to facilitate communications between the WTRUs 102a, 102b, 102c and IP-enabled devices. The AAA server 186 may be responsible for user authentication and for supporting user services. The gateway 188 may facilitate interworking with other networks. For example, the gateway 188 may provide the WTRUs 102a, 102b, 102c with access to circuit-switched networks, such as the PSTN 108, to facilitate communications between the WTRUs 102a, 102b, 102c and traditional land-line communications devices. In addition, the gateway 188 may provide the WTRUs 102a, 102b, 102c with access to the networks 112, which may include other wired or wireless networks that are owned and/or operated by other service providers.

[0060] Although not shown in FIG. 1E, it will be appreciated that the RAN 105 may be connected to other ASNs and the core network 109 may be connected to other core networks. The communication link between the RAN 105 and the other ASNs may be defined as an R4 reference point, which may include protocols for coordinating the mobility of the WTRUs 102a, 102b, 102c between the RAN 105 and the other ASNs. The communication link between the core network 109 and the other core networks may be defined as an R5 reference, which may include protocols for facilitating interworking between home core networks and visited core networks.

[0061] The operation of a wireless transmit/receive unit (WTRU) in a network in which the scheduling functionality for the downlink and/or the uplink transmissions is distributed in more than one physical location or node may present some challenges. For example, a first scheduler associated with a first transmission layer may be included in a first MAC instance associated with and/or included in a first serving site (e.g., a first RAN node such as an eNB and/or macro eNB

each signal at the power level requested by the respective schedulers, increasing the likelihood of a failed transmission.

[0064] In an example, the WTRU may be configured to transmit uplink control information (UCI) in a given sub-frame based on a Physical Downlink Shared Channel (PDSCH) transmission received from a first serving site. Additionally, in the same sub-frame the WTRU may be configured to transmit a PUSCH transmission based on a received UL grant from a second serving site. The UCI transmission to the first site (e.g., sent via the PUCCH, PUSCH, etc.) may conflict with the PUSCH transmission to the second site. Such a situation may cause numerous complications. For example, the WTRU may attempt to include the UCI (e.g., which was request by and/or pertains to transmissions associated with the first serving site) in the PUSCH transmission sent to the second serving site; however, the second serving site may be unaware that the WTRU is including the UCI in the PUSCH transmission, so the second serving site may fail to properly decode one or more of the UCI and/or the entire PUSCH transmission.

[0065] In order to avoid and/or address such scheduling difficulties, the WTRU may attempt to deconvolve transmissions and/or receptions associated with scheduling decisions made in different nodes of a network. For example, the characteristics of a signal that is to be transmitted and/or received from a given serving site in the network may be determined based on signaling originating from a single serving node of the network, for example rather than signaling originating from multiple nodes of the network.

[0066] Although the examples described herein may be described with respect to operation utilizing a first data path (e.g., may also be referred to as a first layer, a primary data path, a primary layer, etc.) that is associated with a MeNB and a second data path (e.g., may also be referred to as a second layer, a secondary data path, a secondary layer, etc.), the

[0062] For example, the WTRU may receive grants (e.g., dynamic grants via a Physical Downlink Control Channel (PDCCH), semi-persistent scheduling (SPS) grants, other uplink grants, etc.) from each of the two scheduling sites. The grants may direct the WTRU to transmit over on an uplink (UL) channel (e.g., Physical Uplink Control Channel (PUCCH), Physical Uplink Shared Channel (PUSCH)), and two or more grants may allocate resources to the WTRU that overlap in the frequency and/or time domain(s). In such a situation, the WTRU may be unable to comply with the grant transmitted from one or more of the sites.

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Buchanan Ingersoll & Rooney PC

Ground 2: Element 1[f]

- R1-1711853: confirms activation of UL bandwidth parts by “DCI.”

3GPP TSG RAN1 NR Ad-Hoc#2
Qingdao, P.R. China June 27th – 30th,
2017
Agenda Item: 5.1.7

R1-1711853

Activation/deactivation of bandwidth part

Ericsson, [Intel, MediaTek, OPPO]

Petitioners' Exhibit 1012
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Proposal

- **Activation/deactivation** of DL/UL bandwidth parts can be
 - by means of higher-layer signaling
 - System information, dedicated RRC signaling
 - **by means of DCI (explicitly and/or implicitly)** or MAC CE [one to be selected]
 - By means of DCI could mean
 - Explicit: Indication in DCI (FFS: scheduling assignment/grant or a separate DCI) triggers activation/deactivation
 - Implicit: Presence of DCI (scheduling assignment/grant) in itself triggers activation/deactivation
 - This does not imply that all these alternatives are to be supported.
 - by means of timer
 - Activation/deactivation when UE has not received downlink scheduling assignment within a certain time
 - according to configured time pattern

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Pet., pp. 53-54; EX1012.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

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Motivation to Combine Ground 2:

Motivation - express teachings in the Cited Prior Art Documents

- Marinier: BWP concepts for pre-5G, 4G LTE (Pet. at 43-44 and 52).
- Yan: Known 4G resource allocation configuration concepts of Claim 1, Elements 1a-1d. (Pet. at 24-25 and 29-32).
- A POSITA would have been motivated to modify Marinier to incorporate Yan's UL channel resource allocation methods.

Motivation to Combine Ground 2:

Promote Efficient Use of UL Resources

A POSITA would have been motivated to modify Marinier's UL signal transmission methods to incorporate Yan's UL channel resource allocation methods to determine the most efficient UL channel resource based on a size of the UCI.

1. Motivation to Combine

201. A POSITA would have been motivated to combine the teachings of Marinier, Yan, and R1-1711853. Specifically, a POSITA would have been motivated to modify Marinier's methods for transmitting UL signals to incorporate Yan's methods for allocating UL channel resources to determine and use the most efficient UL channel resource based on a size of the UCI. [A] POSITA would have been motivated to modify Marinier's methods for transmitting UL signals to incorporate Yan's methods for allocating UL channel resources to determine and use the most efficient UL channel resource based on a size of the UCI.

202. A POSITA would have had a reasonable expectation of successfully combining the teachings of Marinier and Yan. Marinier and Yan both discuss UCI transmission and resource allocation for transmitting UCI. *See e.g.*, Ex. 1011.

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Pet., pp. 44-45, EX1002, ¶201.

Motivation to Combine Ground 2:

Avoiding UL Conflict/Overlap

- Dr. Sharony: concedes that Marinier is concerned with ensuring that the uplink resources used for transmitting UCI do not conflict or overlap.
- A POSITA would have looked to Yan for resource allocation teachings that avoid conflict or overlap.
- 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.

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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1 frequency at the same time.
2 Q. Some of the component carriers of
3 Marinier can overlap?
4 A. Could be, yes.
5 Q. Go ahead.
6 A. That is why, remember the word time
7 segregation or frequency segregation? You have to
8 make sure -- you cannot transmit at the same time,
9 same frequency. There would be a collision.
10 Q. So Marinier is concerned with making
11 sure that you are transmitting the UCI in these
12 component carriers in a way that is not going to
13 conflict?
14 A. Not only UCI. Whatever. If you
15 transmit same time, same frequency, you are bound
16 to create collisions and retransmission.
17 Q. So it's looking to make sure that the
18 uplink resources that are used for transmitting --
19 not just UCI but including UCI -- don't conflict
20 or overlap?
21 A. Yes. Don't conflict. Yes.
22 Q. Obviously, that would be a problem

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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1 because you would potentially lose portions of the
2 data being transmitted?
3 A. Yes. Not only that. Then you start
4 retransmission, you know, and then you collide
5 again. Just a storm created. Not good.
6 Q. Right. So Marinier wants to make sure
7 that when it is transmitting on these overlapping
8 component carriers, that it is not losing any
9 information as part of the transmission?
10 A. That's fair.
11 Q. That is your understanding of
12 Marinier?
13 A. Yeah. To avoid collisions and
14 conflicts. Yes.
15 Q. I think you can set the Patent Owner's
16 Response aside.
17 Dr. Sharony, were you instructed by
18 anyone as to what positions you should take in
19 your declaration as to the grounds in the
20 petition?
21 A. No.
22 Q. Were you instructed by anyone as to

Pet. Reply, pp. 18-19; EX1050, 203:10-21, 204:6-14.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Buchanan Ingersoll & Rooney PC

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Dr. Sharony's Lack of Experience

Dr. Sharony:

- Authored no publications in the field of telecommunications since 2012
- Last consulted in a telecommunications role around 2015
- Did not attend any 3GPP conferences during the development of 5G
- Primary telecommunications experience since 2015 consists of having taught a course on 5G around four times.

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025

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1 to review the drafts they were releasing?

2 A. Well, as someone in the field, you

3 have to.

4 Q. Now let's jump forward to 5G. When

5 was 3GPP group working on the 5G standard, around

6 what time?

7 A. You know, I said about 10 years after

8 the other one. So --

9 Q. Would that be like 2018?

10 A. Around '15, '18. That time. Starting

11 to work on it, yes.

12 Q. Around that time, between 2015 and

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, AND T-MOBILE USA, INC.,

rs,

ent Owner) and

LLC (Exclusive Licensee)

25-00083

8,463

16 Q. Did you attend any of the 3GPP

17 conferences relating to the development of the 5G

18 standard?

19 A. Not attending, no. I am just thinking

20 about the presentation that I gave was more 4G or

22 Q. Well, you said that presentation was

Pet. Reply, p. 22; EX1050,19:15-20:3, 29:15-19; 30:6-15, 31:20-32:5; 45:12-21, 46:6-8; EX2005, 54.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Buchanan Ingersoll & Rooney PC

Dr. Sharony's Lack of Analysis

Dr. Sharony acknowledged under oath that the claim “doesn’t say 5G” or that 5G satisfies” the claim limitations.

Pet. Reply, pp. 3-4; EX1050, 54:15-55:16.

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025 54

1 control information. Is that right?

2

3 Q. “Is it your understanding

4 that claim 1 is a 5G method?”

5 A. “It’s a method. It doesn’t

6 say 5G.”

7

8

9

10 covered by 463 Patent?

11 Object to form.

12 A. A method claim that -- it is a

13 method of transmitting uplink control

14 information to a UE or user device.

15 Q. Is it your understanding that claim 1

16 is a 5G method?

17 MR. HELGE: Object to form.

18 A. It's a method. It doesn't say 5G.

19 Q. It doesn't say 5G. So, do you have an

20 understanding of whether claim 1 covers a 5G

21 method or not?

22 MR. HELGE: Object to form.

Transcript of Jacob Sharony, Ph.D.
Conducted on November 20, 2025 55

1 A. I didn't do like infringement analysis

2 cannot say -- I am not in a position to say

3 5G satisfies all the...

4 You are not in a position to say

5 er the 5G standard practices this method?

6 I didn't do this analysis. I never

7 also in the previous case, so I cannot

8 nt on that.

9 Q. Okay. I just want to be clear. You

10 are not in a position to say whether

11 A. “I didn't do analysis to

12 check that each and

13 every limitation of claim

14 1 is satisfied by 5G.”

15

16

17

18

19 A. Okay.

20 Q. We see at the top the preamble recites

21 "a method of transmitting uplink (UL) control

22 information by a user equipment, the method

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Buchanan Ingersoll & Rooney PC

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Dr. Roy's Experience

Dr. Roy:

- Authored more than a dozen publications relating to the 5G telecommunication protocol
- Continuously conducted funded research relating to 5G throughout the last decade.
- Served as Program Lead for the U.S. Department of Defense, Office of the Under Secretary of Defense's Innovate Beyond 5G program, where he had responsibility for monitoring commercial 5G evolution via 3GPP standardization.

EX1003; Pet. at p. 1, citing Ex. 1002, ¶¶1-42, 59, 103.

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 Curriculum Vitae

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EDUCATION

Degree	Institution	Year
Ph.D. Electrical Engineering	University of California, Santa Barbara	1988
M. A. Statistics & Appl. Probability	University of California, Santa Barbara	1988
M. S. Electrical Engineering	University of California, Santa Barbara	1985
B. Tech. Electrical Engineering	Indian Institute of Technology, Kanpur	1983

PERSONAL
 Date & Place of Birth: Nov. 17, 1960; Kolkata, India.
 Married; U. S. Citizen.

EMPLOYMENT

9/20-8/22	9/02 - present	Program Lead, Innovate Beyond 5G, 5G-to-xG Initiative, US DoD (OUSD R&E) Prof. (with tenure), Dept. of Electrical Engineering Univ. of Washington, Seattle <i>Assoc. Chair for Research</i> , Sep. 2005-07, Sep. 08 - 11 Assoc. Prof. (with tenure), Dept. of Electrical Engineering Univ. of Washington, Seattle Assoc. Professor (with tenure), Division of Engineering University of Texas at San Antonio Asst. Professor, Dept. of Electrical Engineering University of Pennsylvania Research Assistant, Dept. of Electrical & Computer Engineering University of California at Santa Barbara M. S. Thesis: "Target Signature Evaluation Based on Radar Turntable Data" Ph. D. Diss.: "Estimation Strategies for a Network of Distributed Sensors"
9/98 - 9/02		
1/95 - 8/98		
7/88 - 12/94		
10/83 - 5/ 88		

OTHER SIGNIFICANT PROFESSIONAL EXPERIENCE

Dec. 2014-Feb. 2015	Visiting Research Scientist, Microsoft Research, Bangalore, India
Aug-Dec. 2014	Visiting Faculty and External Consultant; IIT-Delhi, India
Sep. 2001 - Dec. 2003	Sr. Staff Researcher, Wireless Technology, Intel Labs, Hillsboro, OR
Summer 1996	Visiting Member of Technical Staff, Center for Wireless Communications National Univ. of Singapore
Summer 1989	Visiting Researcher, GE Corporate R & D Center, Schenectady, NY

RESEARCH INTERESTS

- Analysis, Evaluation & Prototyping of Wireless Communication Systems/Networks
- Emerging Networks: Beyond 5G (mobile cellular, satellite and WiFi), Internet of Things, Autonomous and Software-Defined Networks

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Petitioners' Exhibit 1003
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