UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

_____

ONEPLUS TECHNOLOGY (SHENZHEN) CO., LTD.

Petitioner

v.

PANTECH CORPORATION

Patent Owner

_____

IPR2025-00783

U.S. PATENT 9,288,824

_____

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT 9,288,824

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2. TS36321-V830 discloses or at least suggests "*a transmitter to transmit a random access preamble to a base station*" [7.a]. 27

3. TS36321-V830 discloses or at least suggests "*a processor configured to determine a time period for receiving a random access response responsive to the random access preamble*" [7.b]. 28

4. TS36321-V830 discloses or at least suggests "*a receiver to receive the random access response from the base station within the time period*" [7.c]. 28

5. TS36321-V830 discloses "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting the random access preamble, and the offset equals three*" [7.d]. 29

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5. Qualcomm discloses "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number*

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5. ZTE discloses or at least suggests "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding to the time point is obtained by adding an offset to a subframe number corresponding to the*

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2. TS36321-V800 discloses "*transmitting a random access preamble to a base station*" [1.a]. 56

3. TS36321-V800 discloses or at least suggests "*determining a time period for receiving a random access response responsive to the random access preamble*" [1.b], and "*receiving the random access response from the base station within the time period*" [1.c]. 57

4. TS36321-V800 in view of Nokia suggests "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*" [1.d]. 59

C. Independent Claim 7 61

1. TS36321-V800 discloses "*[a] user equipment (UE) to perform a random access procedure, the UE comprising*" [7.P]. 61

2. TS36321-V800 discloses or at least suggests "*a transmitter to transmit a random access preamble to a base station*" [7.a]. 61

3. TS36321-V800 discloses or at least suggests "*a processor configured to determine a time period for receiving a random access response responsive to the random access preamble*" [7.b], and "*a receiver to receive the random access response from the base station within the time period*" [7.c]. 62

4. TS36321-V800 in view of Nokia suggests "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting the random access preamble, and the offset equals three*" [7.d]. 63

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LIST OF EXHIBITS

Exhibit	Description
EX1001	U.S. Patent No. 9,288,824 to Noh *et al*.
EX1002	Prosecution History of U.S. Patent No. 9,288,824
EX1003	Declaration of Dr. Robert Akl
EX1004	"3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) Medium Access Control (MAC) Protocol Specification (Release 8)," 3GPP TS 36.321 V8.3.0 (2008-09)
EX1005	"Corrections Relating to RACH" by Nokia Corporation, Nokia Siemens Networks, 3GPP TSG-RAN2 Meeting #63, R2-084921, Jeju, Korea, 18 August – 22 August, 2008
EX1006	"RA_WINDOW and RA-RNTI Allocation" by Qualcomm Europe, 3GPP TSG-RAN WG2 #61bis, R2-081559, Shenzhen, China, 31st March – 4th April, 2008
EX1007	"Coding of RA-RNTI for Message 2" by ZTE, 3GPP TSG-RAN Working Group 2 meeting #59bis, R2-073933, Shanghai, China, 8th October – 12th October, 2007
EX1008	"3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) Medium Access Control (MAC) Protocol Specification (Release 8)," 3GPP TS 36.321 V8.0.0 (2007-12)
EX1009	"Number of HARQ Processes for FDD" by Nokia, Nokia Siemens Networks, 3GPP TSG-RAN WG1 Meeting #50bis, R1-074344, Shanghai, China, October 8th – 12th, 2007
EX1010	Declaration of Friedhelm Rodermund
EX1011	U.S. Provisional Application No. 61/018,492
EX1012	Certified English Translation of U.S. Provisional Application No. 61/018,492
EX1013	Korean Patent Application No. 10-2008-0047656
EX1014	Certified English Translation of Korean Patent Application No. 10-2008-0047656
EX1015	"3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall Description; Stage 2 (Release 8)," 3GPP TS

Exhibit	Description
	36.300 V8.0.0 (2007-03)
EX1016	First Amended Docket Control Order, *Pantech Corp. et al. v. OnePlus Tech. (Shenzhen) Co., Ltd.*, 5:24-cv-00038-RWS-JBB, Dkt. No. 47 (E.D. Tex. March 12, 2025)
EX1017	Joint Claim Construction and Prehearing Statement, *Pantech Corp. et al. v. OnePlus Tech. (Shenzhen) Co., Ltd.*, 5:24-cv-00038-RWS-JBB, Dkt. No. 49 (E.D. Tex. March 26, 2025)
EX1018	E. Dahlman *et al*., "3G Evolution: HSPA and LTE for Mobile Broadband," 1st ed. Elsevier, 2007
EX1019	Prosecution History of U.S. Patent No. 8,611,297

All citations to 35 U.S.C. §§ 102 and 103 in this paper refer to the Pre-AIA statutes.

All emphases in quotations are added unless otherwise noted.

Direct quotations of claim language are italicized.

This paper includes color illustrations and should be viewed in color.

I. INTRODUCTION

OnePlus Technology (Shenzhen) Co., Ltd. (hereinafter "Petitioner") petitions for *inter partes* review (IPR) of claims 1 and 7 (hereinafter "challenged claims") of U.S. Patent No. 9,288,824 (hereinafter "'824 patent," EX1001) assigned to Pantech Corporation (hereinafter "Patent Owner").

The challenged claims recite the well-known random access (RA) procedure in wireless communication, which had been extensively proposed, discussed, released, and eventually finalized as part of the fourth generation (4G) Long-Term Evolution (LTE) standard before the '824 patent's earliest claimed priority date in 2008. For instance, a 3rd Generation Partnership Project (3GPP) LTE standard proposal titled "Coding of RA-RNTI for Message 2," submitted by ZTE (hereinafter "ZTE," EX1007) in 2007, anticipates the challenged claims.

The '824 patent's purportedly patentable feature, which relates to the specific value of subframe offset between the start time of random access response reception window and the end time of random access preamble transmission, was first introduced in the continuation application underlying the '824 patent filed in August 2013—more than five years after the '824 patent's alleged provisional and foreign priority dates. This later-added claim limitation, however, lacks written description support in the priority applications. Without reliance on these priority dates, the purportedly patentable feature, as well as other claimed limitations, are all predated

by the 3GPP Technical Specification (TS) 36.321 V8.3.0 (hereinafter "TS36321-V830," EX1004), which was publicly released as part of the LTE standard in September 2008—more than 5 years before the purportedly patentable feature was introduced.

Even if the challenged claims were entitled to the foreign priority date of May 22, 2008, besides ZTE, another 3GPP LTE standard proposal titled "RA_WINDOW and RA-RNTI Allocation," submitted by Qualcomm Europe (hereinafter "Qualcomm," EX1006) in March 2008, still anticipates the challenged claims, including explicitly disclosing the purportedly patentable feature.

Petitioner's expert, Dr. Robert Akl, who has over three decades of experience in wireless telecommunication, confirms that the challenged claims are unpatentable over these references, as well as others predating the '824 patent.

Petitioner thus respectfully requests the Board cancel the challenged claims.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Party-in-Interest

The real parties-in-interest are OnePlus Technology (Shenzhen) Co., Ltd. and Guangdong OPPO Mobile Telecommunications Corp., Ltd.

B. Related Matters

The '824 patent is asserted in *Pantech Corp. et al. v. OnePlus Tech. (Shenzhen) Co., Ltd.*, No. 5:24-cv-00038-RWS-JBB (E.D. Tex.) (hereinafter

"EDTX case").

C. Lead and Back-up Counsel and Service Information

Petitioner identifies the following lead and back-up counsels:

Lead Counsel	Back-up Counsel
Zhiwei (Wayne) Zou (Reg. No. 66,041) wayne.zou@bayes.law Bayes PLLC 8260 Greensboro Drive, Suite 625 McLean, VA 22102 Tel: 703-995-9887 Fax: 703-821-8128	Wenchong Shu (Reg. No. 73,999) wenchong.shu@bayes.law Bayes PLLC 8260 Greensboro Drive, Suite 625 McLean, VA 22102 Tel: 703-995-9887 Fax: 703-821-8128 Zhe (Philip) Wang (*Pro hac vice to be filed*) philip.wang@bayes.law Bayes PLLC 8260 Greensboro Drive, Suite 625 McLean, VA 22102 Tel: 703-995-9887 Fax: 703-821-8128

Petitioner consents to electronic service at OnePlus-Pantech-IPR@bayes.law, as well as the above email addresses.

III. CERTIFICATION OF GROUNDS FOR STANDING

Petitioner certifies under 37 C.F.R. § 42.104(a) that the '824 patent is available for IPR, and Petitioner is not barred or estopped from requesting IPR challenging the patent claims on the grounds identified in this Petition.

IV. RELIEF REQUESTED

Petitioner requests IPR and cancellation of the challenged claims 1 and 7 of

the '824 patent under 35 U.S.C. § 311 based on the following grounds. This Petition is supported by the Declaration of Dr. Robert Akl (hereinafter "Akl Decl.," EX1003) and Declaration of Friedhelm Rodermund (hereinafter "Rodermund Decl.," EX1010).

A. Specific Art on Which Challenge Is Based

Petitioner relies on the following prior art:

EX.	Reference	Published	Prior Art Under At Least
1004	TS36321-V830	by 9/18/2008	§ 102(a)
1006	Qualcomm	by 3/25/2008	§ 102(a)
1007	ZTE	by 9/30/2007	§ 102(a)
1008	TS36321-V800	by 12/20/2007	§ 102(a)
1009	Nokia	by 10/2/2007	§ 102(a)

TS36321-V830 (EX1004) is a technical specification released by 3GPP related to the LTE standard. EX1004, Cover; EX1010, ¶110. TS36321-V830 was published and freely available on 3GPP's File Transfer Protocol (FTP) server no later than September 18, 2008. EX1010, ¶¶26, 111-118.

Qualcomm (EX1006) is a proposal submitted by Qualcomm Europe to the 3GPP Technical Specification Group Radio Access Network (TSG-RAN) Working Group 2 (WG2). EX1006, 1; EX1010, ¶79. Qualcomm was published and freely available on 3GPP's FTP server no later than March 25, 2008. EX1010, ¶¶23, 80-89.

ZTE (EX1007) is a proposal submitted by ZTE to 3GPP TSG-RAN WG2. EX1007, 1; EX1010, ¶69. ZTE was published and freely available on 3GPP's FTP

server no later than September 30, 2007. EX1010, ¶¶22, 70-78.

TS36321-V800 (EX1008) is an earlier version of TS36321-V830 released by 3GPP related to the LTE standard. EX1008, Cover; EX1010, ¶101. TS36321-V800 was published and freely available on 3GPP's FTP server no later than December 20, 2007. EX1010, ¶¶25, 102-109.

Nokia (EX1009) is a proposal titled "Number of HARQ processes for FDD" and submitted by Nokia and Nokia Siemens Networks to 3GPP TSG-RAN WG1. EX1009, 1; EX1010, ¶58. Nokia was published and freely available on 3GPP's FTP server no later than October 2, 2007. EX1010, ¶¶21, 59-68.

Petitioner demonstrates in Section V.D that claims 1 and 7 of the '824 patent are not entitled to its U.S provisional application and foreign application priority dates.[1] Thus, TS36321-V830, Qualcomm, ZTE, TS36321-V800, and Nokia—each published before December 31, 2008, the filing date of the earliest parent patent of the '824 patent (U.S. Patent No. 8,102,804, hereinafter "'804 patent")—qualify as prior art under at least 35 U.S.C. § 102(a).[2]

If the Board finds that claims 1 and 7 of the '824 patent are entitled to the

[1] Petitioner does not concede that the '824 patent is entitled to any other priority dates. *See* EX1001, (63). Petitioner does not challenge such entitlement in this Petition only because all references cited herein are already prior art as compared to such other priority dates.

[2] Each of ZTE, TS36321-V800, and Nokia also qualifies as prior art under 35 U.S.C. § 102(b) under this situation.

foreign application priority date of May 22, 2008, but not the U.S. provisional application priority date of January 1, 2008, then Qualcomm, ZTE, TS36321-V800, and Nokia still qualify as prior art under 35 U.S.C. § 102(a), as their publication dates predate May 22, 2008.

Even if the Board finds that claims 1 and 7 of the '824 patent are entitled to the U.S. provisional application priority date of January 1, 2008, ZTE, TS36321-V800, and Nokia still qualify as prior art under 35 U.S.C. § 102(a), as their publication dates predate January 1, 2008.

B. Specific Ground on Which Challenge Is Based

Petitioner relies on the following statutory grounds:

Ground	Claims	Basis	References
1 & 2	1 and 7	§§ 102/103	TS36321-V830
3 & 4	1 and 7	§§ 102/103	Qualcomm
5 & 6	1 and 7	§§ 102/103	ZTE
7	1 and 7	§ 103	ZTE in view of TS36321-V800
8	1 and 7	§ 103	TS36321-V800 in view of Nokia

V. THE '824 PATENT

A. Overview

The '824 patent relates to a wideband radio access system, particularly transmitting and receiving random access preamble (request) and random access response in the wideband radio access system. EX1001, 1:21-25. It purports to address the need for "distinguishing between a delayed [random access] response and a response which is transmitted on time or between delayed responses" when the response cannot be transmitted on time by the base station. EX1001, 2:30-37. The '824 patent states that it is "capable of preventing a user equipment which attempts to access using, a randomly selected sequence from erroneously receiving a response for the access of another user equipment." EX1001, 2:44-50.

Notably, in the "Discussion of the Related Art" section, the '824 patent recognizes that the random access procedure, which involves the user equipment (UE) transmitting random access preamble to a base station and receiving a random access response from the base station, is well known in the art, for example, as described in the 3GPP technical specification published in December 2007. EX1001, 1:26-55; EX1003, ¶51. The '824 patent acknowledges that its embodiments are "examples applied to a wideband radio access system, which may refer to '3GPP TS 36.211 v.8.1.0, 'Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation,' 2007 Dec. 20' regarding [] random access in a wideband

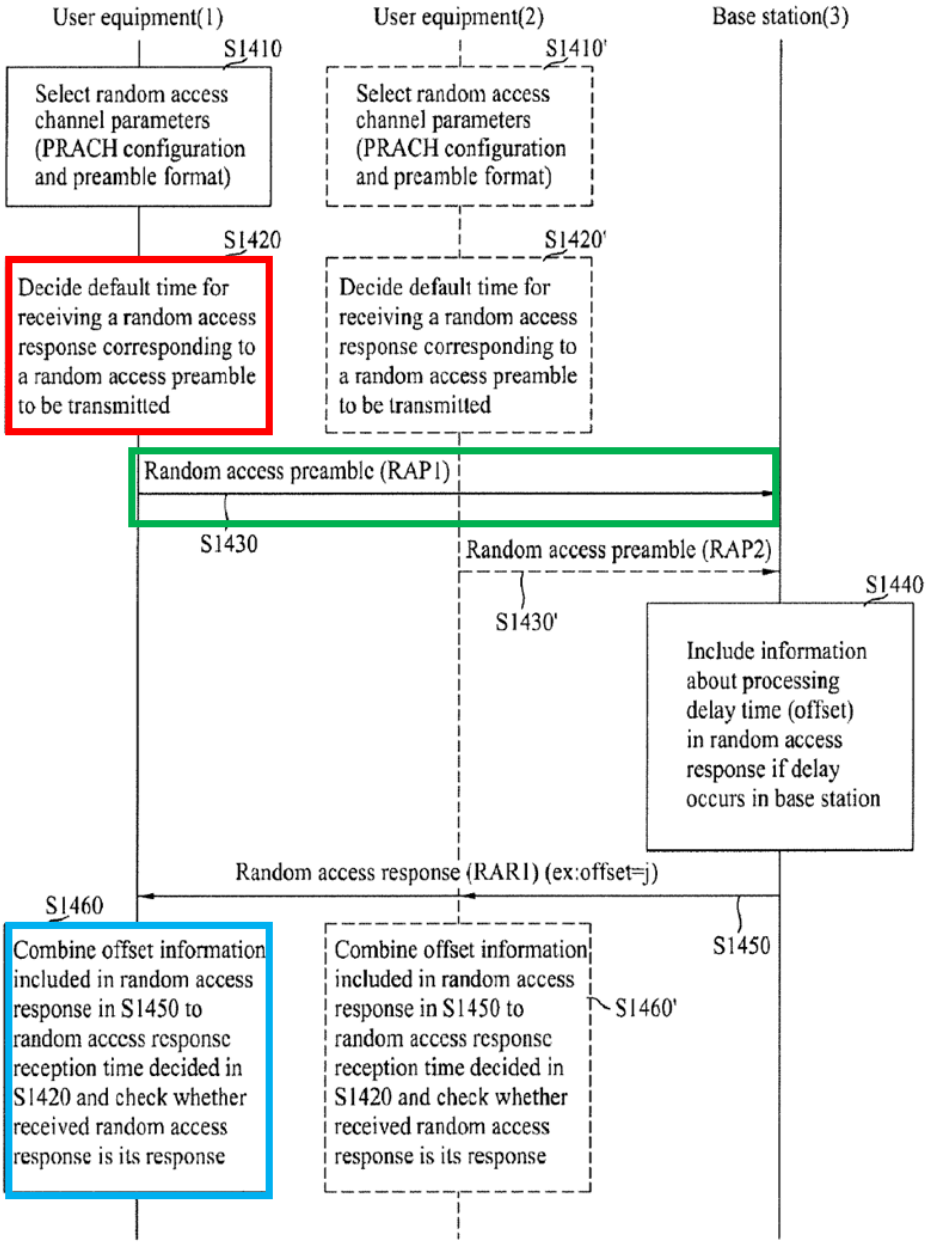
radio access system." EX1001, 4:40-45.

The '824 patent describes two different approaches for solving the problem that the UE "recognizes a random access response for a random access request transmitted by another user equipment as a response for its random access request." EX1001, 2:51-3:45; EX1003, ¶52.

Specifically, in one aspect of the '824 patent related to FIGs. 3A-10, the base station determines time related information (also referred to as "time information") of a time point when the random access preamble is transmitted and includes the time information in the random access response transmitted to the UE. EX1001, 2:51-3:23; EX1003, ¶53. The time information in the random access response, such as the uplink subframe number when the UE transmitted the random access preamble, is then received and used by the UE to determine whether the received random access response is for a random access preamble transmitted by the same UE. EX1001, 3:42-45, 9:38-56, 13:6-26.

Conversely, in another aspect of the '824 patent related to FIGs. 11-14, which corresponds to the challenged claims 1 and 7, the UE determines a time period (*e.g.*, "default time" or "response reception time location") for receiving a random access response and uses such predetermined time period (*e.g.*, default time) to check whether the received random access response is for a random access preamble transmitted by the same UE. EX1001, 3:24-45, 13:52-58, 15:3-7; EX1003, ¶54.

FIGURE 14



EX1003 — FIG. C

For instance, as shown in annotated FIG. 14 of the '824 patent (EX1003, FIG. C) above, the user equipment 1 (UE1) "decide[s] default times, in which the random access responses of the random access preambles to be transmitted will be received"

at step S1420 (highlighted in the red box). EX1001, 15:23-26. At step S1430 (highlighted in the green box), UE1 "transmit[s] the random access preamble[]" "at time point[] corresponding to the uplink subframe number[] sf_F_N=1." EX1001, 15:36-42. UE1 then at step S1460 (highlighted in the blue box) "receive[s] the respective random access response[]" and "check[s] whether the received random access response[] [is] received at the default time[] set in the steps S14[2]0." EX1001, 15:61-65; EX1003, ¶55.

In this embodiment, the '824 patent further discusses the case in which a processing delay occurs at the base station 3, such that the base station 3 "may include information about the processing delay time (timing offset) in the random access response (S1440)." EX1001, 15:46-53. Accordingly, if the offset included in the received random access response is not 0, *e.g.*, j sections (or the number of subframes or the time), then it is assumed that for the random access preamble transmitted by UE1, UE1 "receives the [corresponding] random access response after j sections (or the number of subframes or the time) from a time decided in the step S1420. At this time, the offset included in the received random access response corresponds to the j sections, it is determined that the received random access response is the response of the random access preamble transmitted by the user equipment 1." EX1001, 16:32-49.

B. Prosecution History of the ’824 Patent

In the first Office Action, the Examiner rejected independent claims 1, 4, and 7 of the ’824 patent on the ground of nonstatutory double patenting over U.S. Patent No. 8,611,297 (hereinafter “’297 patent”). EX1002, 87. In response, Patent Owner filed a terminal disclaimer against the ’297 patent without presenting arguments on the merits. EX1002, 77, 79.

The Examiner subsequently issued the Notice of Allowance. EX1002, 51. The Examiner states that claim 1 is allowable over U.S. Patent Application Publication No. 2010/0323736 in the name of Fischer *et al*. (hereinafter “Fischer”) and U.S. Patent Application Publication No. 2008/0232317 in the name of Jen (hereinafter “Jen”) because Fischer and Jen fail to disclose “*wherein the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*.” EX1002, 57.

C. The Level of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) at the time of the claimed invention would have had a Bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and two to three years of experience in the design or development of telecommunication systems, or the

equivalent. EX1003, ¶22. A higher level of education might make up for less experience, and vice versa. *Id*.

D. The Priority Dates of Claims 1 and 7

The '824 patent claims the benefit of priorities to U.S. Provisional Application No. 61/018,492 (hereinafter "'492 application," EX1011),[3] filed on January 1, 2008, and Korean Patent Application No. 10-2008-0047656 (hereinafter "'656 application," EX1013),[4] filed on May 22, 2008. To obtain priority benefit of an earlier-filed U.S provisional application or a foreign application, the claims must meet the written description requirement of 35 U.S.C. § 112.[5] *See* 35 U.S.C. § 119.

As explained below in detail, claims 1 and 7 of the '824 patent are not entitled to the priority benefit of either the '492 application or the '656 application because neither application provides a written description of the limitations of "*determining/determine a time period for receiving a random access response*

[3] Since the '492 application was originally filed in Korean, a certified English translation of the '492 application, which was filed on March 16, 2009 by Patent Owner and included in the file history of the '492 application, is submitted herewith (EX1012).

[4] Since Patent Owner did not perfect the foreign priority claim of the '824 patent during its original prosecution by submitting a certified English translation of the '656 application, a certified English translation thereof is now submitted herewith (EX1014).

[5] It is Patent Owner's burden to establish that the claims are entitled to the priority dates of the earlier-filed applications. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc*., 800 F.3d 1375, 1379–80 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc*., 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)).

responsive to the random access preamble … wherein the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting the random access preamble, and ***the offset equals three***" (hereinafter "determining-offset limitations"). Claims 1 and 7 expressly require that the determining-offset limitations are performed by "*a user equipment (UE)*" in "*a random access procedure*."

To satisfy the written description requirement, the disclosures of both the '492 application and the '656 application must "convey with reasonable clarity to those skilled in the art that, as of the filing date sought, [the inventor] was in possession of the invention." *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991). "[T]he critical inquiry is whether the patentee has provided a description that 'in a definite way identifies the claimed invention' in sufficient detail that a person of ordinary skill would understand that the inventor was in possession of it at the time of filing." *Alcon Research Ltd. v. Barr Labs., Inc.*, 745 F.3d 1180, 1190-91 (Fed. Cir. 2014). Entitlement to a filing date does not extend to subject matter that is not disclosed but would be obvious over what is expressly disclosed. *See PowerOasis, Inc. v. T-Mobile USA, Inc*., 522 F.3d 1299, 1306 (Fed. Cir. 2008). The missing descriptive matter "must necessarily be present in the [original] application's specification such that one skilled in the art would recognize such a

disclosure." *Id*. "This requires that the written description actually or inherently disclose the claim element." *Id*. As explained below in detail, none of the '492 application and the '656 application describes the determining-offset limitations with reasonable clarity, let alone sufficient detail.

1. The '492 application does not provide written description support for the determining-offset limitations.

As discussed in Section V.A, claims 1 and 7, including the determining-offset limitations, are directed to the aspect in which the UE predetermines the time period for receiving the random access response. This particular approach is described as "Method 1: Response location based on a predetermined timing period (no overhead case)" in the '492 application. EX1012, 4-6. Regarding the claimed "*offset*" in the determining-offset limitations, the '492 application recites the term "offset" three times within Method 1, as shown in the paragraph reproduced below:[6]

> "**Alternatively**, a method of applying an **offset** in consideration of a difference between a data processing time and a random access processing time may be used. For example, a method of receiving a downlink signal by the user equipment at a location **offset** from a time determined by the number of HARQ processes by one subframe is

[6] The term "offset" is also recited twice on page 9 in "Method 2: Method for including transmitted or received time location information in RACH response." EX1012, 6, 9. These recitations, however, are irrelevant for the written description discussion herein, as Method 2 pertains to a different aspect than the claimed invention at issue. *See* Section V.A; EX1003, ¶66. Even if considered, these recitations in Method 2 still fail to provide written description support for the determining-offset limitations.

> possible. This **offset** may be represented by adding or subtracting of a predetermined number and may be represented by a multiple of the number of HARQ processes."

EX1012, 6.

The disclosure above provides an alternative method of applying an offset in which the offset "may be represented by adding or subtracting of a predetermined number," but it does not specify or even suggest that the value of such a predetermined number is "***three***," as required in the determining-offset limitations. EX1003, ¶63. While the disclosure also mentions that the offset "may be represented by a multiple of the number of HARQ processes," the '492 application only discloses that "the number of HARQ process is **8**." EX1012, 5. Therefore, "a multiple of the number of HARQ processes" cannot correspond to the claimed value of "***three***" either. EX1003, ¶64. Moreover, the statement that "a method of receiving a downlink signal by the user equipment at a location **offset from a time determined by the number of HARQ processes by one subframe** is possible" at best discloses the value of an offset to be "**one** subframe," as opposed to the claimed "***three***." EX1003, ¶65. As such, the '492 application fails to satisfy the written description requirement, as it does not convey with reasonable clarity to a POSITA that the inventor was in possession of the claimed subject matters pertinent to the determining-offset limitations, particularly the specific value of subframe offset being "***three***." EX1003, ¶65.

Should Patent Owner argue that "FIG. [2]: Example of HARQ processing" on page 5 of the '492 application illustrates the value of subframe offset as "*three*," it is important to note that HARQ (hybrid automatic repeat request) is a procedure distinct from the "*random access procedure*" expressly required by claims 1 and 7 of the '824 patent. *See generally* EX1008, §§ 5.1, 5.4.2; EX1015, §§ 9.1, 10.1.5; EX1018, §§ 15.2.4, 17.2; EX1003, ¶¶67-68. In fact, the LTE standard explicitly requires that "No HARQ" is used for transmitting random access response in the random access procedure. EX1015, § 10.1.5, p. 46; EX1018, § 17.2.2, pp. 367-368; EX1003, ¶69. Thus, any specific timing requirement in the HARQ procedure allegedly illustrated in FIG. 2 of the '492 application and its corresponding texts is not directly or inherently applicable to the determining-offset limitations in the claimed "*random access procedure*." *PowerOasis*, 522 F.3d at 1306; EX1003, ¶70. Therefore, the written description of the '492 application neither expressly nor inherently discloses the determining-offset limitations, particularly the specific value of subframe offset being "*three*."

2. The '656 application does not provide written description support for the determining-offset limitations.

As discussed in Section V.A, claims 1 and 7, including the determining-offset limitations, are directed to the aspect in which the UE predetermines the time period for receiving the random access response. This particular approach is described with

respect to FIGs. 11-14 of the '656 application. EX1014, ¶¶55-68.

Similar to the '492 application, the '656 application discloses, in an alternative method of applying delay offset, "an offset of one subframe from a time determined by the HARQ round trip time or the total number of HARQ processes" and that the "offset may be represented by adding or subtracting a predetermined number, and may be represented by a multiple of the number of HARQ processes." EX1014, ¶61. However, it does not convey with reasonable clarity to a POSITA that the inventor was in possession of the claimed subject matter pertinent to the determining-offset limitations, particularly the specific value of subframe offset being "***three***." EX1003, ¶72; *see* Section V.D.1. Also, as with FIG. 2 of the '492 application, any specific timing requirement in the HARQ procedure illustrated in FIG. 13 of the '656 application is not directly or inherently applicable to the determining-offset limitations in the claimed "*random access procedure*." *PowerOasis*, 522 F.3d at 1306; EX1003, ¶73.

Furthermore, although FIG. 14 and its accompanying disclosure in paragraphs 66-68 of the '656 application also reference the term "offset" (*i.e.*, the processing delay time of the base station 3) and describe its inclusion in the random access response **by the base station 3**, the '656 application does not disclose, either directly or indirectly, that the UE predetermines the time period including the offset for receiving the random access response, let alone that the value of the offset is "***three***."

See generally EX1014, ⁋⁋66-68, FIG. 14; EX1003, ¶74.

To the extent Patent Owner argues that FIG. 6b of the '656 application and its corresponding texts provide support to that "*the offset equals three*," notably, FIG. 6b of the '656 application is part of a distinct approach. In this approach, **the base station determines the time information** and includes it in the random access response, and the UE extracts the time information from the random access response to differentiate random access responses for different UEs. EX1014, ⁋10, ⁋45 (explaining time information related to the delayed time, *i.e.*, delay offset information, is preferably included in the random access response by the base station). This approach—the same as that of FIG. 6B and its corresponding descriptions in the '824 patent—is not what the claimed invention is directed to. *See* Section V.A. Thus, regardless of whether FIG. 6b of the '656 application discloses or suggests any subframe offset being three, such an offset is not associated with a time period **predetermined by a UE** for receiving a random access response, much less for obtaining a starting time point at which the time period starts, as required by the determining-offset limitations in claims 1 and 7. EX1003, ¶75.

3. Patent Owner is legally precluded from arguing that the claimed value of the subframe offset would have been obvious and therefore have written description support.

If Patent Owner argues that the claimed value (*i.e.*, "*three*") of the subframe offset in the determining-offset limitations of claims 1 and 7 of the '824 patent was

obvious from the disclosures of the ’492 application and/or the ’656 application, such an argument should be rejected as inconsistent with the law of written description. For written description support under 35 U.S.C. § 112, first paragraph, “[t]he question is not whether a claimed invention is an obvious variant of that which is disclosed in the specification. Rather, a prior application itself must describe an invention, and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.” *Lockwood v. American Airlines, Inc*., 107 F.3d 1565, 1572 (Fed. Cir. 1997). Any argument based on obviousness, therefore, must fail as a matter of law.

Claims 1 and 7 of the ’824 patent, therefore, are not entitled to the priority dates of either the’492 application or the ’656 application because the subject matter of claims 1 and 7 was not disclosed in the manner required by 35 U.S.C. §112, first paragraph, in the’492 and ’656 applications.

VI. CLAIM CONSTRUCTIONS

Claim terms subject to IPR are construed under the framework established in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). *See* 37 C.F.R. § 42.100(b). Only terms necessary to resolve the controversy need construction. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). Because the prior art asserted herein discloses embodiments within the claims’ indisputable scope, the Board need not construe the claims’ outer bounds.

Other than the term "*time period*" recited in claims 1 and 7 as noted below, all claim terms should be construed according to their plain and ordinary meaning as would have been understood by a POSITA.

In the EDTX case, Petitioner proposes construing "*time period*" as "an amount of time," while Patent Owner argues the term should be given its plain and original meaning, without specifying what that meaning is. EX1017, 2-3. The court in the EDTX case has not yet constructed the term, and the Board need not construe it either, as the prior art discloses this limitation under either party's construction. *See* Sections VII.B.3, VIII.B.3, IX.B.3, XI.B.3.

VII. GROUNDS 1 AND 2: TS36321-V830 ANTICIPATES OR OTHERWISE RENDERS OBVIOUS CLAIMS 1 AND 7

A. Overview of TS36321-V830

TS36321-V830 is one version of the technical specification released by 3GPP in September 2008 as part of the LTE standard, specifically defining the Medium Access Control (MAC) protocol for LTE. EX1004, Cover, § 1; EX1003, ¶79.

Section 5.1 "Random Access procedure" of TS36321-V830 defines in detail the random access procedure initialization, random access resource selection, random access preamble transmission, random access response reception, contention resolution, and completion of the random access procedure. *See generally* EX1004, § 5.1.

Particularly, in Section 5.1.4 "Random Access Response reception," TS36321-V830 requires that "[o]nce the Random Access Preamble is transmitted and regardless of the possible occurrence of a measurement gap, the UE shall monitor the PDCCH for Random Access Response(s) identified by the RA-RNTI defined below, in the **TTI window RA_WINDOW_BEGIN—RA_WINDOW_END which starts at the subframe that contains the end of the preamble transmission** [] **plus three subframes** and has length *ra-ResponseWindowSize* subframes." EX1004, § 5.1.4, p. 13. This specific requirement was introduced through a change request from the prior version (V8.2.0) of the technical specification, submitted by Nokia Corporation and Nokia Siemens Network in August 2008, clarifying the RA response reception window (RA_WINDOW) calculation, particularly defining when the window begins and ends. EX1005, Cover, § 5.1.4; EX1003, ¶81; EX1010, ¶¶90-100.

Section 5.1.4 of TS36321-V830 further defines that "if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble …, the UE shall[] consider this Random Access Response reception successful," and that "[i]f no Random Access Response is received within the TTI window [RA_WINDOW_BEGIN—RA_WINDOW_END], or if all received Random Access Responses contain Random Access Preamble identifiers that do not match the transmitted Random

Access Preamble, the Random Access Response reception is considered not successful." EX1004, § 5.1.4, pp. 13-14.

B. Independent Claim 1

1. TS36321-V830 discloses "*[a] method for performing a random access procedure by a user equipment (UE), the method comprising*" [1.P].

TS36321-V830 discloses a method for performing a random access procedure by a UE, including random access procedure initialization, random access resource selection, random access preamble transmission, random access response reception, etc. *See generally* EX1004, § 5.1.

Thus, TS36321-V830 discloses [1.P].

2. TS36321-V830 discloses "*transmitting a random access preamble to a base station*" [1.a].

TS36321-V830 discloses the UE transmits a random access preamble to an eNB ("*base station*"). For example, TS36321-V830 discloses the following:

> "RA-RNTI: The Random Access RNTI is used on the PDCCH when Random Access Response messages are transmitted. It unambiguously identifies which time-frequency resource was utilized by the **UE to transmit the Random Access preamble**."

EX1004, § 3.1, p. 7.

> "5.1.3 **Random Access Preamble transmission**
> The random-access procedure shall be performed as follows:
> …
> - instruct the physical layer to **transmit a preamble using the selected PRACH resource**, corresponding RA-RNTI, preamble index

and PREAMBLE_RECEIVED_TARGET_POWER."

EX1004, § 5.1.3, p. 13.

That is, TS36321-V830 discloses that the UE transmits a random access preamble using the physical random access channel (PRACH). A POSITA would have understood that PRACH is an uplink physical channel used by the UE to transmit random access preamble to a base station (*e.g.*, eNB in LTE). EX1015, § 10.1.5, p. 46; EX1018, 362; EX1003, ¶99; *see* EX1004, § 5.1.4, p. 14 ("[w]hen an **uplink transmission** is required, *e.g.*, for contention resolution, the **eNB** should not provide a grant smaller than 80 bits in the Random Access Response").

Moreover, as discussed above in Section V.A, transmitting a random access preamble from a UE to a base station is part of the well-known random access procedure, as evidenced by the Applicant Admitted Prior Art (AAPA) in the "Discussion of the Related Art" section of the '824 patent itself. EX1001, 1:26-55.

Thus, TS36321-V830 discloses [1.a].

3. TS36321-V830 discloses or at least suggests "*determining a time period for receiving a random access response responsive to the random access preamble*" [1.b].

TS36321-V830 discloses monitoring PDCCH in a TTI (transmission time interval) window RA_WINDOW_BEGIN—RA_WINDOW_END (hereinafter "RA_WINDOW," "*a time period*") for receiving a random access response responsive to the random access preamble.

Specifically, TS36321-V830 discloses that "[o]nce the Random Access Preamble is transmitted …, the UE shall monitor the PDCCH for Random Access Response(s)…, in the TTI window RA_WINDOW_BEGIN—RA_WINDOW_END which starts at the subframe that contains the end of the preamble transmission [] plus three subframes and has length *ra-ResponseWindowSize* subframes," and that the received random access response "correspond[s] to the Random Access Preamble transmission." EX1004, § 5.1.4, p. 13; *see* Section VII.A. A POSITA would have understood that the RA_WINDOW represents an amount of time defined by the "length *ra-ResponseWindowSize* subframes" and thus, qualifies as the claimed "*time period*" under either party's proposed construction in the EDTX case. EX1003, ¶102; *see* Section VI.

Moreover, a POSITA would have understood or at least found it obvious that TS36321-V830 requires the UE to determine the RA_WINDOW first in order to monitor the reception of the random access response corresponding to the random access preamble transmission in the determined RA_WINDOW. EX1003, ¶103. Specifically, after transmitting the random access preamble, the UE determines the corresponding RA_WINDOW based on the end of the preamble transmission, the offset (3 subframes), and the length *ra-ResponseWindowSize* subframes, as defined by TS36321-V830. EX1004, § 5.1.4, p. 13.

Thus, TS36321-V830 discloses or at least suggests [1.b].

4. TS36321-V830 discloses "*receiving the random access response from the base station within the time period*" [1.c].

TS36321-V830 discloses receiving the random access response from the eNB ("*base station*") within the RA_WINDOW ("*time period*").

Specifically, TS36321-V830 states that "UE shall monitor the PDCCH for Random Access Response(s) … in the TTI window RA_WINDOW_BEGIN—RA_WINDOW_END," and "UE may stop monitoring for Random Access Response(s) after successful reception of a Random Access Response corresponding to the Random Access Preamble transmission." EX1004, § 5.1.4, p. 13. TS36321-V830 also requires that "if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble … the UE shall[] consider this Random Access Response reception successful," and that "[i]f no Random Access Response is received within the TTI window [RA_WINDOW_BEGIN—RA_WINDOW_END], or if all received Random Access Responses contain Random Access Preamble identifiers that do not match the transmitted Random Access Preamble, the Random Access Response reception is considered not successful." EX1004, § 5.1.4, pp. 13-14.

A POSITA would have understood that PDCCH for random access response is a downlink physical channel used by the base station (*e.g.*, eNB in LTE) to communicate with the UE. EX1015, § 10.1.5, p. 46; EX1018, 362; EX1003, ¶106.

TS36321-V830 further discloses that the random access response is provided by the eNB. EX1004, § 5.1.4, p. 14 ("[w]hen an uplink transmission is required, *e.g.*, for contention resolution, the **eNB** should not provide a grant smaller than 80 bits in the **Random Access Response**").

Moreover, as discussed above in Section V.A, receiving a random access response by the UE from the base station is part of the well-known random access procedure, as evidenced by the AAPA in the "Discussion of the Related Art" section of the '824 patent itself. EX1001, 1:26-55.

Thus, TS36321-V830 discloses [1.c].

5. TS36321-V830 discloses "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*" [1.d].

As discussed in Section VII.B.3, TS36321-V830 defines that "the TTI window RA_WINDOW_BEGIN—RA_WINDOW_END [] starts at the subframe that contains the end of the preamble transmission [] plus three subframes and has length *ra-ResponseWindowSize* subframes." EX1004, § 5.1.4, p. 13.

That is, TS36321-V830 discloses that the RA_WINDOW ("*time period*") starts at RA_WINDOW_BEGIN ("*time point*") after the end of the preamble transmission ("*after an end time of transmitting the random access preamble*"), and

that RA_WINDOW_BEGIN is at the subframe that contains the end of the preamble transmission plus three subframes ("*a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*").

Thus, TS36321-V830 discloses [1.d].

From the foregoing, TS36321-V830 anticipates or otherwise renders obvious claim 1.

C. Independent Claim 7

1. TS36321-V830 discloses "*[a] user equipment (UE) to perform a random access procedure, the UE comprising*" [7.P].

As discussed in Section VII.B.1, TS36321-V830 discloses a UE to perform a random access procedure. Thus, TS36321-V830 discloses [7.P].

2. TS36321-V830 discloses or at least suggests "*a transmitter to transmit a random access preamble to a base station*" [7.a].

As discussed in Section VII.B.2, TS36321-V830 discloses that the UE transmits a random access preamble to a base station. Although TS36321-V830 does not explicitly state the word "*transmitter*" verbatim, a POSITA would have understood, or at least found it obvious, that TS36321-V830's UE is implemented with a transmitter to enable the UE to perform its disclosed transmitting operations, including transmitting the random access preamble to the base station. EX1003,

¶113.

Thus, TS36321-V830 discloses or at least suggests [7.a].

3. TS36321-V830 discloses or at least suggests "*a processor configured to determine a time period for receiving a random access response responsive to the random access preamble*" [7.b].

As discussed in Section VII.B.3, TS36321-V830 discloses or at least suggests that the UE determines a time period for receiving a random access response responsive to the random access preamble. Although TS36321-V830 does not explicitly state the word "*processor*" verbatim, a POSITA would have understood, or at least found it obvious, that TS36321-V830's UE is implemented with a processor to enable the UE to perform its disclosed processing operations, including determining the time period for receiving the random access response responsive to the random access preamble. EX1003, ¶115.

Thus, TS36321-V830 discloses or at least suggests [7.b].

4. TS36321-V830 discloses or at least suggests "*a receiver to receive the random access response from the base station within the time period*" [7.c].

As discussed in Section VII.B.4, TS36321-V830 discloses that the UE receives the random access response from the base station within the time period. Although TS36321-V830 does not explicitly state the word "*receiver*" verbatim, a POSITA would have understood, or at least found it obvious, that TS36321-V830's

UE is implemented with a receiver to enable the UE to perform its disclosed receiving operations, including receiving the random access response from the base station within the time period. EX1003, ¶117.

Thus, TS36321-V830 discloses or at least suggests [7.c].

5. TS36321-V830 discloses "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting the random access preamble, and the offset equals three*" [7.d].

As discussed in Section VII.B.5, TS36321-V830 discloses [7.d].

From the foregoing, TS36321-V830 anticipates or otherwise renders obvious claim 7.

VIII. GROUNDS 3 AND 4: QUALCOMM ANTICIPATES OR OTHERWISE RENDERS OBVIOUS CLAIMS 1 AND 7

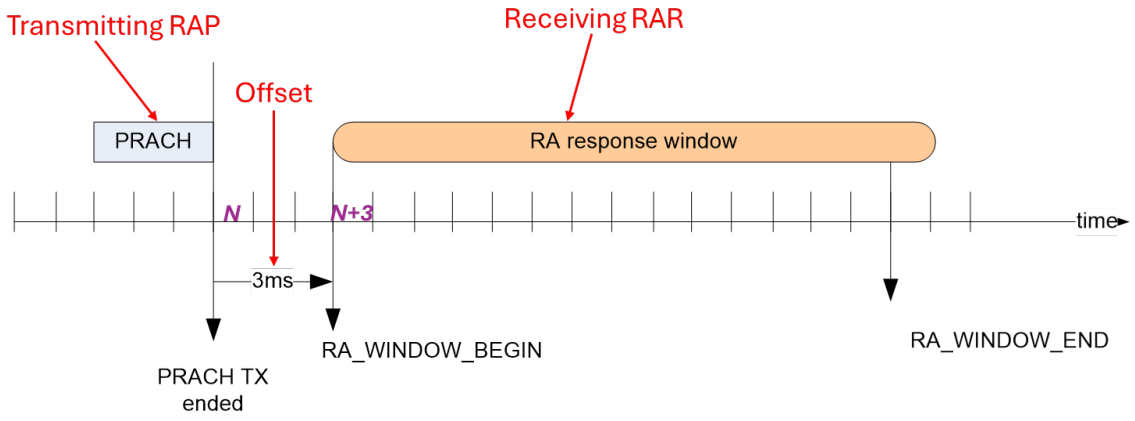
Qualcomm anticipates or otherwise renders obvious claims 1 and 7 regardless of whether claims 1 and 7 of the '824 patent are entitled to its claimed foreign priority date of May 22, 2008, since Qualcomm was published before May 22, 2008. *See* Section IV.A.

A. Overview of Qualcomm

Qualcomm proposes to progress the definition of begin and end of the random access response reception window RA_WINDOW_BEGIN—RA_WINDOW_END. EX1006, § 1, p. 1.

Specifically, in Section 2.2 "RA_WINDOW_BEGIN definition," Qualcomm proposes to fix the value of RA_WINDOW_BEGIN, *i.e.*, the beginning of the random access response reception window, which is set relative to the end of the PRACH transmission, and explains that "3ms is a reasonable minimum amount of time to process the PRACH" "after PRACH transmission." EX1006, § 2.2, p. 1.

In particular, FIG. 1 of Qualcomm illustrates RA_WINDOW_BEGIN set with a delay offset of 3 ms after PRACH transmission for FDD (frequency division duplex). EX1006, § 2.2, pp. 1-2. As shown in annotated FIG. 1 of Qualcomm (EX1003, FIG. D) below, the transmission of random access preamble (RAP) on PRACH ends at "PRACH TX ended" corresponding to subframe *N*, and "RA_WINDOW_BEGIN" of the RA response window for receiving corresponding random access response (RAR) corresponds to the first downlink subframe with a subframe number equal to *N*+3. EX1006, § 2.2, p. 2; EX1003, ¶¶88-89.



EX1003 — FIG. D

That is, Qualcomm proposes to set the offset between the subframe number (*N*) corresponding to "PRACH TX ended" (the end of transmitting RAP in PRACH) and the subframe number (*N*+3) corresponding to "RA_WINDOW_BEGIN" (the beginning of RA response window) to be 3 for FDD in LTE. EX1003, ¶89.

B. Independent Claim 1

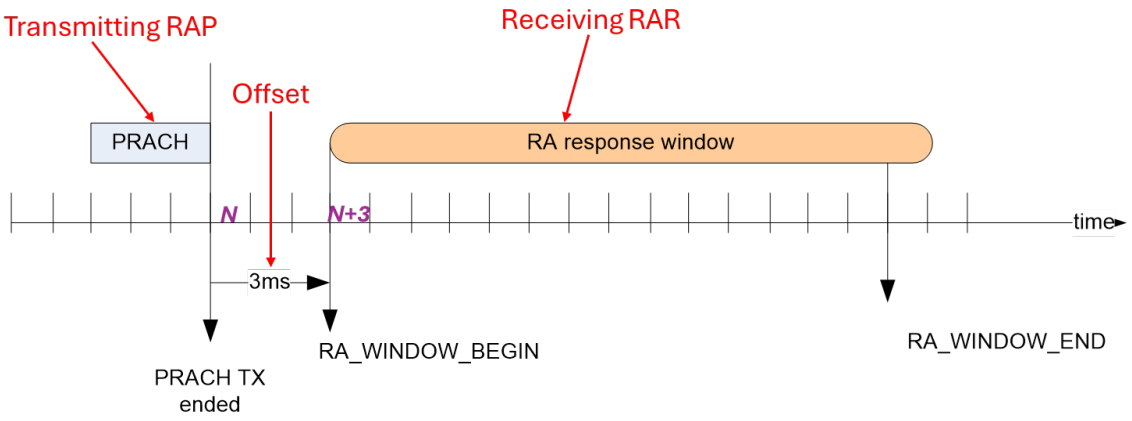
1. Qualcomm discloses "*[a] method for performing a random access procedure by a user equipment (UE), the method comprising*" [1.P].

As discussed above in Section VIII.A, Qualcomm discloses a method for performing a random access procedure by a UE, including random access preamble transmission on PRACH, random access response reception, etc. *See e.g.*, EX1006, § 1, p. 1.

Thus, Qualcomm discloses [1.P].

2. Qualcomm discloses "*transmitting a random access preamble to a base station*" [1.a].

As shown in annotated FIG. 1 of Qualcomm below, Qualcomm discloses the UE transmitting a random access preamble (RAP) on PRACH (in light blue). EX1003, ¶120. Specifically, FIG. 1 is titled "RA_WINDOW_BEGIN starting at least 3ms **after PRACH transmission** for FDD." EX1006, § 2.2, p. 2.



EX1003 — FIG. D

Qualcomm also discloses that "random access response is not synchronized with the **transmission of the random access preamble**" and "MAC must be aware of when **the PRACH is transmitted**." EX1006, §§ 1, 2.1, p. 1.

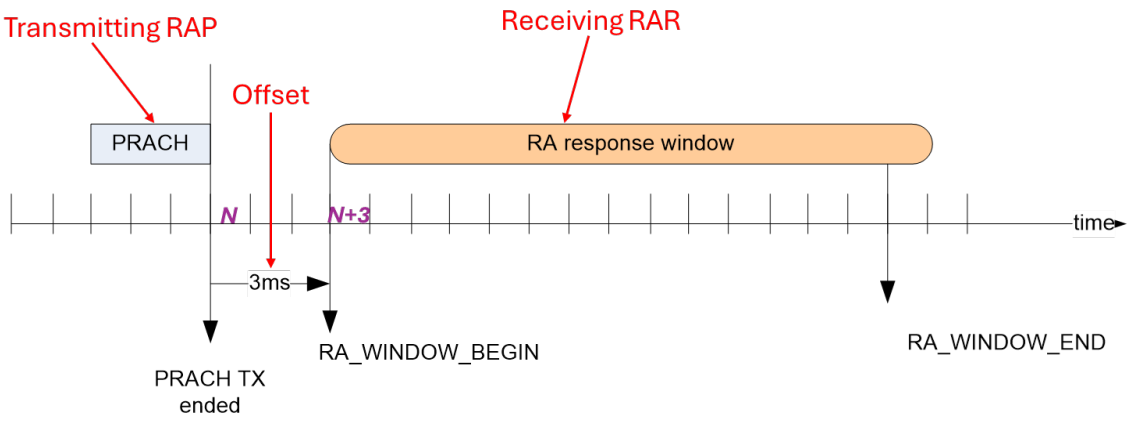
That is, Qualcomm discloses that the UE transmits a random access preamble on PRACH. A POSITA would have understood that PRACH is an uplink physical channel used by the UE to transmit random access preamble to a base station (*e.g.*, eNB in LTE). EX1015, § 10.1.5, p. 46; EX1018, 362; EX1003, ¶121.

Moreover, as discussed above in Section V.A, transmitting a random access preamble from a UE to a base station is part of the well-known random access procedure, as evidenced by the AAPA in the "Discussion of the Related Art" section of the '824 patent itself. EX1001, 1:26-55.

Thus, Qualcomm discloses [1.a].

3. Qualcomm discloses or at least suggests "*determining a time period for receiving a random access response responsive to the random access preamble*" [1.b].

Qualcomm discloses monitoring during a random access (RA) response window RA_WINDOW_BEGIN—RA_WINDOW_END ("*a time period*") for receiving a random access response responsive to the random access preamble. EX1006, § 1, p. 1. As shown in annotated FIG. 1 of Qualcomm below, Qualcomm illustrates the RA response window (in light orange). EX1003, ¶123.



EX1003 — FIG. D

Qualcomm also makes Proposals 2 and 2bis for determining a start time point RA_WINDOW_BEGIN of the RA response window, and Proposals 3 and 4 for determining an end time point RA_WINDOW_END of the RA response window. EX1006, §§ 2.2-2.3, pp. 1-2. Qualcomm defines the response window size RA_WINDOW_WIDTH, such that "RA_WINDOW_END is set to the subframe occurring RA_WINDOW_WIDTH DL subframes after RA_WINDOW_BEGIN." EX1006, § 2.3, p. 2.

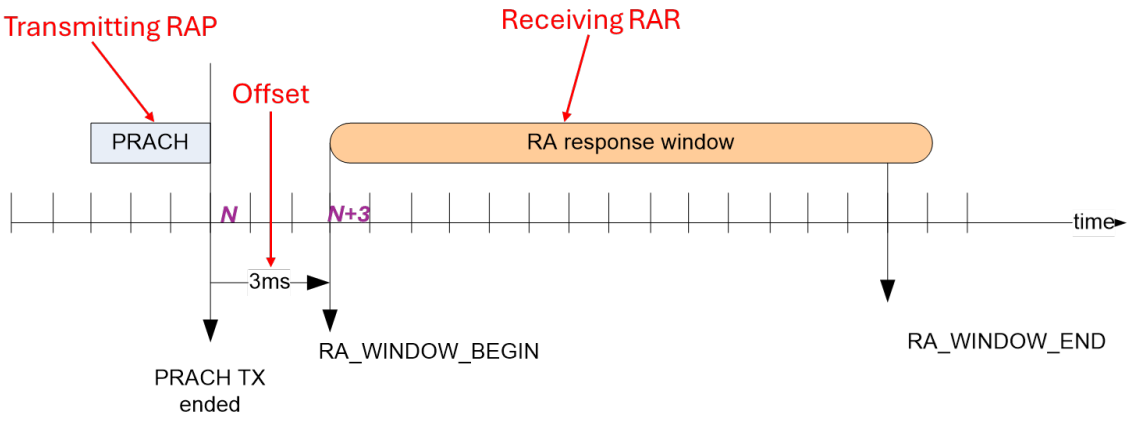
A POSITA would have understood that the RA response window represents an amount of time defined by the response window size RA_WINDOW_WIDTH (*e.g.*, 14 ms in annotated FIG. 1 above) and thus, qualifies as the claimed "*time period*" under either party's proposed construction in the EDTX case. EX1003, ¶125; *see* Section VI.

Moreover, a POSITA would have understood or at least found it obvious that the UE determines the RA response window first in order to monitor the reception of the random access response corresponding to the random access preamble transmission in the RA response window. EX1003, ¶126. Specifically, as shown in annotated FIG. 1 of Qualcomm above, after transmitting RAP on PRACH, the UE determines the corresponding RA response window based on the end time of transmitting RAP ("PRACH TX ended"), the offset (3 ms), and the response window size ("RA_WINDOW_WIDTH"). EX1006, § 2.3, p. 2.

Thus, Qualcomm discloses or at least suggests [1.b].

4. Qualcomm discloses "*receiving the random access response from the base station within the time period*" [1.c].

As shown in annotated FIG. 1 of Qualcomm below, Qualcomm discloses the UE receiving the random access response (RAR) within the RA response window ("*time period*"). EX1006, §1, p. 1; EX1003, ¶127.



EX1003 — FIG. D

Qualcomm also discloses, "[i]n addition the **PDCCH** indicating RA response is addressed to the RA-RNTI matching the PRACH occasion." EX1006, §1, p. 1. That is, Qualcomm discloses that the UE receives the random access response indicated by the PDCCH. A POSITA would have understood that PDCCH is a downlink physical channel used by the base station (*e.g.*, eNB in LTE) to communicate with the UE. EX1015, § 10.1.5, p. 46; EX1018, 362; EX1003, ¶128.

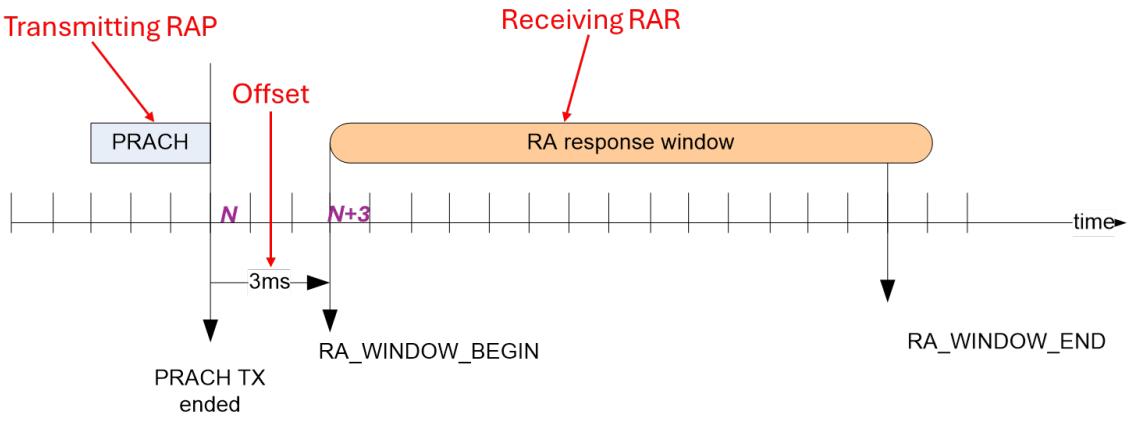
Moreover, as discussed above in Section V.A, receiving a random access response by the UE from the base station is part of the well-known random access procedure, as evidenced by the AAPA in the "Discussion of the Related Art" section of the '824 patent itself. EX1001, 1:26-55.

Thus, Qualcomm discloses [1.c].

5. Qualcomm discloses "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*" [1.d].

As discussed above in Section VIII.A, Qualcomm discloses that the RA response window ("*time period*") starts at RA_WINDOW_BEGIN ("*time point*") after the end of the PRACH transmission ("*after an end time of transmitting the random access preamble*"), and that RA_WINDOW_BEGIN is at subframe N+3 when PRACH transmission ends at subframe N ("*a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*"). EX1006, § 2.2, p. 1.

As shown in annotated FIG. 1 of Qualcomm below, PRACH for transmitting RAP ends at "PRACH TX ended" corresponding to subframe *N*, and RA_WINDOW_BEGIN of the RA response window is at the first DL subframe with a subframe number equal to *N*+3. EX1006, § 2.2, p. 2; EX1003, ¶131. That is, Qualcomm discloses the offset between subframe numbers corresponding to "PRACH TX ended" and "RA_WINDOW_BEGIN" is 3. Also, it is well known in the art that the offset of "3 ms" shown in FIG. 1 of Qualcomm corresponds to 3 subframes for FDD in LTE. EX1018, 317-318; EX1003, ¶131.



EX1003 — FIG. D

Thus, Qualcomm discloses [1.d].

From the foregoing, Qualcomm anticipates or otherwise renders obvious claim 1.

C. Independent Claim 7

1. Qualcomm discloses "*[a] user equipment (UE) to perform a random access procedure, the UE comprising*" [7.P].

As discussed in Section VIII.B.1, Qualcomm discloses a UE to perform a random access procedure. Thus, Qualcomm discloses [7.P].

2. Qualcomm discloses or suggests "*a transmitter to transmit a random access preamble to a base station*" [7.a].

As discussed in Section VIII.B.2, Qualcomm discloses that the UE transmits a random access preamble to a base station. Although Qualcomm does not explicitly state the word "*transmitter*" verbatim, a POSITA would have understood, or at least found it obvious, that Qualcomm's UE is implemented with a transmitter to enable the UE to perform its disclosed transmitting operations, including transmitting the

random access preamble to the base station. EX1003, ¶134.

Thus, Qualcomm discloses or at least suggests [7.a].

3. Qualcomm discloses or suggests "*a processor configured to determine a time period for receiving a random access response responsive to the random access preamble*" [7.b].

As discussed in Section VIII.B.3, Qualcomm discloses or at least suggests that the UE determines a time period for receiving a random access response responsive to the random access preamble. Although Qualcomm does not explicitly state the word "*processor*" verbatim, a POSITA would have understood, or at least found it obvious, that Qualcomm's UE is implemented with a processor to enable the UE to perform its disclosed processing operations, including determining the time period for receiving the random access response responsive to the random access preamble. EX1003, ¶136.

Thus, Qualcomm discloses or at least suggests [7.b].

4. Qualcomm discloses or suggests "*a receiver to receive the random access response from the base station within the time period*" [7.c].

As discussed in Section VIII.B.4, Qualcomm discloses that the UE receives the random access response from the base station within the time period. Although Qualcomm does not explicitly state the word "*receiver*" verbatim, a POSITA would have understood, or at least found it obvious, that Qualcomm's UE is implemented with a receiver to enable the UE to perform its disclosed receiving operations,

including receiving the random access response from the base station within the time period. EX1003, ¶138.

Thus, Qualcomm discloses or at least suggests [7.c].

5. Qualcomm discloses "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting the random access preamble, and the offset equals three*" [7.d].

As discussed in Section VIII.B.5, Qualcomm discloses [7.d].

From the foregoing, Qualcomm anticipates or otherwise renders obvious claim 7.

IX. GROUNDS 5 AND 6: ZTE ANTICIPATES OR OTHERWISE RENDERS OBVIOUS CLAIMS 1 AND 7

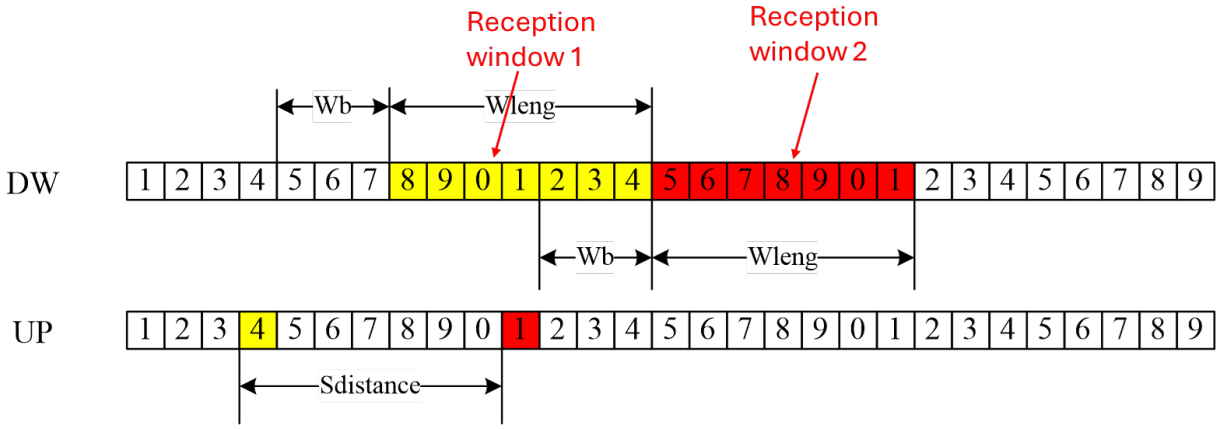
ZTE anticipates or otherwise renders obvious claims 1 and 7 regardless of whether claims 1 and 7 of the '824 patent are entitled to its claimed earliest priority date of January 1, 2008, since ZTE was published before January 1, 2008. *See* Section IV.A.

A. Overview of ZTE

ZTE proposes the coding scheme of RA-RNTI for message 2. EX1007, § 1, p. 1. RA-RNTI (random access-radio network temporary identifier) is known as an identifier in the random access response messages (*i.e.*, message 2), which identifies the time-frequency resource utilized by the UE to transmit the random access

preamble. *See* EX1008, § 3.1, p. 7; EX1015, § 10.1.5, p. 46; EX1003, ¶90.

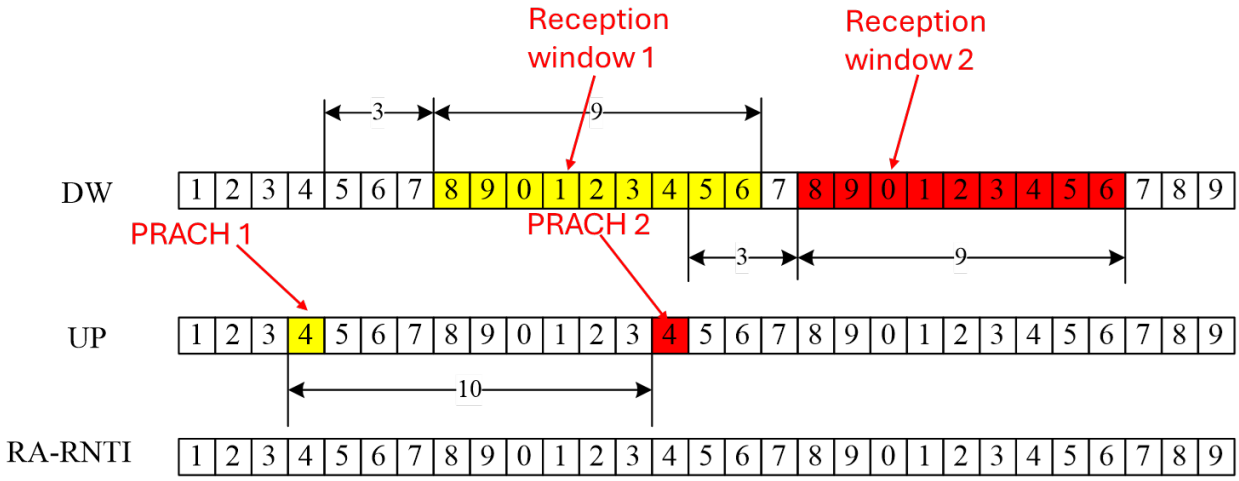
In Section 2.1 "FDD mode," FIG. 1 of ZTE titled "reception window" illustrates a reception TTI window within which the corresponding random access response (message 2) will be received. EX1007, § 2.1, p. 1 ("RAN2 group has agreed that message 2 will be received in asynchronous way *i.e.* within a reception TTI window"). Annotated FIG. 1 of ZTE (EX1003, FIG. E) below shows two reception windows (*i.e.*, reception window 1 in yellow and reception window 2 in red), each having a length of Wleng subframes, for receiving two random access responses, respectively. EX1007, § 2.1, p. 1; EX1003, ¶92. ZTE further explains that "as long as Sdistance (distance between two subframe) is not smaller than Wlength[7] the two reception window[s] will not overlap with each other." EX1007, § 2.1, p. 1.



EX1003 — FIG. E

[7] A POSITA would have recognized that the term "Wlength" in the text and the figure legend "Wleng" in FIG. 1 refer to the same concept—the length of the reception window. EX1003, ¶92.

With respect to FIG. 2, ZTE further defines RA-RNTI as "the subframe number within radio frame." EX1007, § 2.1, p. 2. Annotated FIG. 2 of ZTE (EX1003, FIG. F) below shows two PRACH slots (*i.e.*, PRACH 1 in yellow and PRACH 2 in red) in which two random access preambles are transmitted, respectively, as well as two reception windows (*i.e.*, reception window 1 in yellow and reception window 2 in red) within which the corresponding random access responses are received, respectively. EX1007, § 2.1, p. 2; EX1003, ¶93.



EX1003 — FIG. F

B. Independent Claim 1

1. ZTE discloses "*[a] method for performing a random access procedure by a user equipment (UE), the method comprising*" [1.P].

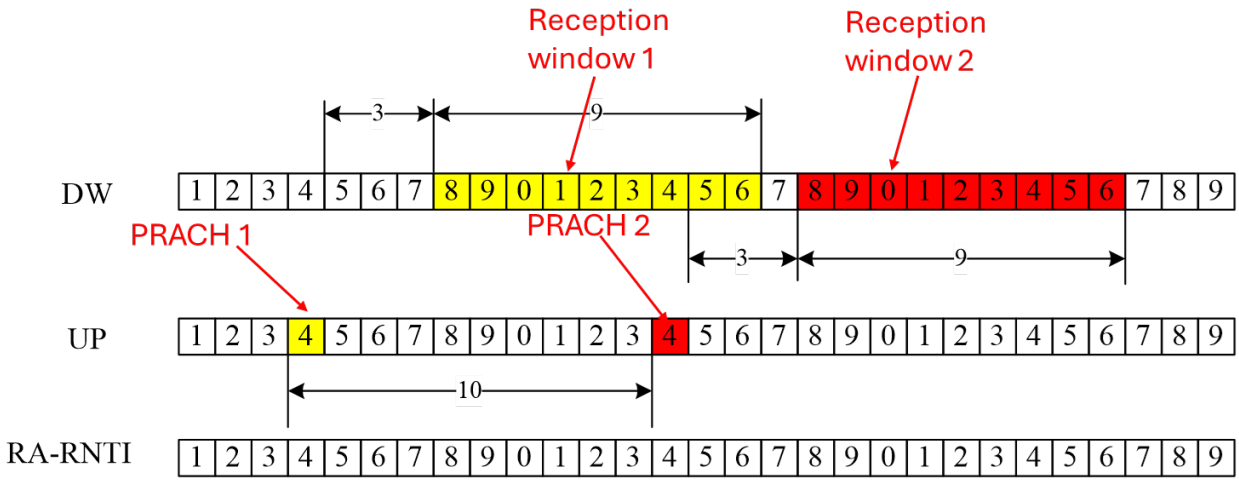
As discussed above in Section IX.A, ZTE discloses a method for performing a random access procedure by a UE, including random access preamble transmission, random access response reception, etc. *See e.g.*, EX1007, § 2.1, pp. 1-

2. For example, ZTE discloses that "RA-RNTI will be used both for contention-based and contention-free **random access procedure**." EX1007, § 2.1, p. 1.

Thus, ZTE discloses [1.P].

2. ZTE discloses "*transmitting a random access preamble to a base station*" [1.a].

As shown in annotated FIG. 2 of ZTE below, ZTE discloses transmitting a 1st random access preamble on PRACH 1 (in yellow) and then a 2nd random access preamble on PRACH 2 (in red) within 10 subframes. EX1007, § 2.1, p. 2; EX1003, ¶141. ZTE also states, "UE may even send random preamble in consecutive subframe" and "in some case UE does not know SFN when sending random access preamble." EX1007, § 2.1, p. 1.



EX1003 — FIG. F

That is, ZTE discloses transmitting a random access preamble on PRACH. A POSITA would have understood that the PRACH is an uplink physical channel used

by the UE to transmit random access preamble to a base station (*e.g.*, eNB in LTE). EX1015, § 10.1.5, p. 46; EX1018, 362; EX1003, ¶142; *see* EX1007, § 2.1, p. 1 ("[t]he maximum value of Wlength mainly related to the processing load of **eNB**").

Moreover, as discussed above in Section V.A, transmitting a random access preamble from a UE to a base station is part of the well-known random access procedure, as evidenced by the AAPA in the "Discussion of the Related Art" section of the '824 patent itself. EX1001, 1:26-55.

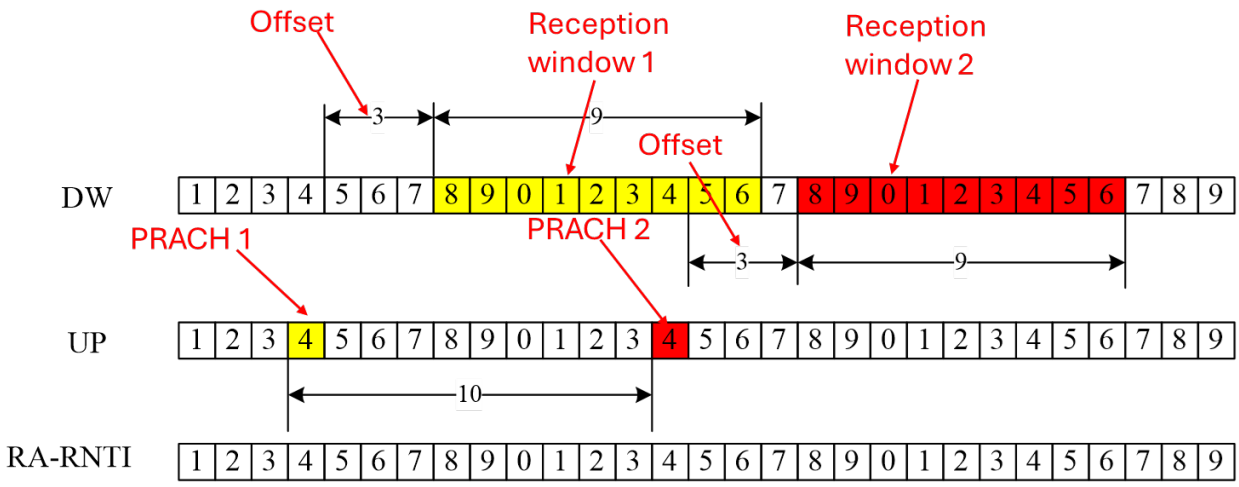
Therefore, ZTE discloses [1.a].

3. ZTE discloses or at least suggests "*determining a time period for receiving a random access response responsive to the random access preamble*" [1.b].

ZTE discloses or at least suggests determining a reception window ("*time period*") for receiving a random access response responsive to the random access preamble.

As discussed in Section IX.A above, ZTE discloses reception windows each for receiving a respective random access response (message 2) responsive to the corresponding random access preamble. EX1007, § 2.1, p. 1. For instance, annotated FIG. 2 of ZTE below illustrates a reception window 1 (in yellow) for receiving a 1st random access response responsive to a 1st random access preamble transmitted on PRACH 1 (in yellow), and a reception window 2 (in red) for receiving a 2nd random access response responsive to a 2nd random access preamble

transmitted on PRACH 2 (in red). EX1003, ¶144.



EX1003 — FIG. F

ZTE also discloses that each reception window has a window length Wlength, which is "predefined or configured through signalling," and discusses various factors in determining Wlength, such as "processing load of eNB and the scheduling flexibility in time domain especially for low bandwidth system." EX1007, § 2.1, p. 1. A POSITA would have understood that the reception window represents an amount of time defined by the window length Wlength (*e.g.*, 9 ms in annotated FIG. 2 above) and thus, qualifies as the claimed "*time period*" under either party's proposed construction in the EDTX case. EX1003, ¶145; *see* Section VI.

Moreover, as shown in annotated FIG. 2 above, ZTE further discloses an offset between the subframe number ("5") corresponding to the end time of transmitting a random access preamble (the end of PRACH 1 or 2) and the subframe number ("8") corresponding to the start of the respective reception window, which

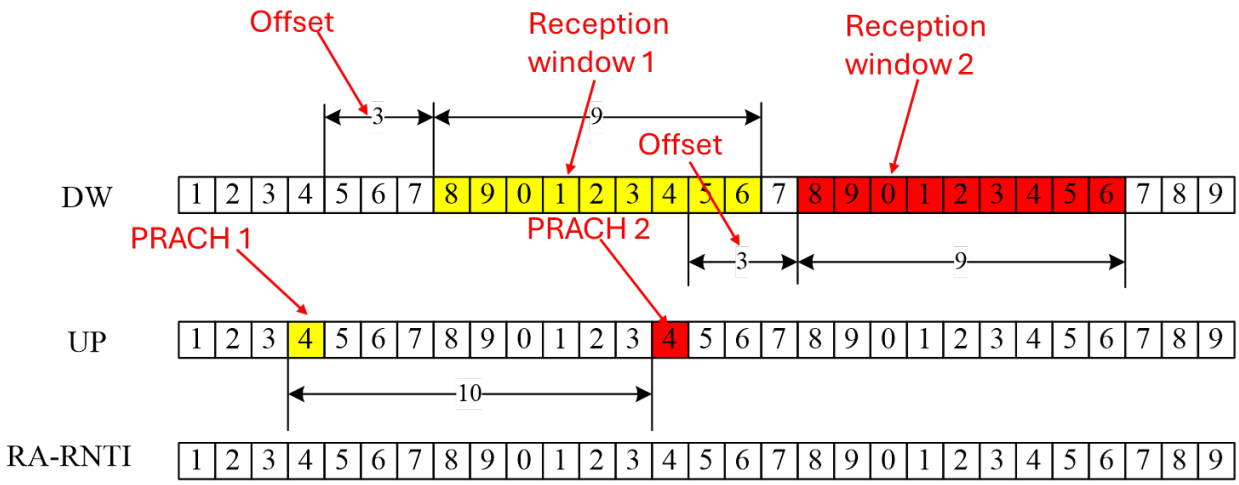
equals 3. EX1007, FIG. 2; EX1003, ¶146. Notably, the subframe offset value of 3 is consistent in the two examples (yellow and red) shown in FIG. 2, as well as in all other figures and the examples throughout Section 2 "Discussion" of ZTE (*i.e.*, FIGs. 1 and 3). EX1007, FIGs. 1-3. Thus, ZTE discloses, or at a minimum suggests, setting the offset to be 3 subframes. EX1003, ¶146.

A POSITA would have understood or at least found it obvious that after transmitting the random access preamble on PRACH, the UE determines the corresponding reception window based on the end time of PRACH, the offset (3 subframes), and the Wlength. EX1003, ¶147. For example, with reference to annotated FIG. 2 of ZTE above, for the 1st random access preamble transmitted on PRACH 1 (in yellow) of the 1st radio frame in the uplink ("UP"), the UE determines the corresponding reception window 1 (in yellow) to have a start time point at subframe 8 of the 1st radio frame in the downlink ("DW"), which is offset by 3 subframes from the end time of PARCH 1, and also have Wlength of 9 subframes. EX1003, ¶147. Similarly, for the 2nd random access preamble transmitted on PRACH 2 (in red) of the 2nd radio frame in the uplink, the UE determines the corresponding reception window 2 (in red) to have a start time point at subframe 8 of the 2nd radio frame in the downlink, which is also offset by 3 subframes from the end time of PARCH 2, and also have Wlength of 9 subframes. EX1003, ¶147.

Thus, ZTE discloses or at least suggests [1.b].

4. ZTE discloses "*receiving the random access response from the base station within the time period*" [1.c].

As discussed above in Section IX.B.3 and shown in annotated FIG. 2 of ZTE below, ZTE discloses receiving each random access response in the downlink ("*from the base station*") within the respective reception window ("*time period*"). EX1003, ¶148.



EX1003 — FIG. F

Specifically, ZTE states that "message 2 will be received in asynchronous way *i.e.* within a reception TTI window," and that "the reception TTI window of random access response is most likely the same for all random preamble within the same cell." EX1007, § 2.1, p. 1.

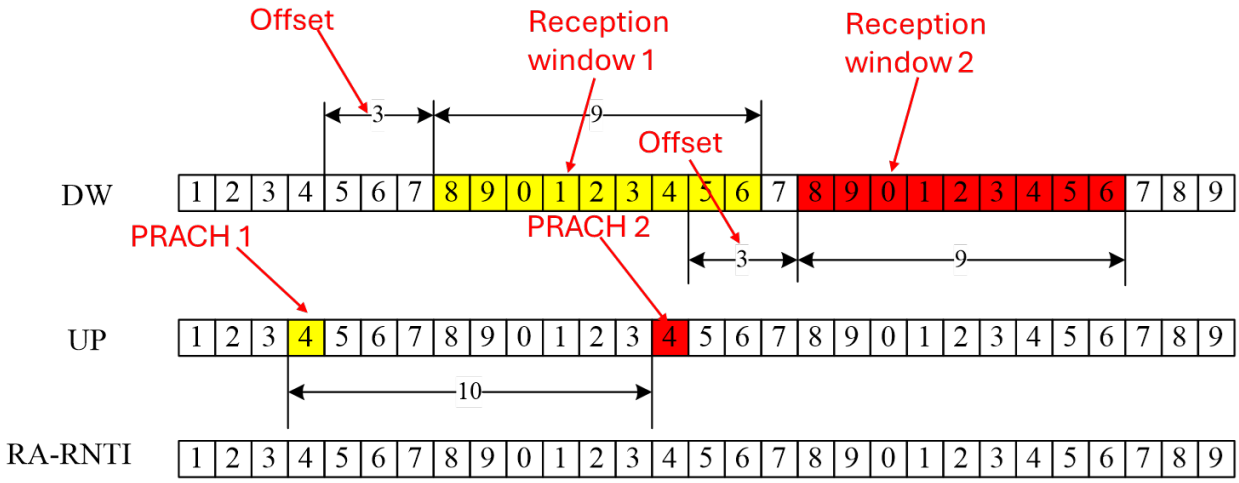
Moreover, as discussed above in Section V.A, receiving a random access response by the UE from the base station is part of the well-known random access procedure, as evidenced by the AAPA in the "Discussion of the Related Art" section

of the ’824 patent itself. EX1001, 1:26-55.

Thus, ZTE discloses [1.c].

5. ZTE discloses or at least suggests “*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*” [1.d].

As discussed above in Section IX.B.3 and shown in annotated FIG. 2 below, ZTE discloses each reception window (“*time period*”) starts at a respective start time point (*e.g.*, the start of the 1st reception window 1 in yellow or the 2nd reception window 2 in red) after a respective end time of transmitting the respective random access preamble (*e.g.*, the end of PRACH 1 in yellow or PRACH 2 in red). EX1003, ¶150.



EX1003 — FIG. F

Since ZTE states “[i]n Figure 2, RA-RNTI is defined as the subframe number

within radio frame," as also discussed above in Section IX.B.3 and shown in annotated FIG. 2 above, ZTE further discloses that the subframe number corresponding to the respective start time point (*e.g.*, subframe 8) is obtained by adding an offset (3 subframes) to the subframe number corresponding to the end time (*e.g.*, subframe 5) of transmitting the random access preamble. EX1007, § 2.1, p. 2; EX1003, ¶151.

As further discussed above in Section IX.B.3 and shown in annotated FIG. 2 above, ZTE discloses or at least suggests the subframe offset equals three. EX1007, FIGs. 1-3.

Thus, ZTE discloses or at least suggests [1.d].

From the foregoing, ZTE anticipates or otherwise renders obvious claim 1.

C. Independent Claim 7

1. ZTE discloses "*[a] user equipment (UE) to perform a random access procedure, the UE comprising*" [7.P].

As discussed in Section IX.B.1, ZTE discloses a UE to perform a random access procedure. Thus, ZTE discloses [7.P].

2. ZTE discloses or suggests "*a transmitter to transmit a random access preamble to a base station*" [7.a].

As discussed in Section IX.B.2, ZTE discloses that the UE transmits a random access preamble to a base station. Although ZTE does not explicitly state the word "*transmitter*" verbatim, a POSITA would have understood, or at least found it

obvious, that ZTE's UE is implemented with a transmitter to enable the UE to perform its disclosed transmitting operations, including transmitting the random access preamble to the base station. EX1003, ¶155.

Thus, ZTE discloses or at least suggests [7.a].

3. ZTE discloses or suggests "*a processor configured to determine a time period for receiving a random access response responsive to the random access preamble*" [7.b].

As discussed in Section IX.B.3, ZTE discloses or at least suggests that the UE determines a time period for receiving a random access response responsive to the random access preamble. Although ZTE does not explicitly state the word "*processor*" verbatim, a POSITA would have understood, or at least found it obvious, that ZTE's UE is implemented with a processor to enable the UE to perform its disclosed processing operations, including determining the time period for receiving the random access response responsive to the random access preamble. EX1003, ¶157.

Thus, ZTE discloses or at least suggests [7.b].

4. ZTE discloses "*a receiver to receive the random access response from the base station within the time period*" [7.c].

As discussed in Section IX.B.4, ZTE discloses that the UE receives the random access response from the base station within the time period. Although ZTE does not explicitly state the word "*receiver*" verbatim, a POSITA would have

understood, or at least found it obvious, that ZTE's UE is implemented with a receiver to enable the ZTE to perform its disclosed receiving operations, including receiving the random access response from the base station within the time period. EX1003, ¶159.

Thus, ZTE discloses [7.c].

5. ZTE discloses or at least suggests "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting the random access preamble, and the offset equals three*" [7.d].

As discussed in Section IX.B.5, ZTE discloses or at least suggests [7.d].

From the foregoing, ZTE anticipates or otherwise renders obvious claim 7.

X. GROUND 7: ZTE IN VIEW OF TS36321-V800 RENDERS OBVIOUS CLAIMS 1 AND 7

As discussed in Section IX, ZTE anticipates or otherwise renders obvious claims 1 and 7. To the extent further disclosures are required, ZTE in view of TS36321-V800 renders these claims obvious regardless of whether claims 1 and 7 of the '824 patent are entitled to its claimed earliest priority date of January 1, 2008, since both ZTE and TS36321-V800 were published before January 1, 2008. *See* Section IV.A.

A. Overview of TS36321-V800

TS36321-V800 is an earlier version of TS36321-V830, released by 3GPP in

December 2007. EX1008, Cover, § 1; EX1003, ¶83.

Section 5.1 "Random Access procedure" of TS36321-V800 defines in detail the random access procedure initialization, random access resource selection, random access preamble transmission, and random access response reception. *See generally* EX1008, § 5.1.

In Section 5.1.4 "Random Access Response reception," TS36321-V800 requires that "[o]nce the Random Access Preamble is transmitted, the UE shall monitor the [PDCCH] in the TTI window [RA_WINDOW_BEGIN—RA_WINDOW_END] for Random Access Response(s)." EX1008, § 5.1.4, p. 12.

B. Reasons to Combine ZTE and TS36321-V800

As discussed above in Section IX.B.3, ZTE discloses or at least suggests "*determining a time period for receiving a random access response responsive to the random access preamble*." Additionally, this limitation would have been obvious to a POSITA in view of ZTE and TS36321-V800, based on the "interrelated teachings" of ZTE and TS36321-V800. *See Plantronics, Inc. v. Aliph, Inc*., 724 F.3d 1343, 1354 (Fed. Cir. 2013).

A POSITA, examining ZTE's disclosure of "the reception TTI window for random access response" alongside TS36321-V800's explicit teaching of the UE "monitor[ing] the [PDCCH] in the TTI window [RA_WINDOW_BEGIN—RA_WINDOW_END] for Random Access Response(s)" "[o]nce the Random

Access Preamble is transmitted," would have understood, or at least found it obvious, that ZTE also monitors its reception TTI window for random access response after transmitting the random access preamble. EX1007, § 2.1, p. 1; EX1008, § 5.1.4, p. 12; EX1003, ¶163.

ZTE is a proposal submitted to 3GPP Technical Specification Group Radio Access Network (TSG-RAN) Working Group 2 (WG2), and TS36321-V800 is the 3GPP Technical Specification Group Radio Access Network. In other words, ZTE is a proposal to be incorporated into TS36321-V800 regarding Section 5.1 "Random Access procedure." Thus, the disclosure of ZTE is directly related and, in fact, targeted to Section 5.1 of TS36321-V800. Section 5.1 of TS36321-V800 provides the LTE-specific implementation details of the random access procedure described in ZTE's LTE-based system and method. A POSITA would have naturally looked into Section 5.1 of TS36321-V800 for specific implementation details. EX1003, ¶164.

Therefore, a POSITA would have been motivated to combine ZTE with TS36321-V800's teachings of random access procedure in Section 5.1 to which ZTE is targeted, supplementing any missing details of ZTE regarding random access procedure, including monitoring in the reception TTI window for random access response after transmitting the random access preamble. EX1003, ¶165.

C. Claims 1 and 7

To the extent additional disclosures are required to disclose or suggest "*determining/determine a time period for receiving a random access response responsive to the random access preamble*" in claims 1 and 7 besides ZTE's disclosures and suggestions in Section IX.B.3, TS36321-V800 discloses monitoring PDCCH in a TTI window RA_WINDOW for receiving a random access response responsive to the random access preamble, and receiving the random access response within the RA_WINDOW. EX1008, § 5.1.4, p. 12. Analogous to ZTE's TTI reception window, the TTI window RA_WINDOW in TS36321-V800 also represents an amount of time between the start time point RA_WINDOW_BEGIN and the end time point RA_WINDOW_END and thus, qualifies as the claimed "*time period*" under either party's proposed construction in the EDTX case. EX1003, ¶169; *see* Sections VI, IX.B.3.

A POSITA would have understood, or at least found it obvious, that TS36321-V800 requires the UE to determine RA_WINDOW ("*time period*") first in order to monitor the reception of the random access response corresponding to the random access preamble transmission in the determined RA_WINDOW. EX1003, ¶170. ZTE also discloses or at least suggests other limitations of claims 1 and 7. *See generally* Section IX.

As discussed in Section X.B, a POSITA would have been motivated to

combine ZTE and TS36321-V800 to arrive at the claimed invention recited in claims 1 and 7. EX1003, ¶171.

Therefore, ZTE in view of TS36321-V800 renders obvious claims 1 and 7.

XI. GROUND 8: TS36321-V800 IN VIEW OF NOKIA RENDERS OBVIOUS CLAIMS 1 AND 7

TS36321-V800 in view of Nokia renders obvious claims 1 and 7 regardless of whether claims 1 and 7 of the '824 patent are entitled to its claimed earliest priority date of January 1, 2008, since both TS36321-V800 and Nokia were published before January 1, 2008. *See* Section IV.A.

A. Overview of Nokia

Nokia discusses the processing times for eNB in the HARQ procedure. EX1009, § 1, p. 1.

FIG. 1 of Nokia shows the uplink transmission timing diagram in the HARQ procedure. It is important to note, as shown in FIG. G of Akl. Decl. below, FIG. 1 of Nokia is identical to FIG. 2 of the '492 application to which the '824 patent claims the benefit of priority, and is also substantially the same as FIG. 13 of the '656 application to which the '824 patent claims the benefit of priority (except that the uplink physical channels are erroneously labeled as "PDCCH" in FIG. 13 of the '656 application). EX1003, ¶95.

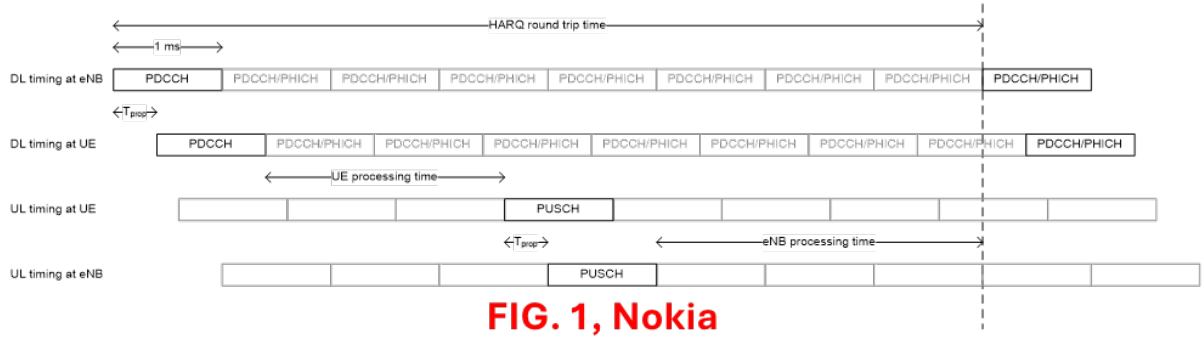


FIG. 1, Nokia

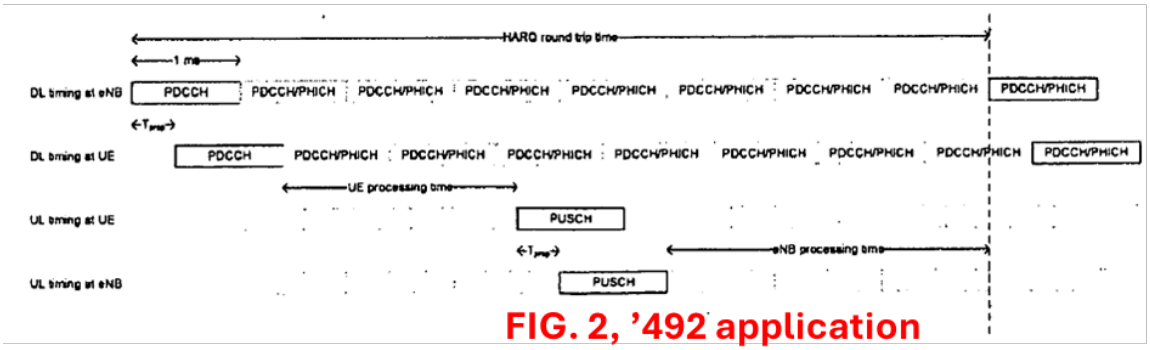


FIG. 2, '492 application

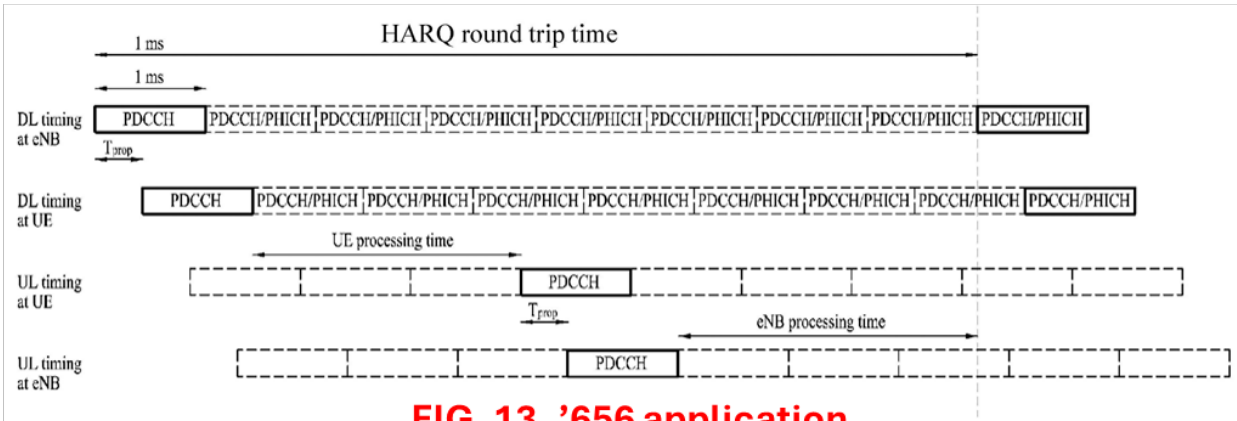


FIG. 13, '656 application

<Example of HARQ process>

EX1003 — FIG. G

B. Independent Claim 1

1. TS36321-V800 discloses "*[a] method for performing a random access procedure by a user equipment (UE), the method comprising*" [1.P].

TS36321-V800 discloses a method for performing a random access procedure by a UE, including random access procedure initialization, random access resource

selection, random access preamble transmission, and random access response reception. *See generally* EX1008, § 5.1.

Thus, TS36321-V800 discloses [1.P].

2. TS36321-V800 discloses "*transmitting a random access preamble to a base station*" [1.a].

TS36321-V800 discloses that the UE transmits a random access preamble to an eNB ("*base station*"). For example, TS36321-V800 discloses the following:

> "RA-RNTI: The Random Access RNTI is used on the [PDCCH] when Random Access Response messages are transmitted. It unambiguously identifies which time-frequency resource was utilized by the **UE to transmit the Random Access preamble**."

EX1008, § 3.1, p. 7.

> "5.1.3 **Random Access Preamble transmission**
> The random-access procedure shall be performed as follows:
> …
> - instruct the physical layer to **transmit a preamble using the selected PRACH resource**, corresponding RA-RNTI, preamble index and PREAMBLE_TRANSMISSION_POWER."

EX1008, § 5.1.3, p. 12.

That is, TS36321-V800 discloses the UE transmits a random access preamble on PRACH. A POSITA would have understood that PRACH is an uplink physical channel used by the UE to transmit random access preamble to a base station (*e.g.*, eNB in LTE). EX1015, § 10.1.5, p. 46; EX1018, 362; EX1003, ¶181.

Moreover, as discussed above in Section V.A, transmitting a random access

preamble from a UE to a base station is part of the well-known random access process, as evidenced by the AAPA in the "Discussion of the Related Art" section of the '824 patent itself. EX1001, 1:26-55.

Thus, TS36321-V800 discloses [1.a].

3. TS36321-V800 discloses or at least suggests "*determining a time period for receiving a random access response responsive to the random access preamble*" [1.b], and "*receiving the random access response from the base station within the time period*" [1.c].

TS36321-V800 discloses, "[o]nce the Random Access Preamble is transmitted, the UE shall monitor the [PDCCH] in the TTI window [RA_WINDOW_BEGIN—RA_WINDOW_END] for Random Access Response(s)," and that the received random access response "correspond[s] to the Random Access Preamble transmission." EX1008, § 5.1.4, p. 12.

That is, TS36321-V800 discloses monitoring PDCCH in a TTI window RA_WINDOW_BEGIN—RA_WINDOW_END (hereinafter "RA_WINDOW," "*a time period*") for receiving a random access response responsive to the random access preamble, and receiving the random access response within the RA_WINDOW. A POSITA would have understood that the TTI window RA_WINDOW represents an amount of time between the start time point RA_WINDOW_BEGIN and the end time point RA_WINDOW_END and thus, qualifies as the claimed "*time period*" under either party's proposed construction in

the EDTX case. EX1003, ¶184; *see* Section VI.

Moreover, a POSITA would have understood or at least found it obvious that TS36321-V800 requires the UE to determine RA_WINDOW first in order to monitor the reception of the random access response corresponding to the random access preamble transmission in the determined RA_WINDOW. EX1003, ¶185.

Thus, TS36321-V800 discloses, or at least suggests, that the UE determines the RA_WINDOW ("*time period*") for receiving a random access response responsive to the random access preamble.

A POSITA would also have understood that PDCCH is a downlink physical channel used by the base station (*e.g.*, eNB in LTE) to communicate with the UE. EX1015, § 10.1.5, p. 46; EX1018, 362; EX1003, ¶186.

Furthermore, as discussed above in Section V.A, receiving a random access response by the UE from the base station is part of the well-known random access process, as evidenced by the AAPA in the "Discussion of the Related Art" section of the '824 patent itself. EX1001, 1:26-55.

Thus, TS36321-V800 discloses the UE receives the random access response from the base station within the RA_WINDOW ("*time period*").

Therefore, TS36321-V800 discloses or at least suggests [1.b] and [1.c].

4. TS36321-V800 in view of Nokia suggests "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*" [1.d].

As discussed in Section XI.B.3, TS36321-V800 discloses that "[o]nce the Random Access Preamble is transmitted, the UE shall monitor the [PDCCH] in TTI window [RA_WINDOW_BEGIN—RA_WINDOW_END] for Random Access Response(s)." EX1008, § 5.1.4, p. 12. That is, the RA_WINDOW ("*time period*") starts at RA_WINDOW_BEGIN ("*a time point"*) once the random access preamble is transmitted ("*after an end time of transmitting the random access preamble*").

A POSITA would have understood that TS36321-V800 uses subframe numbers to identify both the start time point RA_WINDOW_BEGIN of the RA_WINDOW and the end time of transmitting random access preamble. EX1003, ¶189; *see* EX1007, § 2.1, p. 2 ("RA-RNTI is defined as the subframe number within radio frame").

To the extent that (i) TS36321-V800 does not disclose the remaining limitations of [1.d], *i.e.*, the subframe offset between RA_WINDOW_BEGIN and the end time of transmitting random access preamble being equal to three, and that (ii) the written description for the remaining limitations of [1.d] is found in FIG. 2 of the '492 application and/or FIG. 13 of the '656 application, Nokia would also

disclose the remaining limitations. *See* Sections V.D, XI.A. As discussed in Section XI.A above, FIG. 1 of Nokia is identical to FIG. 2 of the '492 application and substantially the same as FIG. 13 of the '656 application. Accordingly, if FIG. 2 of the '492 application and FIG. 13 of the '656 application are deemed to provide written description support for the claimed subframe offset of three, then the same disclosure is present in Nokia's FIG. 1 and the accompanying description, thereby satisfying the remaining limitations of [1.d].

The details of RA_WINDOW disclosed by TS36321-V800 were still pending for standardization at the time when Nokia was proposed, and the processing time for eNB in the random access procedure was considered as one factor in configuring RA_WINDOW. EX1003, ¶191. In one example, discussions were made to standardize the value of RA_WINDOW_BEGIN, as evidenced by Qualcomm, which states that "[t]he value of RA_WINDOW_BEGIN may be fixed by the standard or configured … discussions related to processing timeline have mentioned that 3ms is a reasonable minimum amount of time to process the PRACH." EX1006, § 2.2, p. 1. In another example, ZTE proposed to consider the processing load of eNB in determining the maximum value of Wlength. EX1007, § 2.1, p. 1.

Nokia, on the other hand, discusses processing times for eNB in the HARQ procedure. EX1009, § 1, p. 1. To the extent that FIG. 2 of the '492 application and/or FIG. 13 of the '656 application and their related disclosures, which are directed to

the HARQ procedure, are deemed reasonably compatible with teachings related to the random access procedure in the same application(s), thereby disclosing the determining-offset limitations (*e.g.*, subframe offset being 3), a POSITA would have been likewise motivated to consider teachings related to processing times for eNB in the HARQ procedure, such as Nokia, when standardizing the RA_WINDOW. EX1003, ¶192.

Thus, TS36321-V800 in view of Nokia suggests [1.d].

From the foregoing, TS36321-V800 in view of Nokia renders obvious claim 1.

C. Independent Claim 7

1. TS36321-V800 discloses "*[a] user equipment (UE) to perform a random access procedure, the UE comprising*" [7.P].

As discussed in Section XI.B.1, TS36321-V800 discloses a UE to perform a random access procedure. Thus, TS36321-V800 discloses [7.P].

2. TS36321-V800 discloses or at least suggests "*a transmitter to transmit a random access preamble to a base station*" [7.a].

As discussed in Section XI.B.2, TS36321-V800 discloses that the UE transmits a random access preamble to a base station. Although TS36321-V800 does not explicitly state the word "*transmitter*" verbatim, a POSITA would have understood, or at least found it obvious, that TS36321-V800's UE is implemented

with a transmitter to enable the UE to perform its disclosed transmitting operations, including transmitting the random access preamble to the base station. EX1003, ¶195.

Thus, TS36321-V800 discloses or at least suggests [7.a].

3. TS36321-V800 discloses or at least suggests "*a processor configured to determine a time period for receiving a random access response responsive to the random access preamble*" [7.b], and "*a receiver to receive the random access response from the base station within the time period*" [7.c].

As discussed in Section XI.B.3, TS36321-V800 discloses or at least suggests that the UE determines a time period for receiving a random access response responsive to the random access preamble, and receives the random access response from the base station within the time period. Although TS36321-V800 does not explicitly state the words "*processor*" and "*receiver*" verbatim, a POSITA would have understood, or at least found it obvious, that TS36321-V800's UE is implemented with a processor and a receiver to enable the UE to perform its disclosed processing and receiving operations, including determining the time period for receiving the random access response responsive to the random access preamble, and receiving the random access response from the base station within the time period. EX1003, ¶¶197, 199.

Thus, TS36321-V800 discloses or at least suggests [7.b] and [7.c].

4. TS36321-V800 in view of Nokia suggests "*the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting the random access preamble, and the offset equals three*" [7.d].

As discussed in Section XI.B.4, TS36321-V800 in view of Nokia suggests [7.d].

From the foregoing, TS36321-V800 in view of Nokia renders obvious claim 7.

XII. DISCRETIONARY DENIAL DOES NOT APPLY

A. 35 U.S.C. § 325(d)

Under the two-part *Advanced Bionics* framework, the Board should not exercise discretion to deny institution under 35 U.S.C. § 325(d).

TS36321-V830, Qualcomm, ZTE, and Nokia were not presented or considered by the Office during the original examination of the '824 patent. *See generally* EX1002. While TS36321-V800 was cited in an Information Disclosure Statement (IDS) submitted during the prosecution of the parent '297 patent, there was no substantive discussion of TS36321-V800 with respect to any of the challenged claims. EX1019, 71, 84. None of the grounds raised in this Petition—including the combinations of prior art references, the disclosures of each prior art reference, and the motivations to combine prior art references, as discussed in

Sections VII-XI— have ever been presented, much less discussed, during the original examination.

The disclosures or arguments considered by the Examiner in the original examination are not substantially similar to those of the references relied upon in this Petition. *See* Section V.B. Particularly, in the Notice of Allowance, the Examiner states that Fischer and Jen fail to disclose "*wherein the time period starts at a time point after an end time of transmitting the random access preamble, and a subframe number corresponding, to the time point is obtained by adding an offset to a subframe number corresponding to the end time of transmitting, the random access preamble, and the offset equals three*." EX1002, 57. However, each of TS36321-V830, Qualcomm, ZTE, and TS36321-V800/Nokia discloses or at least suggests these limitations and thus, cannot be substantially similar to Fischer and Jen. *See* Sections VII.B.5, VIII.B.5, IX.B.5, XI.B.4.

Even if any of the cited art or arguments in this Petition were considered substantially the same as those raised during the prosecution of the '824 patent, the Examiner erred in a manner material to the patentability of the challenged claims by not rejecting the challenged claims over the prior art and arguments presented herein. For instance, the Examiner overlooked the disclosures of TS36321-V830, Qualcomm, ZTE, and TS36321-V800/Nokia, as demonstrated in Sections VII.B.5, VIII.B.5, IX.B.5, and XI.B.4, each of which discloses or at least suggests the

allegedly allowable subject matter. *See also* Section V.B.

B. 35 U.S.C. § 314(a)

No discretionary denial is warranted under 35 U.S.C. § 314(a) either, as the *Fintiv* factors in totality favor institution under *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential).

Factor 4. Petitioner hereby stipulates that if the PTAB institutes this IPR, it will not pursue, in the EDTX case, any ground that Petitioner raised or reasonably could have raised in an IPR. This broad stipulation "mitigates any concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions" and "ensures that an inter partes review is a true alternative to the district court proceeding." *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 19 (PTAB Dec. 1, 2020) (precedential). Accordingly, "this factor weighs strongly in favor of not exercising discretion to deny institution." *Id.*

Factor 6. This factor favors institution because the grounds raised in this Petition are particularly strong. Specifically, this Petition presents a number of anticipation and single reference obviousness grounds based on three different references, each of which discloses all limitations of every challenged claim, including the limitation on which allowability hinged. No other forum has adjudicated the validity of the claims. Accordingly, "institution of a trial may serve

the interest of overall system efficiency and integrity." *Fintiv*, Paper 11 at 14-15.

Factor 3. Investment in the co-pending litigation has been minimal. The EDTX case was previously stayed for nearly four months by agreement of the parties. Since the EDTX case resumed, the parties have only served initial contentions, and the court has issued no substantive orders related to the '824 patent. Furthermore, expert discovery is scheduled to close after the anticipated date for institution decision. EX1016, 3. To the extent the court issues a claim construction order prior to institution decision, it should not have an impact on the merits of this proceeding because the issues presented here do not turn on claim construction. The PTAB has previously found that this factor weighs against exercising discretion to deny institution in part because the disputed claim terms in the parallel proceeding were not relevant to the IPR. *See Facebook, Inc. v. Onstream Media Corp.*, IPR2020-01527, Paper 11 at 13-14 (PTAB Apr. 5, 2021); *Apple Inc. v. Parus Holdings, Inc.,* IPR2020-00686, Paper 9 at 16-17 (Sept. 23, 2020) (finding "little risk of the parties or us duplicating work" where the parties relied on the plain meaning in the IPR).

Furthermore, Petitioner's filing of this IPR is prior to receiving Patent Owner's validity contentions in the EDTX case. *See Snap v. SRK Tech.*, IPR2020-00820, Paper 15 at 12-13 (PTAB Oct. 21, 2020) (precedential) (finding Petitioner's conduct neutral because petition "was not filed in close proximity to any response by [PO] to the invalidity contentions").

Factor 1. Because no stay has been requested or granted currently, this factor is neutral.

Factor 5. Even though the parties in this proceeding are identical to those in the EDTX case, this factor is neutral. *See Mobileye Global, Inc. v. Facet Tech. Corp.*, IPR2024-01111, Paper 14 at 16 (PTAB Mar. 5, 2025); *see also Sotera,* Paper 12 at 19-21 (instituting review where parties are identical); *Sand Revolution II, LLC v. Continental Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 12-14 (PTAB Jun. 16, 2020) (informative) (same).

Factor 2. The trial in the EDTX case is currently scheduled for late April 2026, which is around the same time as the projected statutory deadline of this IPR in October 2026. EX1016, 1. Moreover, the month-long post-trial proceedings in the EDTX case could result in a final judgment way passing the IPR statutory deadline.[8] To the extent this factor favors denial of institution, Petitioner submits that this factor only does so marginally, and the other *Fintiv* factors favor institution. *See Facebook*, Paper 11 at 10-11; *Abbott Vascular, Inc. v. FlexStent, LLC*, IPR2019-00882, Paper 11 at 31 (PTAB Oct. 7, 2019) (declining to adopt a bright-line rule that an early trial date alone requires denial in every case).

[8] For example, the parties were previously engaged in a similar litigation in the same EDTX court, Case No. 5:22-cv-00069-RWS, where the trial ended on March 29, 2024, while the Final Judgment was issued on January 23, 2025.

XIII. CONCLUSION

Based on the grounds specified above, IPR of all challenged claims is respectfully requested.

Respectfully submitted,

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CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

This Petition complies with the requirements of 37 C.F.R. § 42.24. As calculated by the word count feature of Microsoft Word, it contains 13,406 words, excluding the words contained in the following: Table of Contents, Table of Authorities, List of Exhibits, Mandatory Notices, Certification Under § 42.24(d), and Certificate of Service.

/Zhiwei Zou/
Zhiwei (Wayne) Zou
Registration No. 66,041
Lead Counsel for Petitioner

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing **Petition for *Inter Partes* Review, the associated Power of Attorney, and Exhibits 1001-1019** are being served on April 18, 2025, by U.S. Priority Express Mail at the following address of record for the subject patent.

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A courtesy copy was also sent via electronic mail to Patent Owner's litigation counsel at the following addresses:

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