UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ONEPLUS TECHNOLOGY (SHENZHEN) CO., LTD.

Petitioner

v.

PANTECH CORPORATION

Patent Owner

IPR2025-00637

U.S. PATENT 9,763,283

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT 9,763,283

TABLE OF CONTENTS

LIST OF EXHIBITS

Exhibit	Description
EX1001	U.S. Patent No. 9,763,283 to Jung *et al*.
EX1002	Prosecution History of U.S. Patent No. 9,763,283
EX1003	Declaration of Dr. Robert Akl
EX1004	U.S. Patent No. 10,631,222 to Dudda *et al.*
EX1005	U.S. Provisional Application No. 61/754,322 in the name of Dudda *et al*.
EX1006	International Patent Application Publication No. 2014/110813 in the name of Lin *et al*.
EX1007	U.S. Patent Application Publication No. 2011/0134774 in the name of Pelletier *et al.*
EX1008	"LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Layer Procedures (3GPP TS 36.213 version 11.0.0 Release 11)," ETSI TS 136 213 V11.0.0 (2012-10), available at https://www.etsi.org/deliver/etsi_ts/136200_136299/136213/11.00.00_60/ts_136213v110000p.pdf
EX1009	"LTE; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall Description; Stage 2 (3GPP TS 36.300 version 11.3.0 Release 11)," ETSI TS 136 300 V11.3.0 (2012-11), available at https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/11.03.00_60/ts_136300v110300p.pdf
EX1010	"LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) Protocol Specification (3GPP TS 36.321 version 11.0.0 Release 11)," ETSI TS 136 321 V11.0.0 (2012-10), available at https://www.etsi.org/deliver/etsi_ts/136300_136399/136321/11.00.00_60/ts_136321v110000p.pdf
EX1011	E. Dahlman *et al*., "4G LTE/LTE Advanced for Mobile Broadband," 1st ed. Elsevier, 2011
EX1012	U.S. Patent No. 9,814,075 to Kim *et al.*
EX1013	U.S. Patent Application Publication No. 2012/0281548 in the name of Lin *et al*.
EX1014	U.S. Patent Application Publication No. 2013/0028069 in the name of Pelletier *et al*.

Exhibit	Description
EX1015	U.S. Patent No. 9,118,452 to Park *et al.*
EX1016	*Pantech Corp.et al. v. Oneplus Tech. (Shenzhen) Co., Ltd.*, 5:24-cv-00038-RWS-JBB (E.D. Tex.), Dkt. No. 47, First Amended Docket Control Order
EX1017	A. Atayero, *et al.*, "3GPP Long Term Evolution: Architecture, Protocols and Interfaces," International Journal of Information and Communication Technology Research, Volume 1, No. 7, November 2011

All citations to 35 U.S.C. §§ 102 and 103 in this paper refer to the 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. ("Petitioner") petitions for *inter partes* review ("IPR") of claims 1-13 ("challenged claims") of U.S. Patent No. 9,763,283 ("'283 patent," EX1001) assigned to Pantech Corporation ("PO").

The challenged claims recite well-known radio link failure (RLF) handling techniques in wireless communication supporting dual connectivity, most of which had been extensively proposed, discussed, released, and eventually finalized into the fourth-generation (4G) Long-Term Evolution (LTE) standard. The only purportedly patentable feature argued by PO during prosecution—stopping uplink (UL) transmission of physical uplink shared channel (PUSCH), physical uplink control channel (PUCCH), and sounding reference signal (SRS) to the secondary serving cell (SCell/SCELL)—has been taught or suggested by each of U.S. Patent No. 10,631,222 to Dudda *et al.* ("Dudda," EX1004), International Patent Application Publication No. 2014/110813 in the name of Lin *et al*. ("Lin," EX1006), and U.S. Patent Application Publication No. 2011/0134774 in the name of Pelletier *et al.* ("Pelletier," EX1007).

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 prior to the '283 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 ’283 patent is asserted in *Pantech Corp. et al. v. OnePlus Tech. (Shenzhen) Co., Ltd.*, No. 5:24-cv-00038-RWS-JBB (E.D. Tex.) (“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 Jia Hui (Jeffrey) Jiang (*Pro Hac Vice*) jeffrey.jiang@bayes.law Bayes PLLC 8260 Greensboro Drive, Suite 625 McLean, VA 22102 Zhe (Philip) Wang (*Pro Hac Vice*) philip.wang@bayes.law Bayes PLLC 8260 Greensboro Drive, Suite 625 McLean, VA 22102

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 ’283 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

Under 35 U.S.C. § 311, Petitioner requests IPR of claims 1-13 of the ’283 patent.

A. Claims for Which Review Is Requested

Petitioner requests IPR and cancellation of challenged claims 1-13 of the ’283 patent under 35 U.S.C. § 311 based on the following grounds. This Petition is supported by the Declaration of Dr. Robert Akl (“Akl Decl.,” EX1003).

B. Statutory Grounds of Challenge

Petitioner relies on the following prior art and statutory grounds of challenge to the challenged claims:

EX.	Reference	Relevant Date	Prior Art Under At Least
1004	US10,631,222 (“Dudda”)	1/18/2013[1]	§ 102(a)(2)
1006	WO2014/110813 (“Lin”)	1/18/2013	§ 102(a)(2)
1007	US2011/0134774 (Pelletier)	6/9/2011	§ 102(a)(1)

[1] In this IPR, Petitioner relies on the filing date of U.S. Provisional Application No. 61/754,322 (EX1005), to which Dudda has a right to claim priority as its effective filing date, to qualify Dudda as prior art under 35 U.S.C. § 102(a)(2) with respect to the subject matter relied on herein. *Penumbra, Inc. v. RapidPulse, Inc.,* IPR2021-01466, Paper 34 at 29–32 (PTAB Mar. 10, 2023) (precedential).

Ground	Claims	Basis	References
1 & 2	1-13	§§ 102/103	Dudda
3	1-13	§ 103	Dudda in view of Pelletier
4	1-13	§ 103	Lin
5	1-13	§ 103	Lin in view of Pelletier

Each of Dudda and Lin names another inventor and was effectively filed before the earliest possible effective filing date of the ’283 patent, April 5, 2013, and therefore qualifies as prior art under 35 U.S.C. § 102(a)(2). Pelletier qualifies as prior art under at least 35 U.S.C. § 102(a)(1) as it was published before April 5, 2013.

V. THE ’283 PATENT

A. Overview

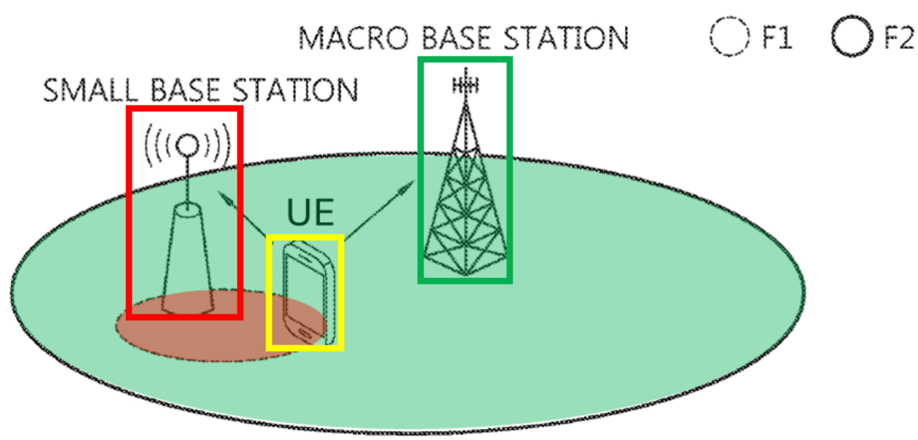
The ’283 patent is directed to a method and an apparatus for radio link control in wireless communication systems supporting dual connectivity. EX1001, 1:18-22. It purports to address the need for “a radio link control method considering the dual connectivity” when a problem occurs in one radio link, but the other radio link can still be available. EX1001, 2:29-35.

The ’283 patent concedes that “in the related art, the user equipment may monitor one radio link and when a problem occurs in the corresponding link, a radio link failure (RLF) may be declared.” EX1001, 7:22-25. The ’283 patent further concedes that it is known in the art to “declare the radio link failure and perform a radio resource control (RRC) reestablishment procedure.” EX1001, 7:28-32.

The ’283 patent claims to address the need for individually managing radio links under dual connectivity by declaring an RLF on the affected radio link while still performing data transmission/reception through the other available radio link. EX1001, 3:24-34.

Annotated FIG. 3 of the ’283 patent below illustrates a dual connectivity situation in which a user equipment (UE, in yellow box) transmits/receives service from a macro base station (in green box) through a macro cell (in green), as well as transmits/receives service from a small base station (in red box) through a small cell (in red). EX1001, 9:14-22; EX1003, ¶60. Since radio links are formed between the UE and two base stations, respectively, to allow the UE to simultaneously use the two cells, individual controlling of the radio links is required. EX1001, 9:22-28; EX1003, ¶61.

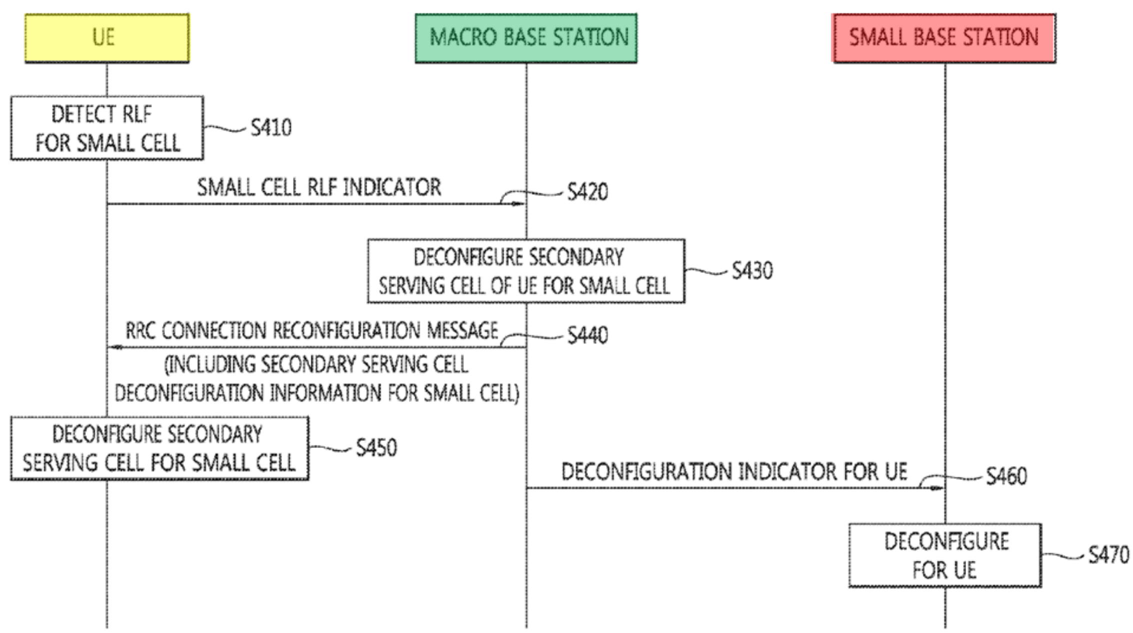
FIG. 3



EX1003 — FIG. F

For instance, annotated FIG. 4 of the '283 patent below illustrates a radio link control method considering dual connectivity between the UE (in yellow) and the macro base station (master base station, in green) through the macro cell (primary serving cell), and the small base station (secondary base station, in red) through the small cell (secondary serving cell). EX1001, 10:20-27; EX1003, ¶62.

FIG. 4



EX1003 — FIG. G

As shown in FIG. 4 above, the UE detects RLF for the small cell at S410 and transmits a small cell RLF indicator to the macro base station at S420. EX1001, 10:28-42. In response, the macro base station deconfigures the secondary serving cell of the UE at S430 by reconfiguring radio resource control (RRC)-related parameters and transmits an RRC connection reconfiguration message to the UE at

S440. EX1001, 11:4-11. Then, the UE deconfigures the secondary serving cell by reconfiguring the RRC-related parameters based on the RRC connection reconfiguration message at S450. EX1001, 11:12-18. The macro base station also transmits, at S460, a deconfiguration indicator for the UE to the small base station to remove its configuration for the UE. EX1001, 11:19-23.

B. Prosecution History of the '283 Patent

In the first Office Action, the Examiner rejected claims 1-13 of the '283 patent as anticipated by U.S. Patent Application Publication No. 2012/0281548 in the name of Lin *et al*. ("Lin-548," EX1013). EX1002, 96-98.

In response, PO amended independent claims 1, 6, and 9 to add the limitation that "wherein the RLF indicator comprises an identifier and the user equipment stops uplink transmission of physical uplink shared channel (PUSCH), physical uplink control channel (PUCCH), and sounding reference signal (SRS) to the secondary serving cell." EX1002, 82-87. PO argued that Lin-548 fails to disclose or suggest stopping PUCCH uplink transmission to the SCELL.[2] EX1002, 89.

Afterwards, an interview was conducted in which PO agreed with an

[2] In fact, Lin-548 explicitly discloses "UE autonomously **stops UL transmission over the RLF SCELL** … to avoid uncontrollable UL transmission and to prevent interference to other users. The UE … **stops reporting CQI/PMI/RI for the SCELL**." EX1013, [0039]. CQI/PMI/RI are well-known uplink control information transmitted on PUCCH. EX1007, [0040]; EX1009, 40; EX1003, ¶66.

Examiner's Amendment that, among other things, added "based on the RLF for the secondary serving cell" after the above-mentioned limitation to overcome indefiniteness in the claims, resulting in a Notice of Allowance. EX1002, 62-77.

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

VI. CLAIM CONSTRUCTIONS

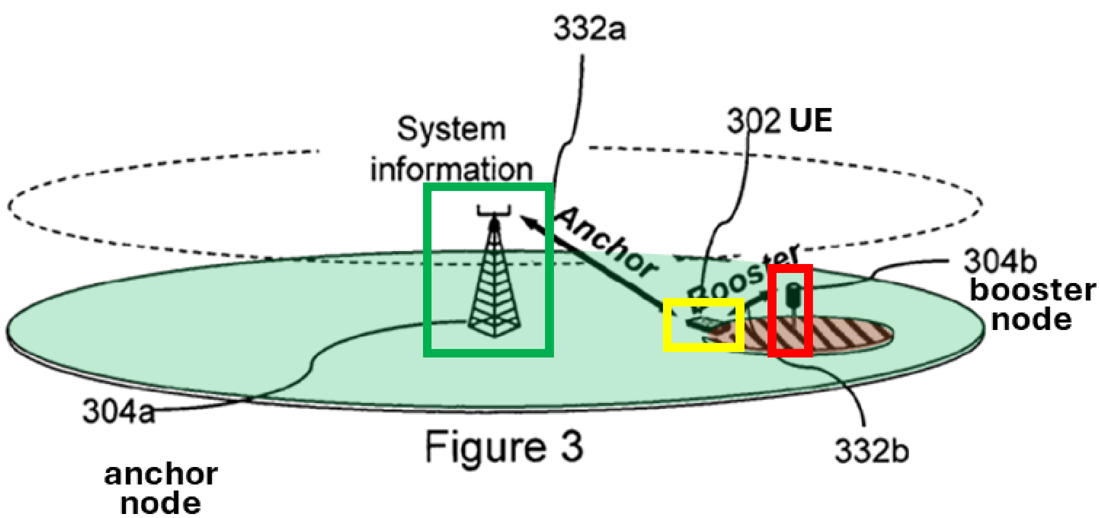
Claim terms subject to IPR are construed using *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). 37 C.F.R. § 42.100(b). Only terms necessary to resolve the controversy need construction. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor,* 868 F.3d 1013, 1017 (Fed. Cir. 2017). The Board does not need to construe the claims here as the issues presented do not turn on claim construction.

VII. GROUNDS 1 AND 2: DUDDA ANTICIPATES OR OTHERWISE RENDERS OBVIOUS CLAIMS 1-13

A. Overview of Dudda

Dudda is related to telecommunications and, in particular, to methods for adapting a mobile network within the context of LTE. EX1004, 1:5-15; EX1005, 1:5-13. Similar to the ’283 patent, Dudda recognizes the issue of how a UE shall evaluate RLF and how the system shall react upon RLF when the UE is in dual connectivity operating on the same or different frequencies. EX1004, 3:61-4:7, 7:19-23; EX1005, 4:18-26; 8:23-26; EX1003, ¶71.

Like the ’283 patent, as shown in annotated FIG. 3 below, Dudda discloses dual connectivity of a UE 302 (in yellow box) to an anchor node 304a (first access node/source eNB, in green box) and a booster node 304b (second access node/assisting eNB, in red box). EX1004, 4:48-52; EX1005, 5:20-23; EX1003, ¶72. UE 302 is simultaneously connected to a macro cell (in green) provided by anchor node 304a, and a small cell (in red) provided by booster node 304b. EX1003, ¶72.



EX1003 — FIG. H

For wireless networks supporting dual connectivity, like the one in FIG. 3, Dudda “provide[s] measures … in a case a degradation of a quality of a connection of [] two connections between an access node … and the terminal may be enabled in an improved way." EX1004, 7:35-39; EX1005, 9:6-8; EX1003, ¶73. For instance, in the embodiment of FIG. 8, a system supporting dual connectivity between UE 802 and source eNodeB 804/assisting eNodeB 808, and reacting upon RLF on the assisting cell, and a corresponding method are disclosed in detail. EX1004, 17:46-50, 19:9-10; EX1005, 11:25-26, 12:28; EX1003, ¶74.

Through steps 1-6 of FIG. 8, RRC connections between UE 802 and source eNodeB 804 and assisting eNodeB 808, respectively, are first established. EX1004, 17:60-18:30; EX1005, 11:25-12:6; EX1003, ¶75. Then, the reaction procedure for RLF on the assisting cell is described with respect to steps 7-11 of FIG. 8: "after the UE 802 has measured a Layer-3 RLF ... towards the assisting cell [], it will stop the transmission on this link and trigger the transmission of the (7) RLF warning message … towards the source eNB 804," "source eNB 804 will send an indication to the assisting eNB 808 to stop the RRC relaying functionality (8) for the UE 802," and "source eNB 804 uses the RRC reconfiguration procedure [] to reconfigure the UE 802 to leave RRC diversity mode and be solely connected to the source cell." EX1004, 18:56-19:8; EX1005, 12:8-26; EX1003, ¶76.

B. Independent Claim 1

1. Dudda discloses "*a user equipment for performing radio link control in a wireless communication system supporting dual connectivity, the user equipment comprising*" [1.P].

Dudda discloses a UE ("*user equipment"*) having radio link control (RLC) capability ("*performing radio link control"*) in a system capable of dual connectivity ("*wireless communication system supporting dual connectivity"*).

For example, Dudda discloses **"UE 302 in dual connectivity** maintains simultaneous connections 334*a*, 334*b* to anchor and booster nodes 304*a*, 304*b*" and illustrates "**dual connectivity of a UE 302** to an anchor [node] 304*a* and a booster [node] 304*b*" in FIG. 3. EX1004, 4:48-65; EX1005, 5:22-27.

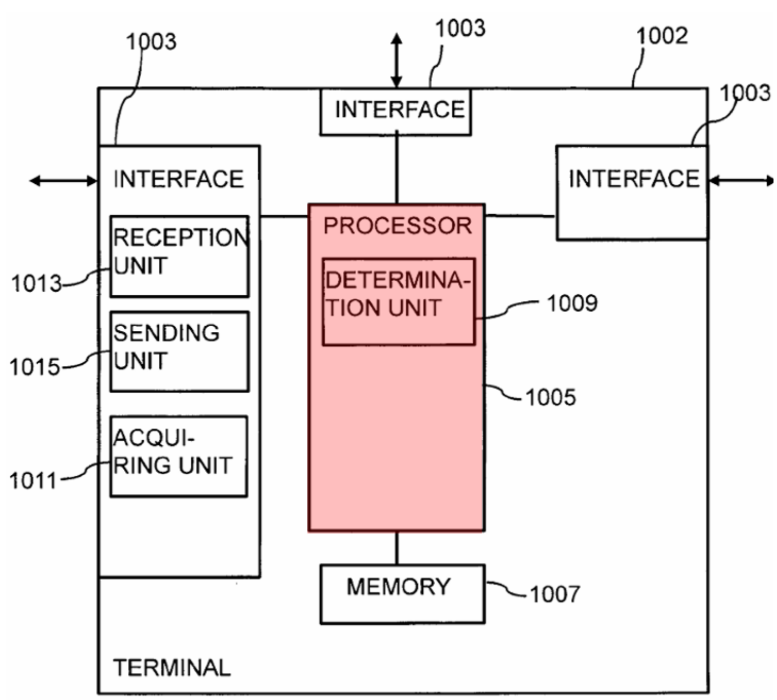
Specifically, FIG. 8 of Dudda discloses an embodiment of adapting a mobile network in a dual connectivity configuration, the same as the one shown in FIG. 3. EX1004, 9:36-37; EX1005, 10:9-10; EX1003, ¶91. Dudda discloses that "a mobile network 800 comprises a[] user equipment 802, a source eNodeB 804, and an assisting eNodeB 808" and that "the system is capable of **dual connectivity for the UE 802**." EX1004, 17:48-50, 19:9-14; EX1005, 12:28-31.

Dudda further discloses that RLC is implemented in its protocol architecture to realize dual connectivity. EX1004, 5:7-19; EX1005, 6:4-8. Thus, a POSITA would have understood that the UE (e.g., 302, 802) of Dudda has "*radio link control*" capability. EX1003, ¶92.

Thus, Dudda discloses [1.P].

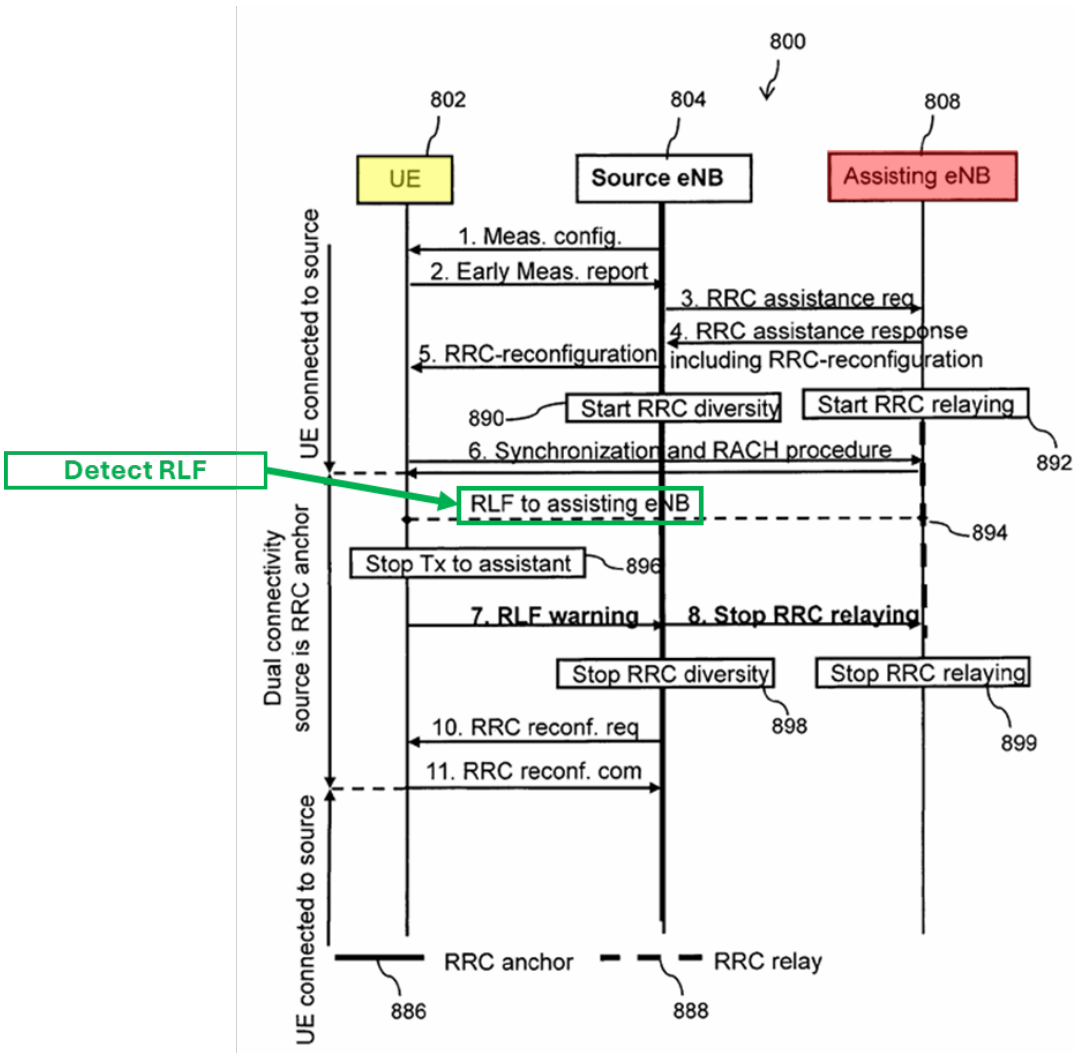
2. Dudda discloses "*a processor configured to detect a radio link failure (RLF) for a secondary serving cell provided by a secondary base station (secondary eNB, SeNB) and to generate an RLF indicator indicating occurrence of the RLF for the secondary serving cell*" [1.a].

Dudda's UE 802 includes a processor 1005. As shown in annotated FIG. 10 of Dudda below, a terminal 1002, "correspond[ing] to the terminal 802," includes processor 1005 (in red). EX1004, 25:36-48; EX1005, 22:22-32; EX1003, ¶¶94-95. Dudda explains that "terminal 1002 is adapted to perform a method according to embodiments described above," including the method of FIG. 8. EX1004, 26:8-11; EX1005, 23:1-4; EX1003, ¶94.



EX1003 — FIG. K

Dudda discloses processor 1005 of UE 802 is configured to detect an RLF for an assisting cell ("*secondary serving cell*") provided by an assisting eNodeB 808 ("*secondary base station (secondary eNB, SeNB)*"). As shown in annotated FIG. 8 below, Dudda discloses "RLF between the UE 802 [(in yellow)] and the assisting eNodeB 808 [(in red)] occurs in a step 8[9]4" (in green box), and that "UE 802 has measured a Layer-3 RLF … towards the assisting cell." EX1004, 18:31-32, 18:35-37, 18:56-60; EX1005, 12:8, 13-16; EX1003, ¶96.



EX1003 — FIG. L

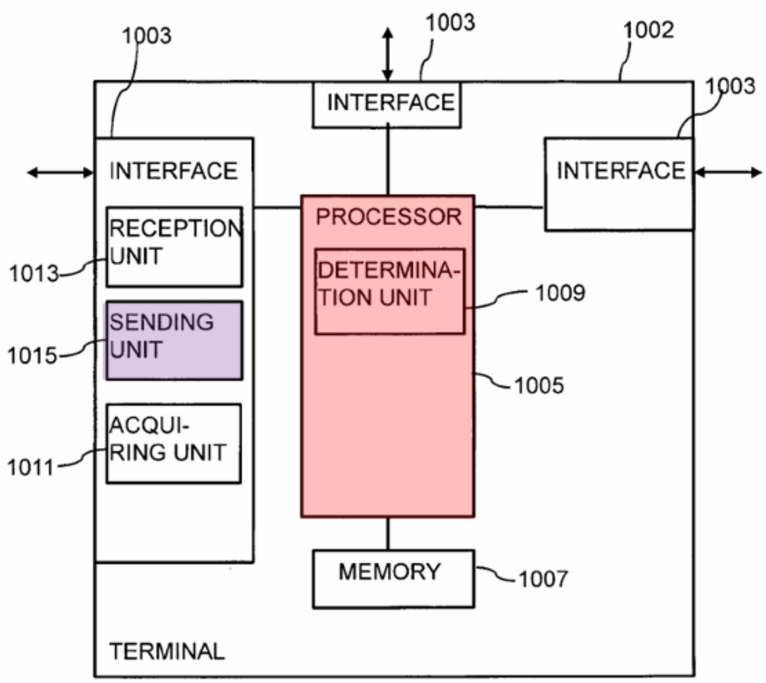
A POSITA would have understood that assisting eNodeB 808 and assisting cell are "*secondary base station*" and "*secondary serving cell*," respectively, because assisting eNodeB 808 plays an assistant role in dual connectivity with UE 802. EX1004, 4:57-62, 10:1-4, 10:50-56; EX1005, 5:25-27, 25:5-7, 26:16-19; EX1003, ¶97.

Dudda discloses processor 1005 of UE 802 is also configured to generate an RLF-warning message ("*an RLF indicator indicating occurrence of the RLF*") for the assisting cell. Specifically, Dudda discloses the detection of RLF "trigger[s] the transmission of the (7) RLF warning message." EX1004, 18:56-60; EX1005, 12:13-16. Dudda also provides "pseudo code examples" of generating the RLF-warning by "stor[ing] the following radio link failure information … according to the selection of links to transmit the RLF warning." EX1004, 21:24-62; EX1005, 15:29-16:23; EX1003, ¶98.

Thus, Dudda discloses [1.a].

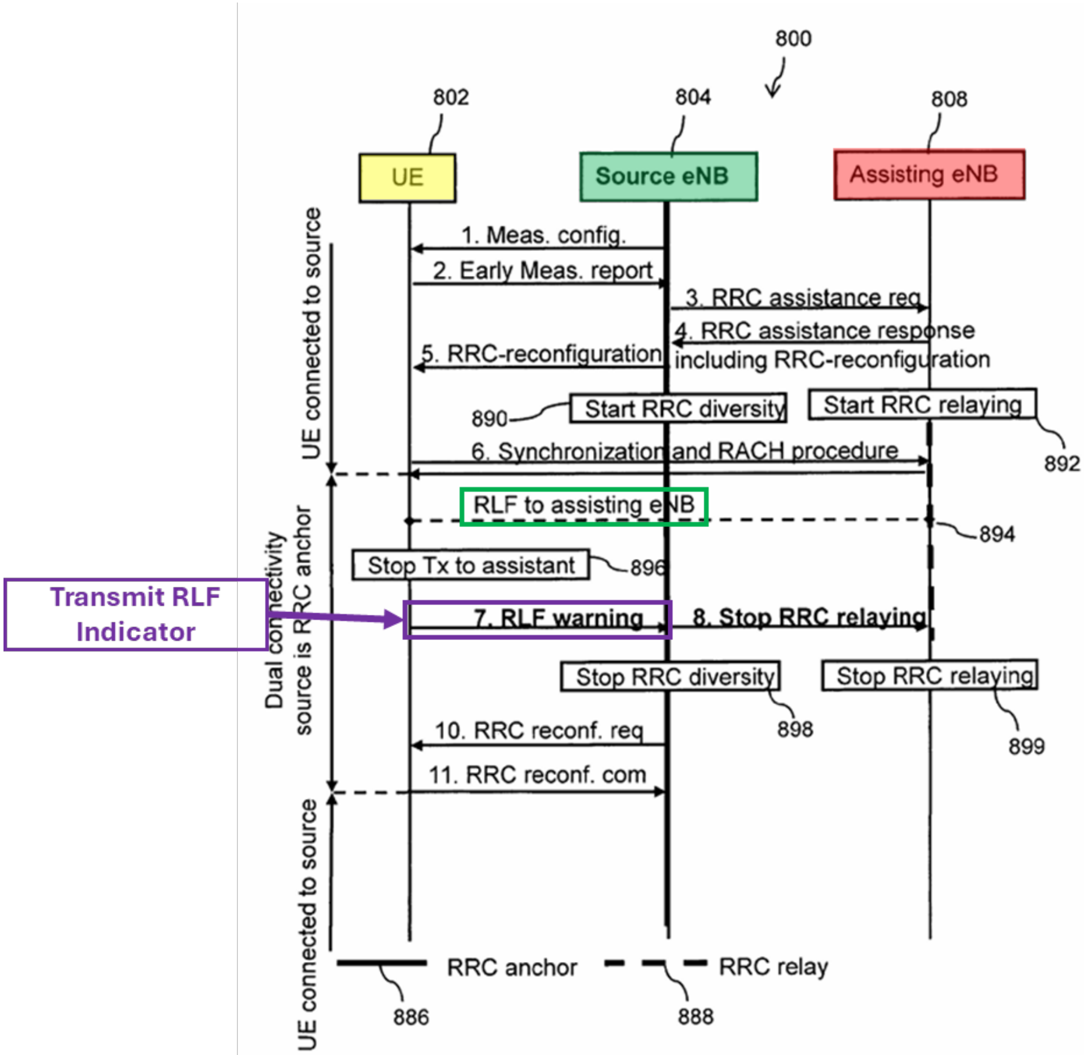
3. Dudda discloses "*a transmitting unit configured to transmit the RLF indicator to a master base station (master eNB, MeNB) connected through radio resource control (RRC)*" [1.b].

Dudda's UE 802 also includes a sending unit 1015 ("*transmitting unit*"). Annotated FIG. 10 of Dudda below illustrates terminal 1002, including sending unit 1015 (in purple). EX1004, 26:2-5; EX1005, 22:22-32, FIG. 10; EX1003, ¶99.



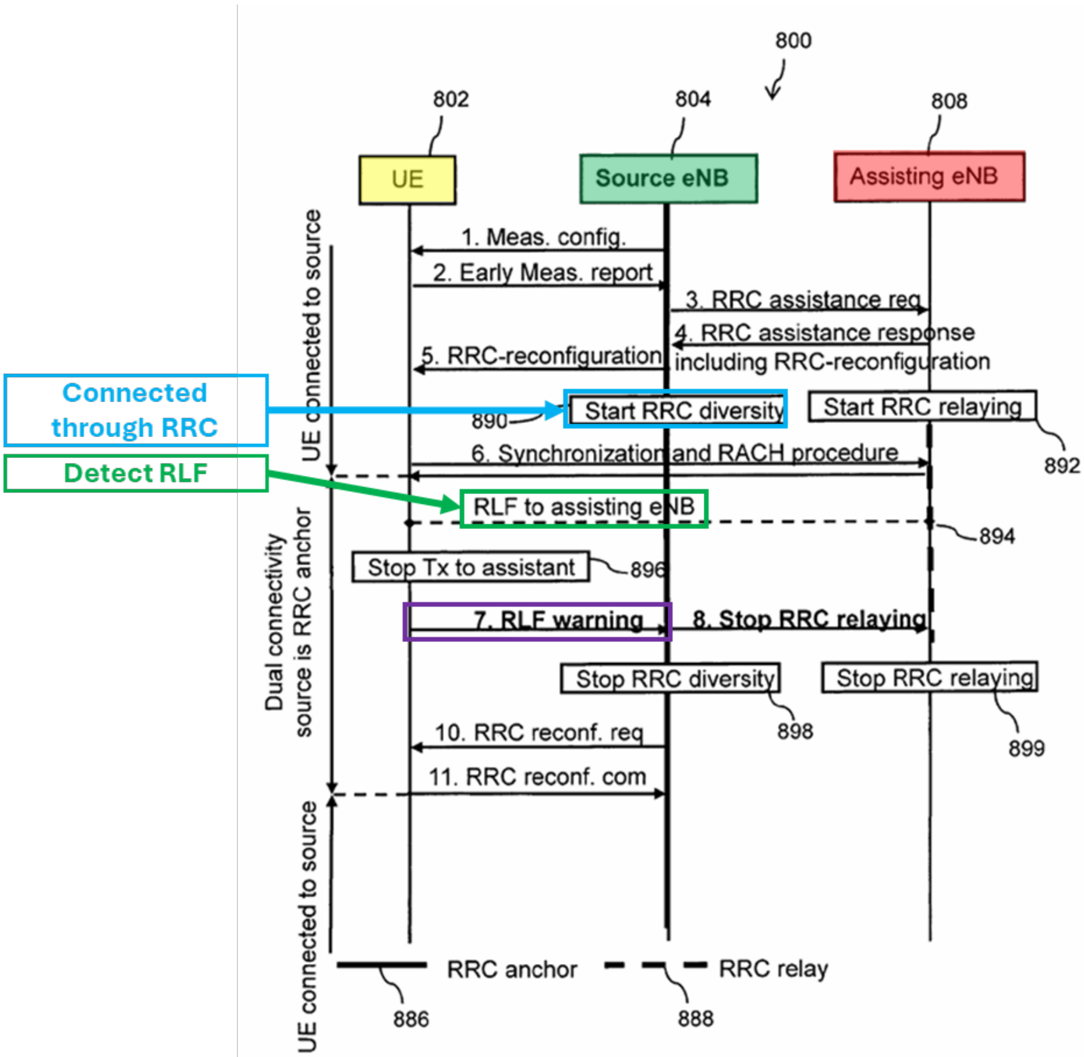
EX1003 — FIG. M

Dudda discloses sending unit 1015 of UE 802 is configured to transmit the RLF-warning message ("*RLF indicator*") to source eNB 804 ("*master base station (master eNB, MeNB)*"). As shown in annotated FIG. 8 below, Dudda discloses that UE 802 (in yellow) "sends a RLF warning to the source eNodeB 804" (in green) and "trigger[s] the transmission of the (7) RLF warning message … towards the source eNB 804" (in purple box). EX1004, 18:38-39, 18:56-60; EX1005, 12:13-16; EX1003, ¶100. A POSITA would have understood source eNodeB 804 is "*master base station*" because source eNodeB 804 plays a control role in the dual connectivity with UE 802. EX1004, 4:52-57, 10:1-4, 10:50-56; EX1005, 5:23-24, 25:5-7, 26:16-19; EX1003, ¶101.



EX1003 — FIG. N

Dudda's UE 802 is connected to source eNodeB 804 through RRC. EX1004, 17:46-48; EX1005, 11:25-26. Specifically, as shown in annotated FIG. 8 below, Dudda discloses that before RLF detection (in green box), UE 802 and source eNodeB 804 have entered into an RRC diversity state (in blue box) "where RRC messages are transmitted and received to the UE 802 [] directly." EX1004, 18:24-28; EX1005, 12:2-6; EX1003, ¶102.



EX1003 — FIG. O

Dudda further discloses the RLF-warning message is transmitted in the form of an "**RRC** RLF warning message." EX1004, 16:22-25, 16:64; EX1005, 11:3; EX1003, ¶103.

Thus, Dudda discloses [1.b].

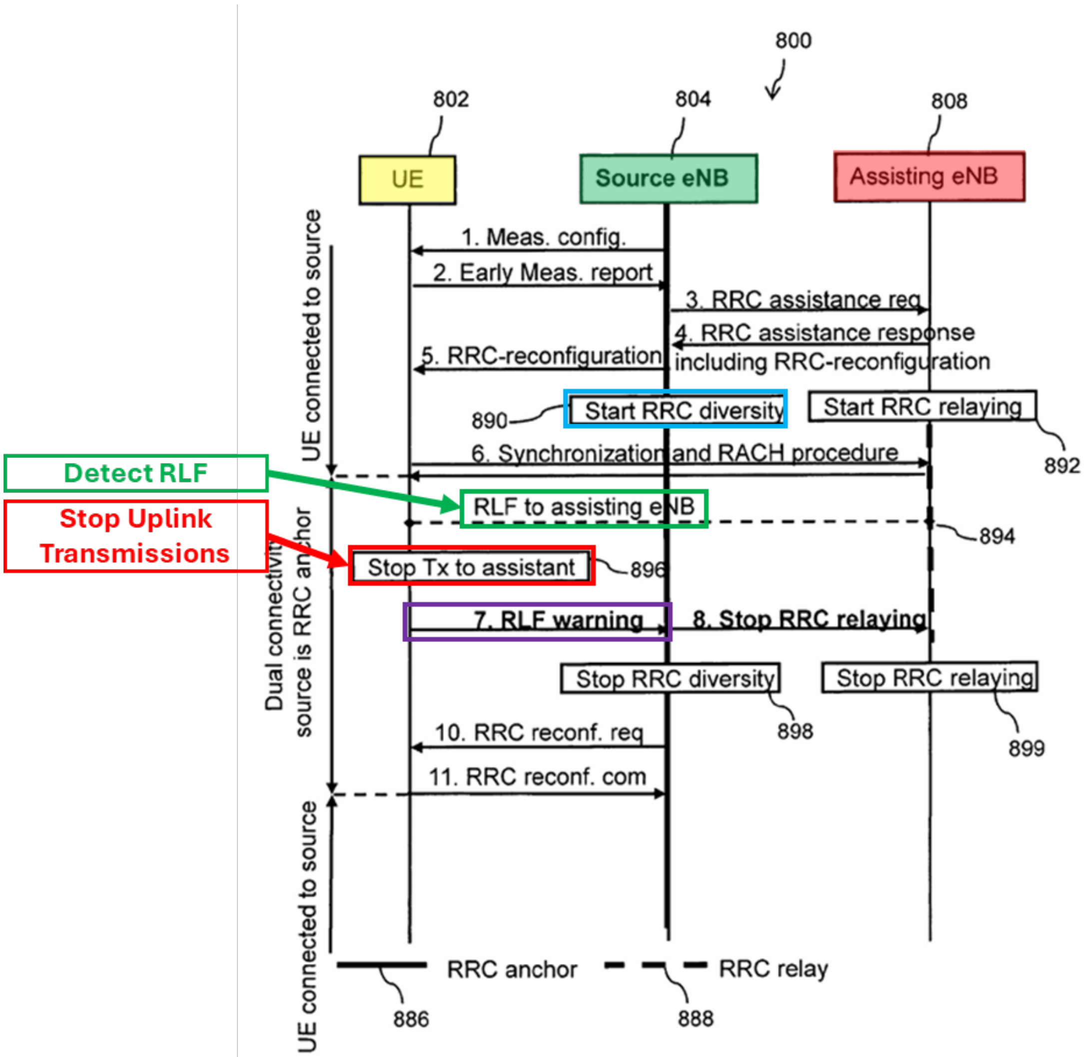
4. Dudda discloses "*the RLF indicator comprises a cell identifier (cell ID)*" [1.c].

Dudda discloses the RLF-warning message ("*RLF indicator*") includes a cell identification indicator ("*cell identifier (cell ID)*"). Specifically, Dudda discloses "RLF-warning message … may further include an indicator to which connection the [RLF]-warning belongs," including "cell global ID, physical cell ID, carrier frequency of this cell." EX1004, 23:1-12, 29:60-30:23; EX1005, 18:8-17, 28:20-29:15.

5. Dudda discloses or at least suggests "*the user equipment stops uplink transmission of physical uplink shared channel (PUSCH), physical uplink control channel (PUCCH), and sounding reference signal (SRS) to the secondary serving cell, based on the RLF for the secondary serving cell*" [1.d].

Dudda discloses the UE stops uplink transmission to the assisting cell ("*secondary serving cell*") based on the RLF for the assisting cell.

As shown in annotated FIG. 8 below, Dudda discloses when "RLF between the UE 802 and the assisting eNodeB 808 occurs" (in green box), "UE 802 stops transmitting to the assisting eNodeB 808" on the assisting cell (in red box). EX1004, 18:35-38, 18:56-60; EX1005, 12:13-16; EX1003, ¶105. Dudda also discloses that the RLF for the assisting cell causes UE 802 to "be solely connected to the source cell." EX1004, 19:6-9; EX1005, 12:24-26.



EX1003 — FIG. P

Dudda explains throughout that RLF detection on the second connection/link with the second access node/assisting eNB results in: "stop[ping] communicating … in an uplink direction," "stop[ping] transmission … on the link for which RLF is detected," "disconnecting the second connection," "stopping to employ the second access node for the data transmission for the terminal," "stopping to send the duplicated data to the second access node," etc. EX1004, 11:53-66, 21:31-59, 29:39-

59; EX1005, 16:21, 28:1-18. Thus, a POSITA would have understood Dudda discloses, or at least suggests [1.d], as explained below for various reasons. EX1003, ¶¶106-107.

First, a POSITA would have understood, from Dudda's disclosures, that stopping uplink transmission to the assisting eNB in Dudda includes preventing the UE from making **any** uplink transmission to the assisting cell, including "*PUSCH, PUCCH, and SRS*," to avoid uncontrollable uplink transmission and to prevent interference to other users. EX1007, [0104]; EX1013, [0039]; EX1003, ¶108.

Second, a POSITA would have understood, or at least found it obvious, that stopping uplink transmission to the assisting eNB also includes stopping existing uplink transmission of "*PUSCH, PUCCH, and SRS*" in view of common knowledge in the art and the disclosures of Dudda. EX1003, ¶¶109-112.

Specifically, Dudda explains that "the term 'data transmission' may comprise transmission of **signaling data and/or payload data in the uplink direction** from the terminal to the mobile network." EX1004, 9:54-58, 28:35-51; EX1005, 25:28-26:10. It is well known in the art that the "signaling data" (control data/information) is transmitted on PUCCH and PUSCH, and the "payload data" (user data) is transmitted on PUSCH in uplink transmission. EX1007, [0040]; EX1009, 40; EX1011, 123-124; EX1003, ¶110. Uplink control data/information for PUCCH SCell also includes SRS. EX1012, 9:11-13. It is also known that uplink resources for a UE to an SCell by signaling include SRS, PUCCH, and PUSCH. EX1007, [0104]; EX1003, ¶111. Accordingly, a POSITA would have understood, or at least found it obvious, that in Dudda, each of PUSCH, PUCCH, and SRS are used for uplink data transmission from the UE (*e.g.*, 802) to the assisting eNB (*e.g.*, 808), so that stopping uplink transmission would have stopped uplink transmission of PUSCH, PUCCH, and SRS. EX1003, ¶112.

Moreover, SRS is transmitted on the uplink to allow the base station to estimate the uplink channel state at different frequencies, which is used by the base station to assign resource blocks of instantaneously good quality for PUSCH transmission. EX1011, 217; EX1003, ¶113. SRS transmission from the UE to the base station is also needed to perform effective precoding matrix selection for PUSCH transmission with multi-antenna, which is well-known and commonly used in LTE to which Dudda is related. EX1004, 1:12-13, 16:47-49; EX1005, 1:12-13; EX1008, 94-95; EX1003, ¶114. SRS transmission is also used for uplink timing estimation. EX1011, 210, 217; EX1003, ¶115. Thus, a POSITA would have also understood, or at least found it obvious, that Dudda's UE (*e.g.*, 802) also transmits SRS to assisting eNB (*e.g.*, 808) to facilitate PUSCH transmission, so that the UE would have also stopped the uplink SRS transmission when stopping uplink data transmission in the event of an RLF failure on the assisting cell. EX1003, ¶116.

Accordingly, Dudda discloses or at least suggests [1.d].

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

C. Dependent Claim 2

1. Dudda discloses or at least suggests "*a receiving unit configured to receive an RRC connection reconfiguration message including secondary serving cell deconfiguration information for the secondary serving cell from the master base station*" [2.a].

Dudda's UE 802 also includes a reception unit 1013 ("*receiving unit*"). Annotated FIG. 10 of Dudda below illustrates that terminal 1002 further includes reception unit 1013 (in green). EX1004, 26:2-5; EX1005, 22:22-32; EX1003, ¶120.

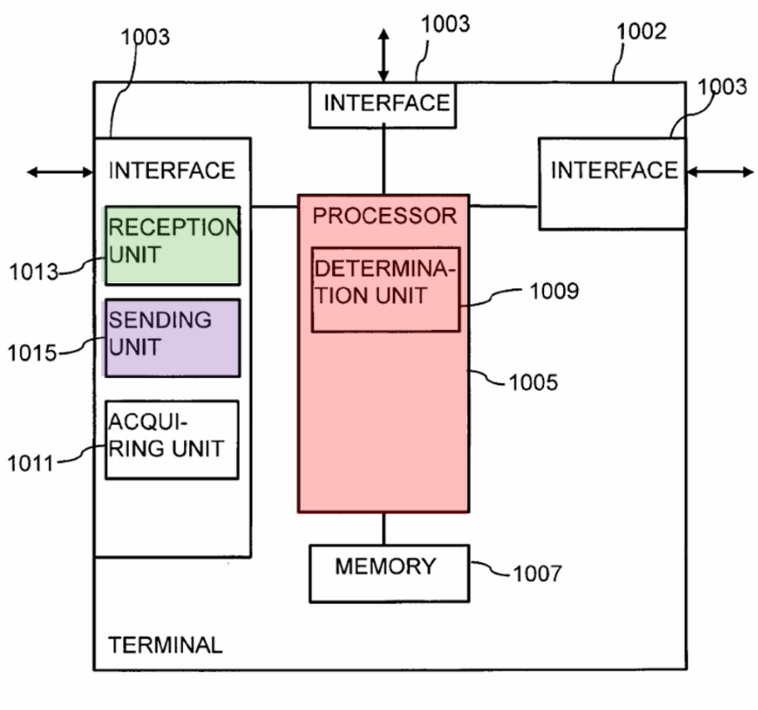
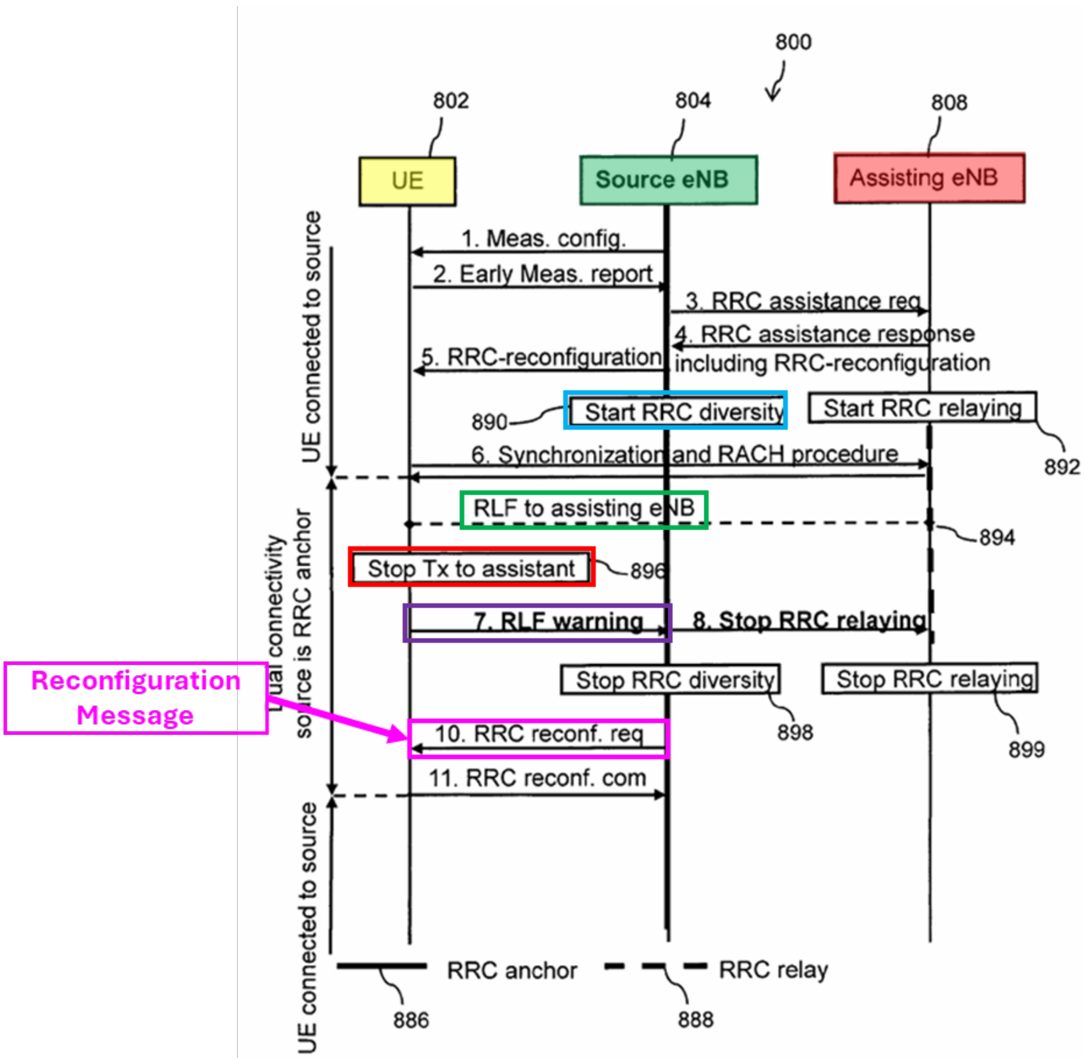


Figure 10

EX1003 — FIG. Q

Dudda discloses reception unit 1013 of UE 802 is configured to receive an RRC reconfiguration request from source eNodeB 804 ("*master base station*"), and that the RRC reconfiguration request includes information triggering UE 802 to deconfigure the assisting cell ("*secondary service cell*"). As shown in annotated FIG. 8 below, Dudda discloses that "source eNodeB 804 sends a RRC reconfiguration request to the UE 802" (in pink box). EX1004, 18:43-46, 19:6-8; EX1005, 12:24-26, FIG. 8; EX1003, ¶121.



EX1003 — FIG. R

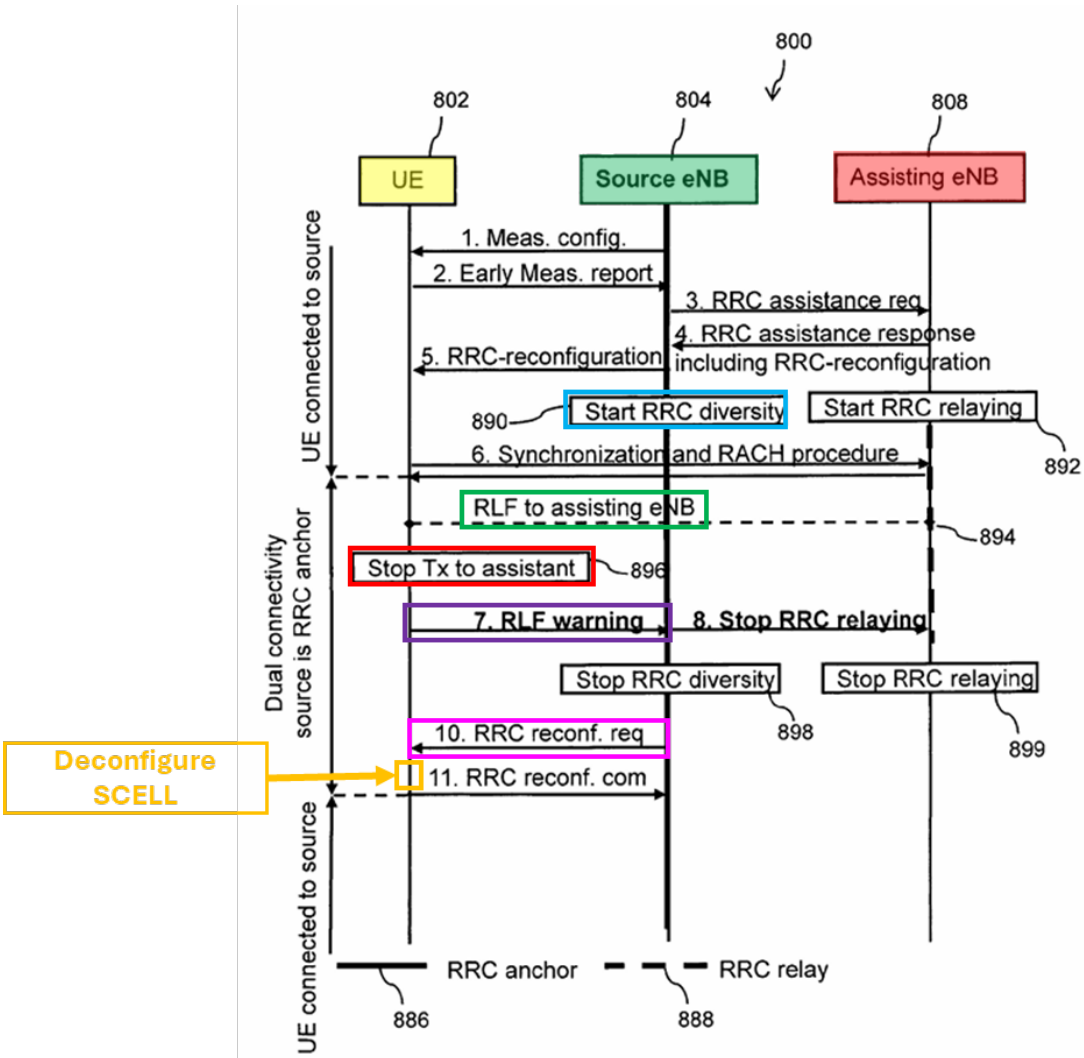
Dudda is clear that the RRC reconfiguration request is used by source eNB

804 "to reconfigure the UE 802 to leave RRC diversity mode and be solely connected to the source cell," *i.e.*, to deconfigure the assisting cell. EX1004, 19:3-8, 24:35-42; EX1005, 12:22-26, 20:14-19; EX1003, ¶122. A POSITA would have understood, or at least found it obvious, that in order for the RRC reconfiguration request to reconfigure UE 802 to leave RRC diversity mode and be solely connected to the source cell, the RRC reconfiguration request includes RRC-related parameters for deconfiguring the assisting cell, which is the "*secondary serving cell deconfiguration information for the secondary serving cell*." EX1003, ¶122.

Accordingly, Dudda discloses or at least suggests [2.a].

2. Dudda discloses or at least suggests "*the processor is configured to deconfigure the secondary serving cell at the user equipment side based on the secondary serving cell deconfiguration information*" [2.b].

Dudda's UE 802 receives an RRC reconfiguration request in step 10 from source eNodeB 804 and then sends an RRC reconfiguration complete/command in step 11 to source eNodeB 804, such that UE 802 becomes solely connected to the source cell (*i.e.*, disconnected from secondary cell) after reconfiguration procedure. EX1004, 18:43-46, 19:3-8; EX1005, 12:22-26. Thus, a POSITA would have understood, or at least found it obvious, that processor 1005 of UE 802 is further configured to deconfigure the assisting cell ("*secondary serving cell*") by reconfiguring the RRC-related parameters based on the information in the RRC reconfiguration request ("*secondary serving cell deconfiguration information*") between steps 10 and 11 (in orange box in annotated FIG. 8 below). EX1003, ¶124.



EX1003 — FIG. S

This is consistent with the teaching of the '283 patent, which describes that the UE deconfigures the secondary serving cell by performing "reconfiguration of the RRC related parameter of deconfiguring the secondary serving cell" and transmitting "an RRC connection reconfiguration complete message to the macro base station." EX1001, 14:44-52; EX1003, ¶125.

Accordingly, Dudda discloses or at least suggests [2.b].

From the foregoing, Dudda anticipates or otherwise renders obvious claim 2.

D. Dependent Claim 3

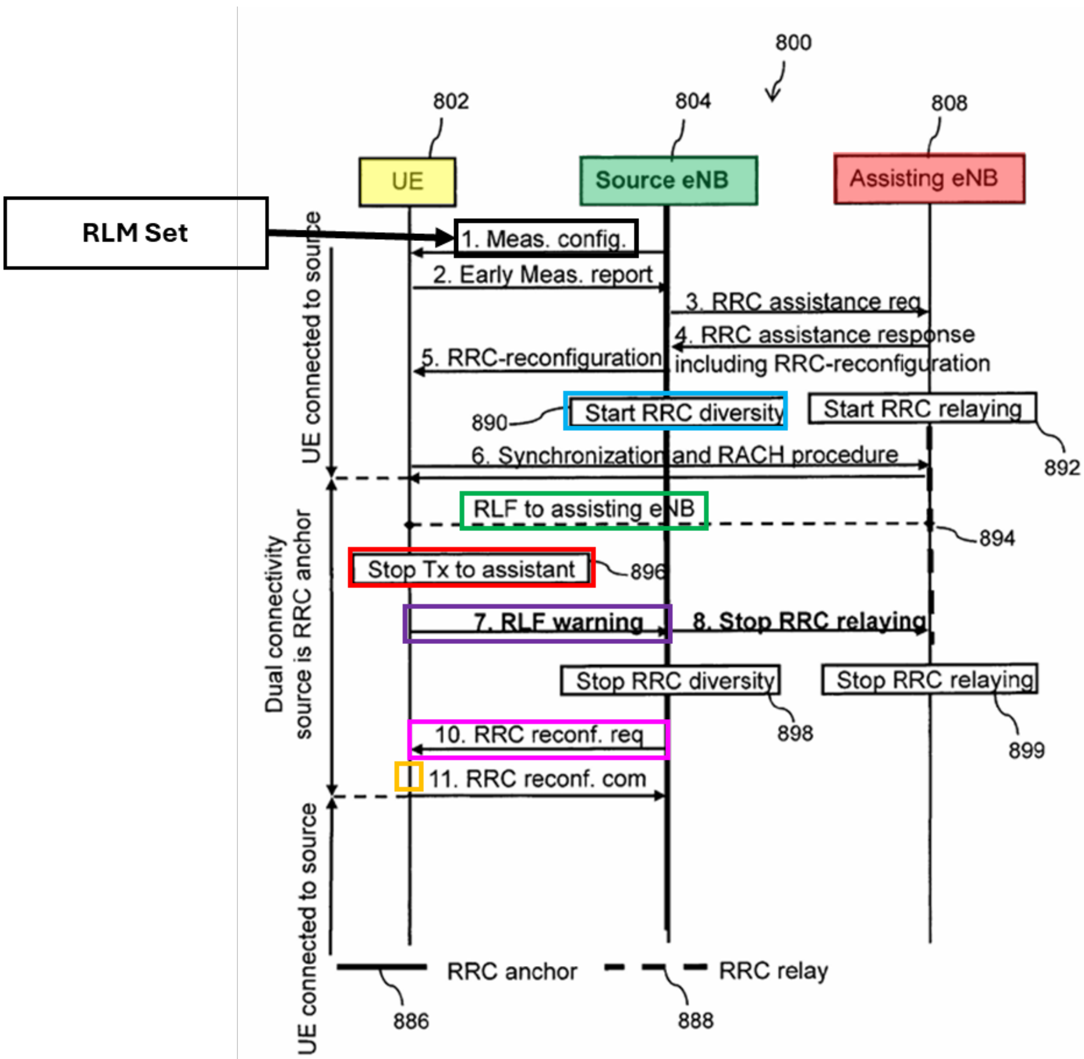
1. Dudda discloses "*a receiving unit configured to receive a radio link monitoring set including radio link information for a primary serving cell provided by the master base station and radio link information for the secondary serving cell provided by the small base station from the master base station*" [3.a].

As discussed in Section VII.C.1, Dudda discloses reception unit 1013 of UE 802 for performing the method of FIG. 8. Dudda further discloses that reception unit 1013 ("*receiving unit*") of UE 802 is configured to receive, from source eNodeB 804 ("*master base station*"), a measurement configuration ("*radio link monitoring set*"), including timers and constants to evaluate physical layer problems on a per-link basis ("*radio link information for a primary serving cell provided by the master base station and radio link information for the secondary serving cell provided by the small base station*").[3]

As shown in annotated FIG. 8 below, Dudda discloses that "a measurement configuration is sent from the source eNodeB 804 … to user equipment 802" (in

[3] "***[T]he** small base station*" lacks antecedent basis. For the purpose of this IPR, a POSITA would have understood that "*the small base station*" refers back to the "*secondary base station*" in claim 1, and corresponds to assisting eNB (*e.g.*, 808) of Dudda. EX1004, 3:67-4:2; EX1005, 4:20-21; EX1003, ¶130.

black box) and that "UE 802 … is first configured with a measurement configuration (1) issuing an early measurement report (2)" and that "[t]his measurement may relate to a source cell, assisting cell or different cells." EX1004, 17:60-65, 18:14-17; EX1005, 11:28-30; EX1003, ¶131.



EX1003 — FIG. T

A POSITA would have understood the measurement configuration of Dudda is the "*radio link monitoring set*" because it includes "timers and constants for the

UE 802 [] to evaluate physical layer problems … configurable on a per link basis," consistent with the teachings of the '283 patent. EX1001, 8:1-18, 11:60-63; EX1004, 18:14-17, 20:26-39; EX1005, 11:28-30, 14:11-23; EX1003, ¶132.

Moreover, the timers and constants for UE 802 to evaluate physical layer problems are provided "on a per link basis," *e.g.*, "relate to a source cell, assisting cell or different cells," such that UE 802 "evaluates separately per connected cell" for the physical layer problem. EX1004, 18:14-17, 20:26-39, 21:1-11; EX1005, 11:28-30, 14:11-23, 15:20-27. Thus, the configuration measurement ("*radio link monitoring set*") includes both "*radio link information for a primary serving cell provided by the master base station*" and *"radio link information for the secondary serving cell provided by the small base station*." EX1003, ¶133.

Therefore, Dudda discloses [3.a].

2. Dudda discloses *"the processor is configured to detect the RLF for the secondary serving cell based on the radio link monitoring set*" [3.b].

As discussed in Section VII.B.2, Dudda discloses processor 1005 of UE 802 is configured to detect an RLF for an assisting cell ("*secondary serving cell*"). Dudda further discloses that UE 802 **evaluates physical layer problems** "on a per link basis" and "separately per connected cell" based on the timers and constants in the measurement configuration. *See* Section VII.D.1. Thus, a POSITA would have understood processor 1005 of UE 802 is configured to detect an RLF for an assisting cell based on the measurement configuration ("*radio link monitoring set*"). EX1003, ¶135. Accordingly, Dudda discloses [3.b].

From the foregoing, Dudda anticipates or otherwise renders obvious claim 3.

E. Dependent Claim 4

Claim 4 additionally requires "*the processor is configured to detect the RLF for the secondary serving cell through radio link monitoring for the secondary serving cell,*" which is disclosed by Dudda for at least the same reasons explained in Section VII.D.2.

Thus, Dudda anticipates or otherwise renders obvious claim 4.

F. Dependent Claim 5

Claim 5 additionally requires "*the processor is configured to detect the RLF for the secondary serving cell based on a radio link control protocol data unit (RLC PDU) retransmission count for the secondary serving cell,*" which is disclosed by Dudda.

Specifically, Dudda discloses "[u]pon … RLC maximum number of retransmissions reached indication for this cell, the UE 802 … shall trigger the new RLF-warning procedure." EX1004, 13:27-34, 21:14-19; EX1005, 16:1-4, 20:25-26, 21:4. A POSITA would have understood that the RLC maximum number of retransmissions qualifies as the "*radio link control protocol data unit (RLC PDU) retransmission count*" and "this cell" includes the assisting cell ("*secondary serving* *cell*") on which RLF is detected. EX1003, ¶¶139-140.

Thus, Dudda anticipates or otherwise renders obvious claim 5.

G. Independent Claim 6

1. Dudda discloses "*a master base station for performing radio link control in a wireless communication system supporting dual connectivity, the master base station comprising*" [6.P].

As discussed in Sections VII.B.1 and VII.B.3, Dudda discloses a first access node, *e.g.*, anchor node 304a or source eNodeB 804 ("*master base station"*) having RLC capability ("*performing radio link control"*) in a system capable of dual connectivity ("*wireless communication system supporting dual connectivity"*).

Thus, Dudda discloses [6.P].

2. Dudda discloses "*a receiving unit configured to receive a radio link failure (RLF) indicator indicating that a radio resource failure for a secondary serving cell provided to a user equipment occurs from a secondary base station from the user equipment*" [6.a].

Dudda's access node 1104, *e.g.*, source eNodeB 804 ("*master base station*") includes a reception unit 1113 ("*receiving unit*"). EX1004, 26:12-14, 26:49-52, FIG. 11; EX1005, 23:6-16, FIG. 11; EX1003, ¶143. Dudda explains that "access node 1104 is adapted to perform a method according to embodiments described above," including the method of FIG. 8. EX1004, 26:54-57; EX1005, 23:18-20; EX1003, ¶143.

As explained in Sections VII.B.2-VII.B.3, Dudda discloses reception unit 1113 of source eNodeB 804 is configured to receive, from UE 802, an RLF-warning message ("*RLF indicator*") indicating that RLF for an assisting cell ("*secondary serving cell*") provided to UE 802 occurs from assisting eNodeB 808 ("*secondary base station*").

Thus, Dudda discloses [6.a].

3. Dudda discloses or at least suggests "*a processor configured to generate a radio resource control (RRC) connection reconfiguration message including secondary serving cell deconfiguration information for the secondary serving cell based on the RLF indicator*" [6.b], and "*a transmitting unit configured to transmit the RRC connection reconfiguration message to the user equipment*" [6.c].

Dudda's source eNodeB 804 also includes a processor 1105 and a sending unit 1115 ("*transmitting unit*"). EX1004, 26:12-14, 26:19-24, 26:49-52, FIG. 11; EX1005, 23:6-16, FIG. 11; EX1003, ¶145.

As explained in Section VII.C, Dudda discloses or at least suggests that processor 1105 of source eNodeB 804 is configured to generate an RRC reconfiguration request ("*radio resource control (RRC) connection reconfiguration message*"), including information triggering UE 802 to deconfigure the assisting cell ("*secondary serving cell deconfiguration information for the secondary serving cell*"), *e.g.*, RRC related-parameter, in response to the RLF-warning message ("*RLF* *indicator*"), as well as that sending unit 1115 of source eNodeB 804 is configured to transmit the RRC reconfiguration request to UE 802.

Thus, Dudda discloses or at least suggests [6.b] and [6.c].

4. Dudda discloses "*the RLF indicator comprises a cell identifier (cell ID)*" [6.d]

As discussed in Section VII.B.4, Dudda discloses [6.d].

5. Dudda discloses or at least suggests "*the user equipment stops uplink transmission of physical uplink shared channel (PUSCH), physical uplink control channel (PUCCH), and sounding reference signal (SRS) to the secondary serving cell, based on the RLF for the secondary serving cell*" [6.e].

As discussed in Section VII.B.5, Dudda discloses or at least suggests [6.e].

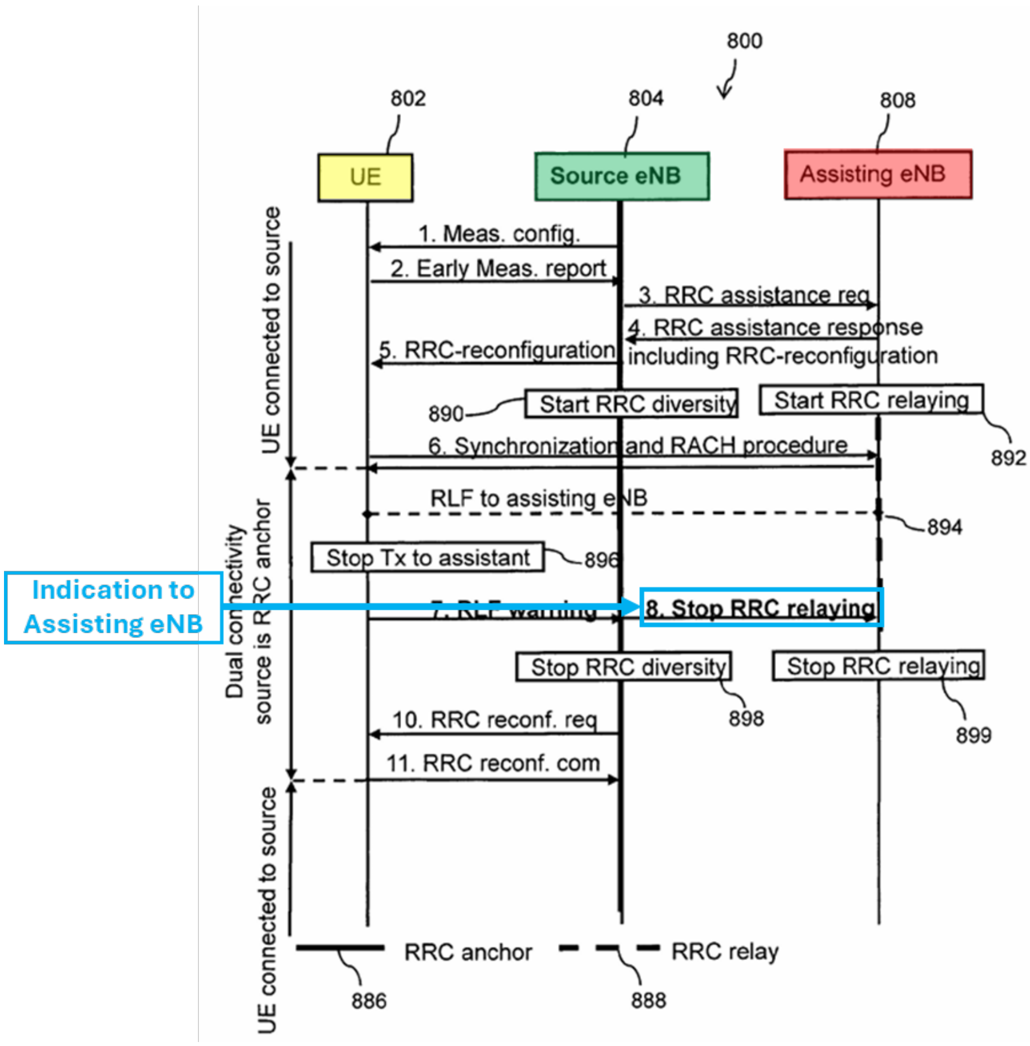
From the foregoing, Dudda anticipates or otherwise renders obvious claim 6.

H. Dependent Claim 7

1. Dudda discloses or at least suggests "*the processor is configured to generate an indicator indicating the secondary base station to deconfigure the secondary serving cell for the user equipment*" [7.a].

Dudda discloses processor 1105 of source eNodeB 804 is also configured to generate an indication to assisting eNB 808 to stop the RRC relaying functionally for UE 802 ("*indicating the secondary base station to deconfigure the secondary serving cell for the user equipment*"). As shown in annotated FIG. 8 below, Dudda discloses that "source eNB 804 will send an indication to the assisting eNB 808 to stop the RRC relaying functionality (8) for the UE 802, since it is aware of the UE

802 having triggered RLF to the assisting eNB 808" (in blue box). EX1004, 18:60-64; EX1005, 12:16-18; EX1003, ¶152.



EX1003 — FIG. U

Dudda explains that "assisting eNodeB 808 stops RRC relaying" and "[o]nly the connection between source eNB 804 and UE 802 should be maintained." EX1004, 18:40-42, 19:3-6; EX1005, 12:16-26. Thus, a POSITA would have understood, or at least found it obvious, that source eNB 804 indicates assisting eNB

808 to deconfigure the assisting cell to stop RRC diversity, leaving only the connection between source eNB 804 and UE 802. EX1003, ¶152.

Dudda also discloses deconfiguring the assisting cell ("*secondary serving cell*") as one of the actions taken in response to RLF detection, which includes "deconfigur[ing] the assisting cell." EX1004, 24:35-42; EX1005, 20:14-19; EX1003, ¶153.

Therefore, Dudda discloses or at least suggests [7.a].

2. Dudda discloses "*the transmitting unit is configured to transmit the indicator to the secondary base station*" [7.b].

As discussed in Section VII.H.1, Dudda discloses that sending unit 1115 ("*transmitting unit*") of source eNodeB 804 is also configured to transmit the indication to assisting eNB 808 ("*secondary base station*").

Thus, Dudda discloses [7.b].

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

I. Dependent Claim 8

1. Dudda discloses "*the processor is configured to generate a radio link monitoring set including radio link information for a primary serving cell provided by the master base station and radio link information for the secondary serving cell provided by the small base station*" [8.a], and "*the transmitting unit is configured to transmit the generated radio link monitoring set to the user equipment*" [8.b].

As discussed in Section VII.D.1, Dudda discloses processor 1105 and sending unit 1115 ("*transmitting unit*") of source eNodeB 804 are further configured to generate and transmit to UE 802, respectively, a measurement configuration ("*radio link monitoring set*"), including timers and constants to evaluate physical layers problems on a per-link basis. Thus, Dudda discloses [8.a] and [8.b].

2. Dudda discloses "*the receiving unit is configured to receive the RLF indicator generated based on the radio link monitoring set*" [8.c].

As discussed in Sections VII.D.2 and VII.G.2, Dudda discloses reception unit 1113 ("*receiving unit*") of source eNodeB 804 is further configured to receive the RLF-warning message ("*RLF indicator*") from UE 802, which is generated based on the measurement configuration ("*radio link monitoring set*").

Thus, Dudda discloses [8.c].

From the foregoing, Dudda anticipates or otherwise renders obvious claim 8.

J. Independent Claim 9

1. Dudda discloses "*a method for radio link control by a user equipment which is dually connected to a master base station and a secondary base station, the method comprising*" [9.P].

Dudda discloses [9.P], which is substantially the same as [1.P]. *See* Section VII.B.1. Specifically, Dudda discloses that FIG. 8 illustrates "a method for adapting a mobile network." EX1004, 9:36-37; EX1005, 10:9-10.

2. Dudda discloses "*detecting a radio link failure (RLF) for a secondary serving cell provided by a secondary base station*" [9.a], and "*generating an RLF indicator indicating occurrence of the RLF for the secondary serving cell when the RLF for the secondary serving cell is detected*" [9.b].

Dudda discloses [9.a] and [9.b], which are substantially the same as [1.a]. *See* Section VII.B.2.

3. Dudda discloses "*transmitting the RLF indicator to the master base station connected through radio resource control (RRC)*" [9.c].

Dudda discloses [9.c], which is substantially the same as [1.b]. *See* Section VII.B.3.

4. Dudda discloses "*the RLF indicator comprises a cell identifier (cell ID)*" [9.d].

Dudda discloses [9.d], which is the same as [1.c]. *See* Section VII.B.4.

5. Dudda discloses or at least suggests "*the user equipment stops uplink transmission of physical uplink shared channel (PUSCH), physical uplink control channel (PUCCH), and sounding reference signal (SRS) to the secondary serving cell, based on the RLF for the secondary serving cell*" [9.e].

Dudda discloses or at least suggests [9.e], which is the same as [1.d]. *See* Section VII.B.5.

From the foregoing, Dudda anticipates or otherwise renders obvious claim 9.

K. Dependent Claim 10

1. Dudda discloses or at least suggests "*receiving an RRC connection reconfiguration message including secondary serving cell deconfiguration information for the secondary serving cell from the master base station*" [10.a].

Dudda discloses or at least suggests [10.a], which is substantially the same as [2.a]. *See* Section VII.C.1.

2. Dudda discloses or at least suggests "*deconfiguring the secondary serving cell at the user equipment side based on the secondary serving cell deconfiguration information*" [10.b].

Dudda discloses or at least suggests [10.b], which is substantially the same as [2.b]. *See* Section VII.C.2.

From the foregoing, Dudda anticipates or otherwise renders obvious claim 10.

L. Dependent Claim 11

Claim 11 additionally requires that "*the detection of the RLF for the secondary serving cell is performed based on radio link monitoring for the secondary serving cell*." Dudda discloses claim 11, which is substantially the same as claim 4. *See* Section VII.E.

Thus, Dudda anticipates or otherwise renders obvious claim 11.

M. Dependent Claim 12

1. Dudda discloses "*receiving a radio link monitoring set including radio link information for a primary serving cell provided by the master base station and radio link information for the secondary serving cell provided by the small base station from the master base station*" [12.a].

Dudda discloses [12.a], which is substantially the same as [3.a]. *See* Section VII.D.1.

2. Dudda discloses "*the radio link monitoring for the secondary serving cell is performed based on the radio link monitoring set*" [12.b].

Dudda discloses [12.b], which is substantially the same as [3.b]. *See* Section VII.D.2.

From the foregoing, Dudda anticipates or otherwise renders obvious claim 12.

N. Dependent Claim 13

Claim 13 additionally requires that "*the detection of the RLF for the secondary serving cell is performed based on a radio link control protocol data unit (RLC PDU) retransmission count for the secondary serving cell.*" Dudda discloses claim 13, which is substantially the same as claim 5. *See* Section VII.F.

Thus, Dudda anticipates or otherwise renders obvious claim 13.

VIII. GROUND 3: DUDDA IN VIEW OF PELLETIER RENDERS OBVIOUS CLAIMS 1-13

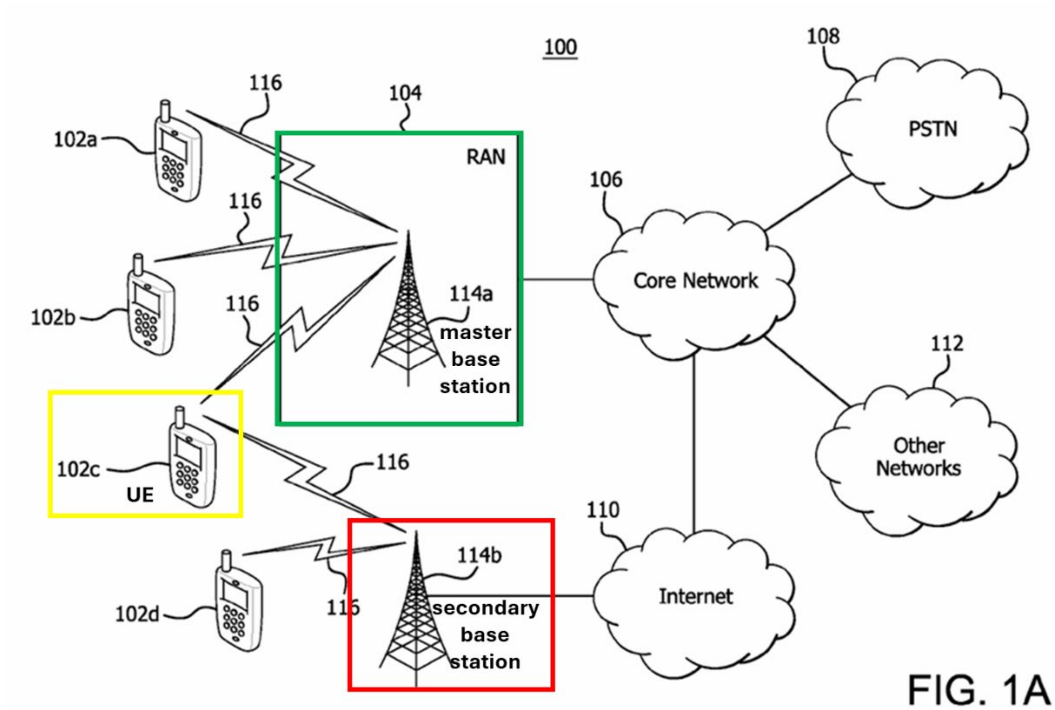
As discussed in Section VII, Dudda anticipates or otherwise renders obvious claims 1-13. To the extent further disclosures are required, Dudda in view of

Pelletier renders these claims obvious.

A. Overview of Pelletier

Similar to Dudda, Pelletier is related to wireless communication, in particular, for addressing WTRU behavior in response to configuration, configuration parameters, and access issues related to the activation/deactivation process when the UE is configured with multiple serving cells (*e.g.*, supporting dual connectivity). EX1007, [0002], [0004], [0010]; EX1003, ¶81. Pelletier's wireless communication is in the context of LTE as well. EX1007, [0003].

As shown in annotated FIG. 1A below, Pelletier discloses a communication system 100, including base stations 114a and 114b (*e.g.*, eNodeB), each transmitting and receiving wireless signals in a cell, and WTRUs 102a-102d (*e.g.*, UE), each wirelessly communicating with base stations 114a and/or 114b. EX1007, [0010]-[0013]. For example, Pelletier discloses that WTRU 102c (in yellow box) is configured with dual connectivity to communicate with base station 114a (in green box), which employs a cellular-based radio technology in a radio access network (RAN) 104 connected to core network 106, as well as with base station 114b (in red box), which employs an IEEE 802 radio technology in a picocell/femtocell. EX1007, [0012], [0018]-[0019], [0021]; EX1003, ¶82.



EX1003 — FIG. J

Pelletier also discloses that "serving cell" includes "primary cell (PCell)" and "secondary cell (SCell)," "which may be configured once an RRC connection is established and … used to provide additional radio resources." EX1007, [0042]-[0043], [0045], [0160]. Pelletier further discloses that base station 114a is in RAN 104 and in communication with core network 106, different from base station 114b. EX1007, [0012], [0018]-[0019]. A POSITA would have understood that Pelletier's base station 114a and base station 114b are "*master base station*" and "*secondary base station*" in dual connectivity with WTRU 102c ("*user equipment*") through a "*primary serving cell*" and a "*secondary serving cell*," respectively. EX1003, ¶83.

Like Dudda, Pelletier discloses error handling in communication system 100 supporting dual connectivity, including RLF detected in an SCell. EX1007, [0102]; EX1003, ¶84. Specifically, Pelletier discloses that "WTRU may also deactivate a concerned SCell if the WTRU may detect RLF … under certain situations … if the specific SCell is a SCell of the WTRUs configuration, the WTRU may deactivate the specific SCell after it determines downlink and/or uplink RLF for said specific SCell." EX1007, [0102].

Pelletier outlines actions in response to detecting uplink RLF for SCell, including deactivating the SCell on which RLF occurs and removing the configuration of the SCell from the WTRU's configuration. EX1007, [0102]. Specifically, Pelletier teaches that "[w]hen the WTRU deactivates a concerned SCell, the WTRU may stop any UL transmissions (UL-SCH, PUSCH, SRS) for the deactivated SCell UL." EX1007, [0120]; EX1003, ¶85.

Pelletier is clear that the deactivation of SCell upon RLF affects uplink resources of the WTRU, including "a PUSCH transmission, [] a PUCCH transmission, [] the transmission of CQI/PMI/RI or SRS transmission." EX1007, [0047], [0104]; EX1003, ¶86. Specifically, Pelletier explicitly discloses that a WTRU configured with SCell stops "transmit[ting] SRS for the concerned SCell," "report[ing] CQI, PMI, or RI for the concerned SCell," and "transmit[ting] on PUSCH for the SPS resources" when the concerned SCell is deactivated. EX1007, [0085]-[0087]; EX1003, ¶87.

B. Reasons to Combine Dudda and Pelletier

A POSITA would have been motivated to combine Dudda and Pelletier for the reasons discussed below to arrive at the claimed invention requiring that "*the user equipment stops uplink transmission of physical uplink shared channel (PUSCH), physical uplink control channel (PUCCH), and sounding reference signal (SRS) to the secondary serving cell, based on the RLF for the secondary serving cell*" (the "stopping limitation"). EX1003, ¶178.

1. A POSITA would have been motivated to combine Dudda and Pelletier because of the "interrelated teachings of multiple patents."

A POSITA would have been motivated to combine Dudda and Pelletier to arrive at the claimed invention requiring the UE to stop uplink transmission of PUSCH, PUCCH, and SRS based on RLF because of the "interrelated teachings of multiple patents" from Dudda and Pelletier. *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013).

While Dudda does not explicitly specify PUSCH, PUCCH, and SRS, it discloses that its UE stops uplink transmission to the assisting cell in response to RLF detection. *See* Section VII.B.5. Pelletier not only teaches stopping uplink transmissions to the SCell in the same situation, but also explicitly teaches stopping uplink transmission for PUSCH, PUCCH, and SRS to the SCell. *See* Section VIII.A. A POSITA, examining Dudda's UE for handling RLF on the assisting cell alongside

Pelletier's explicit teaching of stopping uplink transmission of PUSCH, PUCCH, and SRS to the SCell under the same situation, would have understood Dudda to also stop uplink transmission of PUSCH, PUCCH, and SRS to the assisting cell when it stops uplink transmission to the assisting cell with RLF. EX1003, ¶179.

Dudda and Pelletier are analogous art in the same field as the '283 patent, which relates to wireless communication, specifically relating to LTE. EX1001, 1:18-22, 4:21-28; EX1004, 1:5-15; EX1005, 1:5-15; EX1007, [0002]-[0003]. Both Dudda and Pelletier are pertinent to the purported problem addressed by the '283 patent of managing radio links under dual connectivity when RLF occurs on one radio link. EX1001, 2:34-35; EX1004, 7:19-23; EX1005, 8:23-26; EX1007, [0102]; EX1003, ¶180.

As discussed in Sections VII.A and VIII.A, comparing FIG. 3 of Dudda and FIG. 1A of Pelletier, Dudda, and Pelletier disclose substantially the same wireless communication systems supporting dual connectivity, as recited in independent claims 1, 6, and 9 of the '283 patent. *Compare* EX1004, FIG. 3; EX1005, FIG. 3 *with* EX1007, FIG. 1A; EX1003, ¶181. Both Dudda and Pelletier disclose transmitting uplink user/payload data and control/ signaling data from UE to the secondary base station in their wireless communication systems supporting dual connectivity. EX1004, 9:54-58, 28:35-51; EX1005, 25:28-26:10; EX1007, [0018], [0021], [0040]; EX1003, ¶182. Moreover, Dudda and Pelletier both disclose detecting RLF on the secondary serving cell in dual connectivity, and substantially the same actions taken by the UE in response to RLF—stopping uplink transmission to the secondary serving cell. EX1004, 11:53-66, 18:35-38, 18:56-60, 21:31-59, 29:39-59; EX1005, 12:13-16, 16:21, 28:1-18; EX1007, [0102], [0120]; EX1003, ¶182.

Thus, a POSITA would have been motivated to combine Dudda with Pelletier's interrelated teachings of the specific radio resources used for uplink transmission to SCell, including PUSCH, PUCCH, and SRS, which would have also been used in the uplink transmission of Dudda, supplementing any alleged missing details of Dudda, because those uplink resources are needed for uplink transmission. EX1007, [0040], [0104]; EX1011, 123-124, 210, 217; EX1003, ¶183.

For at least these reasons, a POSITA would have been motivated to combine Dudda and Pelletier, supplementing Dudda's UE for handling RLF on the assisting cell with Pelletier's express teachings of stopping uplink transmission of PUSCH, PUCCH, and SRS to SCell when RLF is detected on SCell, resulting in the claimed invention with the stopping limitation. EX1003, ¶184.

2. The proposed combination is merely applying Pelletier's known technique of starting/stopping uplink SRS transmission to SCell to Dudda's system for improvement to yield predicable results.

Pelletier discloses "how a WTRU configured with at least one SCell … may determine whether or not it may transmit SRS." EX1007, [0117]. Specifically, Pelletier discloses that "for the purpose of determining whether or not to transmit SRS on a configured SR resource in a given UL CC, the WTRU **start (or continue) transmission of SRS** in the UL CC using the configured SRS resources … the WTRU may start … upon reception of a UL grant for a **PUSCH** for the UL CC; upon a **PUSCH transmission** on the UL CC."[4] EX1007, [0118]. Pelletier also discloses "[w]hen the WTRU deactivates a concerned SCell, the WTRU may stop any UL transmissions (UL-SCH, PUSCH, **SRS**) for the deactivated SCell UL." EX1007, [0120].

SRS is well known to be transmitted on the uplink to allow the base station to estimate the uplink channel state at different frequencies, which is used by the base station to assign resource blocks of instantaneously good quality for uplink PUSCH transmission, as well as to select different transmission parameters, *e.g.*, the instantaneous data rate and different parameters related to uplink multi-antenna transmission. EX1011, 217; EX1003, ¶187. Since Pelletier discloses that UE employs uplink multi-antenna transmission, a POSITA would have understood that transmitting SRS in conjunction with PUSCH transmission improves wireless communication performance. EX1007, [0025], [0032]; EX1011, 60; EX1003, ¶187.

[4] A POSITA would have understood that a UL CC in Pelletier corresponds to a cell. EX1007, [0041]-[0042], [0044]; EX1003, ¶186.

Furthermore, SRS is used to manage uplink time alignment, which is needed for PUSCH transmission. EX1015, 11:14-22; EX1010, 17-18; EX1011, 245-246; EX1003, ¶188.

Therefore, a POSITA would have been motivated to apply Pelletier's known technique of starting uplink SRS transmission on SCell for PUSCH transmission and stopping SRS transmission upon SCell deactivation to Dudda's similar wireless communication system, such that Dudda's uplink transmission to the assisting cell also includes SRS in conjunction with PUSCH, which would be stopped upon RLF on the assisting cell. EX1003, ¶189. A POSITA would have understood that implementing Pelletier's SRS transmission techniques in Dudda's wireless communication system would lead to a predictable result of facilitating Dudda's system to employ uplink multi-antenna transmission in the assisting cell and manage uplink time alignment, thereby enhancing its system performance. *Id*.

A POSITA would have a reasonable expectation of success for the proposed combination of Dudda and Pelletier. EX1003, ¶190. Pelletier's SRS transmission techniques are directly applicable to Dudda's system because of the similarities between their systems, as discussed in Section VIII.B.1. *Id*.

Moreover, it would have been well within a POSITA's capabilities to achieve uplink transmission of SRS in conjunction with PUSCH in the assisting cell and stop them upon RLF without undue burden and with a reasonable expectation of success.

EX1003, ¶191. Pelletier specifically teaches various conditions for triggering SRS transmission upon PUSCH transmission. EX1007, [0118]; EX1003, ¶191. Following Pelletier's guidance, along with common knowledge of the art, a POSITA could easily implement SRS transmission on Dudda's assisting cell. EX1003, ¶¶192-193. The combination would neither impair the functionality of Dudda's wireless communication system nor its RLF handling method. EX1003, ¶193.

C. Independent Claims 1, 6, and 9

To the extent that additional disclosures are required to disclose or suggest the stopping limitation in claims 1, 6, and 9 besides Dudda's disclosures and suggestions explained in Section VII.B.5, Pelletier provides explicit teaching. EX1007, [0047], [0085]-[0087], [0102], [0104], [0120]; *see* Section VIII.A. Dudda discloses or at least suggests other limitations of claims 1, 6, and 9. *See* Sections VII.B, VII.G, VII.J. A POSITA would have been motivated to combine Dudda and Pelletier to arrive at the claimed invention recited in claims 1, 6, and 9. *See* Section VIII.B.

Therefore, Dudda in view of Pelletier renders obvious independent claims 1, 6, and 9.

D. Dependent Claims 2-5, 7, 8, and 10-13

Claims 2-5, 7, 8, and 10-13 depend on independent claims 1, 6, and 9, respectively, and additionally require limitations that, as discussed above, disclosed or at least suggested by Dudda. *See* Sections VII.C-VII.F, VII.H-VII.I, VII.K-VII.N.

Therefore, Dudda in view of Pelletier renders obvious claims 2-5, 7, 8, and 10-13.

IX. GROUNDS 4 AND 5: LIN ALONE OR IN VIEW OF PELLETIER RENDERS OBVIOUS CLAIMS 1-13

A. Overview of Lin

Lin relates to wireless communication, particularly "a mechanism of Radio Link failure (RLF) handling in small cell networks." EX1006, [0001]. Lin's wireless communication is also described in the context of LTE. EX1006, [0002]. Like the '283 patent, Lin recognizes that "[i]n the current cell network system, radio link monitoring (RLM) and radio link failure (RLF) detection are only applied on PCELL, not on SCELLs." EX1006, [0019].

Similar to the '283 patent, as shown in annotated FIG. 2 below, Lin discloses a UE 203 (in yellow box) with dual connectivity, connected to both an anchor eNB 201 (in green box) and a drift eNB 202 (in red box) in a wireless communication system 200. EX1006, [0021]-[0022]; EX1003, ¶78. UE 203 is simultaneously connected to a primary serving cell (PCELL, in green) provided by anchor eNB 201, and a secondary serving cell (SCELL, in red) provided by drift eNB 202. EX1006, [0021]-[0022], FIG. 2; EX1003, ¶78. The UE of Lin may be equipped with multiple physical layer (PHY) modules/entities and thus, is capable of supporting small cell operation. EX1006, [0029]-[0030], FIG. 3.

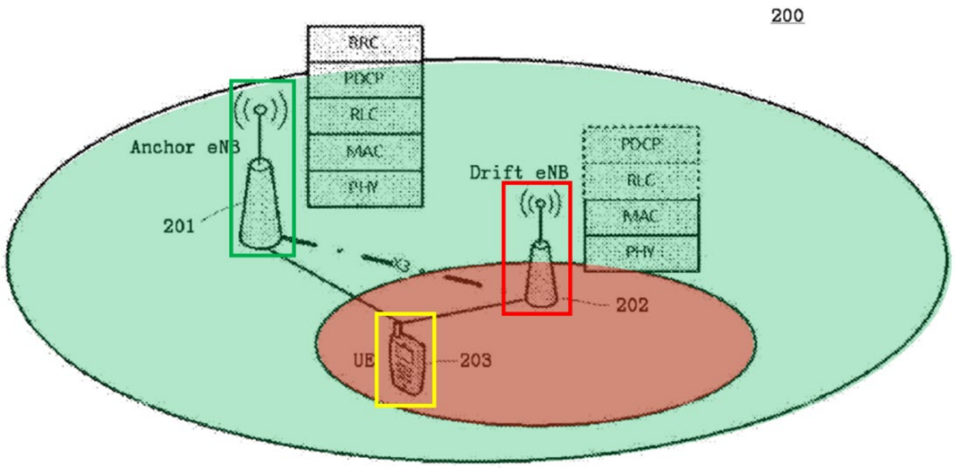


Fig. 2

EX1003 — FIG. I

Lin discloses RLM/RLF that can be performed on wireless communication system 200 in detail, organized in an embodiment having sub-sections—“UE RLM on multiple cells: Configurable RLM/RLF,” “Report of RLF message,” “RLF content,” and “Reaction to the RLF,” applicable to wireless communication system 200 in FIG. 2. EX1006, [0031]-[0032], [0051], [0057], [0063]; EX1003, ¶80.

Notably, Lin discloses various actions upon RLF detection on SCELL, including preventing spontaneous UL transmissions (PUCCH, SRS, SPS), disabling/releasing corresponding MAC entity, and deactivating the RLF serving cell. EX1006, Claim 9, [0063]-[0071]; EX1003, ¶80.

B. Reasons to Combine Lin and Pelletier

To the extent Lin does not explicitly disclose the claimed hardware component (*e.g.*, processor, transmitting unit, and receiving unit) of the UE and master base station, and/or each of the claimed uplink transmissions being stopped by the UE (*i.e.*, PUSCH, PUCCH, and SRS) in the stopping limitation, a POSITA would have been motivated to combine Lin and Pelletier to arrive at the claimed invention because of the "interrelated teachings of multiple patents" from Lin and Pelletier. *Plantronics, Inc. v. Aliph, Inc*., 724 F.3d 1343, 1354 (Fed. Cir. 2013).

A POSITA, examining Lin's UE that deactivates SCELL upon RLF alongside Pelletier's explicit teaching of the specific types of uplink transmission being stopped by the UE (*i.e.*, PUSCH, PUCCH, and SRS) under this situation, would have understood Lin to also stop uplink transmission of PUSCH, PUCCH, and SRS to SCELL when it deactivates its RLF SCELL. EX1003, ¶197.

Lin and Pelletier are analogous art in the same field as the '283 patent, which relates to wireless communication, specifically LTE. EX1001, 1:18-22, 4:21-28; EX1006, [0001]-[0002]; EX1007, [0002]-[0003]. Both Lin and Pelletier are pertinent to the purported problem addressed by the '283 patent of managing radio links under dual connectivity when an RLF occurs on one radio link. EX1001, 2:34-35; EX1006, [0019]; EX1007, [0102]; EX1003, ¶198.

As discussed in Sections VIII.A and IX.A, comparing FIG. 2 of Lin and FIG. 1A of Pelletier, Lin, and Pelletier disclose substantially the same wireless communication systems supporting dual connectivity, as recited in independent claims 1, 6, and 9 of the ’283 patent. *Compare* EX1006, FIG. 2 *with* EX1007, FIG. 1A; EX1003, ¶199. Both Lin and Pelletier disclose transmitting uplink data to the secondary base station in their wireless communication systems supporting dual connectivity. EX1006, [0081]; EX1007, [0018], [0021], [0040]; EX1003, ¶200. Moreover, both Lin and Pelletier disclose detecting RLF on SCell in dual connectivity, and substantially the same actions taken by the UE in response to the RLF, including deactivating the SCell. EX1006, [0063]-[0069]; EX1007, [0102]; EX1003, ¶200.

Thus, a POSITA would have been motivated to combine Lin with Pelletier’s interrelated teaching of the specific types of uplink transmission to SCell stopped upon deactivating SCell, including PUSCH, PUCCH, and SRS, which would naturally extend to Lin’s disclosure of deactivating SCELL upon RLF, supplementing any alleged missing details of Lin. EX1003, ¶201.

C. Independent Claim 1

1. Lin discloses [1.P].

Lin discloses a UE having RLC capability (“*performing radio link control”*) in a system capable of dual connectivity (“*wireless communication system supporting dual connectivity”*).

For example, with respect to FIG. 2, Lin discloses UE 203 establishing radio resource control to a radio access network by establishing, among other things, an

RLC entity. EX1006, [0021]. Thus, a POSITA would have understood that the UE (*e.g.*, 203) of Lin has radio link control capability. EX1003, ¶203.

FIG. 2 of Lin also depicts UE 203 operating in a wireless communication system 200 supporting dual connectivity because it depicts UE 203 simultaneously connected to both an anchor eNB 201 and a drift eNB 202. EX1006, [0021]-[0022]; EX1003, ¶204; *see* Section IX.A. As another example, FIG. 3 of Lin also depicts UE3 and UE4 each operating in a wireless communication system that supports dual connectivity because it illustrates UE 3 and UE 4 simultaneously connected to both an anchor eNB 301 and a drift eNB 302. EX1006, [0030]; EX1003, ¶204.

Thus, Lin discloses [1.P].

2. Lin alone or in view of Pelletier suggests [1.a].

Lin discloses its UE is configured to detect an RLF for an SCELL ("*secondary serving cell*") provided by a drift eNB ("*secondary base station (secondary eNB, SeNB)*"), and generate an RLF message/report ("*RLF indicator*") indicating the occurrence of the RLF for the SCELL.

Specifically, in "Report of RLF message," Lin discloses "if RLF happens in the serving cells where **RLM/RLF is performed**, the RLF message can be sent by the UE … **[i]f the RLF happens in the drift eNB**, the RLF report can be sent through the anchor eNB." EX1006, [0051], [0053]-[0054]. Furthermore, in "RLF content," Lin also discloses that "if the **RLF happens in the drift eNB**, the RLF should indicate the global cell identity, if available; otherwise the physical cell identity and/or carrier frequency of **the SCELL where radio link failure is detected** should be indicated." EX1006, [0057], [0060]. Moreover, in Claims 1 and 10, Lin further discloses "**monitoring** the performance for several radio links, cells or groups of cells; and taking action when the performance of a radio link, a cell or a group of cells is low, e.g., **radio link failure**" and "the **UE sends the report of RLF message** to the base station with good link quality and UL resource." EX1006, Claims 1, 10.

Thus, Lin's UE is configured to detect an RLF for SCELL provided by the drift eNB and generate an RLF message/report upon RLF. EX1003, ¶206.

A POSITA would have understood the drift eNB is a "*secondary base station*" because (i) "the SCELLs [are] in the drift eNB 202 for a specific UE," and (ii) the drift eNB plays a secondary role in a **UE anchor-based** architecture as it has to be relocated when the UE moves out of the local area, in contrast to the anchor eNB. EX1006, [0006]-[0007], [0025]; EX1003, ¶207.

Although Lin does not explicitly disclose "*a processor,*" a POSITA would have understood that Lin's UE has a processor to enable the UE to perform its operations. EX1003, ¶208. For example, Lin discloses that MAC, PHY, RLC, and PDCP entities are established on the UE side to enable data transmission/reception through drift eNB 202, and the MAC entity can be implemented by software.

EX1006, [0024]. A POSITA would have understood, or at least found it obvious, that Lin's UE includes a processor for implementing the MAC entity, as well as the PHY, RLC, and PDCP entities. EX1003, ¶208.

Additionally, Pelletier discloses a processor 118 of a WTRU implementing functions of the WTRU, including detecting RLF for an SCell ("*secondary serving cell*"). EX1007, [0022]-[0023], [0102], [0202], FIG. 1B. Thus, a POSITA would been motivated to combine Lin with Pelletier's teaching of hardware components, including processor 118, such that Lin's UE also includes a processor to implement its disclosed functions, including RLF detection for SCELL, in view of the "interrelated teachings of multiple patents" from Lin and Pelletier. *See* Section IX.B; EX1003, ¶209.

Therefore, Lin alone or in view of Pelletier suggests [1.a].

3. Lin alone or in view of Pelletier suggests [1.b].

Lin discloses that the UE is configured to transmit the RLF message/report ("*RLF indicator*") to an anchor eNB ("*master base station (master eNB, MeNB)*") connected through RRC.

Specifically, in "Report of RLF message," Lin discloses "if RLF happens in the serving cells where RLM/RLF is performed, **the RLF message can be sent by the UE** … [i]f the RLF happens in the drift eNB, **the RLF report can be sent through the anchor eNB**." EX1006, [0051], [0053]-[0054]. Furthermore, in

"Reaction to the RLF," Lin discloses that "**UE** deactivates the serving cell autonomously upon **transmission of the RLF report to the anchor eNB**." EX1006, [0063], [0068]. Moreover, in "Network side behavior" under "Reactions to the RLF," Lin discloses that "RLF message for the drift eNB is received by the anchor eNB." EX1006, [0076]-[0077].

A POSITA would have understood the anchor eNB is a "*master base station*" because (i) "a **primary cell (PCELL)** will be configured to a UE … responsible for the control and data transmission/reception through **the anchor eNB 201**," and (ii) the anchor eNB plays a primary role in a **UE anchor-based** architecture, for example, as it "does not have to be relocated when the UE moves in a local area covered by cells of multiple base-stations." EX1006, [0006]-[0007], [0021]; EX1003, ¶212.

Lin's UE is connected to the anchor eNB through an RRC connection because Lin discloses that "[i]n a wireless network, a user equipment (UE) establishes a radio resource control (RRC) connection with a base station (eNB), which is UE anchor," and "[w]hen a UE 203 establishes a radio resource control (RRC) to a radio access network, a primary cell (PCELL) will be configured to a UE … responsible for the control and data transmission/reception through the anchor eNB 201." EX1006, Abstract, [0021]; EX1003, ¶213.

Although Lin does not explicitly disclose "*a transmitting unit*," a POSITA would have understood, or at least found it obvious, that Lin's UE has a transmitting unit to enable the UE to perform its operations. EX1003, ¶214.

For example, Pelletier discloses a transceiver 120 of a WTRU implementing functions of the WTRU, including communication with base station 114a in RAN 104 ("*master base station*"). EX1007, [0012], [0022], [0026], [0102], [0202]. Thus, a POSITA would have been motivated to combine Lin with Pelletier's transceiver 120 ("*transmitting unit*"), such that Lin's UE also includes a transceiver to implement its disclosed functions, including transmitting the RLF message/report to the anchor eNB. *See* Section IX.B; EX1003, ¶214.

Therefore, Lin alone or in view of Pelletier suggests [1.b].

4. Lin discloses [1.c].

Lin discloses that "*the RLF indicator comprises a cell identifier (cell ID)*."

Specifically, as described in detail in "RLF content," Lin's RLF message/report ("*RLF indicator*") contains a cell identifier, which identifies the serving cell where the RLF is detected. EX1006, [0057]-[0060], Claim 11; EX1003, ¶215.

5. Lin alone or in view of Pelletier suggests [1.d].

Lin alone or in view of Pelletier suggests [1.d]/stopping limitation.

Lin discloses that "**periodic CQI and SRS reporting** will be performed normally **on the SCELL** until the SCELL is deactivated by the network," and "[t]he RLM/RLF configured serving cell can be … a serving cell configured with **PUCCH** resource in a cell group." EX1006, [0025], [0034]. Lin also discloses the UE sending to the **drift eNB uplink data**, which is known in the art as being transmitted on PUSCH and PUCCH. EX1006, [0081]; EX1007, [0040]. Thus, Lin discloses, or at least suggests, uplink transmission of PUSCH, PUCCH, and SRS to the drift eNB on SCELL. EX1003, ¶217. As discussed below in detail, Lin alone or in view of Pelletier at least suggests stopping the uplink transmission of PUSCH, PUCCH, and SRS to the drift eNB on the SCELL affected by RLF. Each of these reasons alone would be sufficient to explain that Lin alone or in view of Pelletier teaches or at least suggests stopping the PUSCH, PUCCH, and SRS transmissions based on SCELL RLF. EX1003, ¶218.

a. Preventing spontaneous UL transmissions

Lin discloses "preventing spontaneous UL transmissions (**PUCCH**, **SRS**, SPS)" based on the detection of RLF. EX1006, Claims 1, 9. Thus, a POSITA would have understood that Lin explicitly teaches, upon RLF detection on SCELL, stopping the UE from any spontaneous uplink transmission, including PUCCH and SRS, to the SCELL. EX1003, ¶219.

Although Lin does not specify PUSCH transmission as one example of UL transmission being stopped in claim 9, a POSITA would have understood, or at least found it obvious, that preventing spontaneous UL transmissions includes stopping the UE from spontaneous PUSCH transmission as well, in view of common knowledge in the art and the additional disclosures of Lin. EX1003, ¶220.

A POSITA would have understood the "spontaneous UL transmissions" in claim 9 refer to transmissions initiated by the UE. *Id*. Those spontaneous UL transmissions are well known as being initiated by UE via contention-based random-access procedure, which includes scheduled uplink transmission on UL-SCH via PUSCH. EX1004, 18:10-13, 18:28-30, 18:47-52; EX1005, 12:5-6; EX1009, 40, 71-73; EX1011, 310-312; EX1003, ¶220. Lin itself also discloses, or at least suggests, the random-access procedure in its RLF detection. EX1006, [0003], Claim 8. Accordingly, a POSITA would have understood that preventing the initial spontaneous UL transmissions includes stopping the UE from scheduled uplink transmission on UL-SCH via PUSCH in the contention-based random-access procedure, thereby also "*stop[ping] uplink transmission of physical uplink shared channel (PUSCH)*." EX1003, ¶221.

Additionally, a POSITA would have understood, or at least found it obvious, that the uplink data in Lin is sent on PUSCH from the UE to the drift eNB, should the conditions warrant it. EX1003, ¶222. Specifically, Lin discloses that the UE sends uplink data to the drift eNB. EX1006, [0081]. Lin also discloses free multiplexing, which allows for dynamic, instantaneous selection of the transmission path based on instantaneous channel and load conditions, such that "all the radio bear[er]s including DRBs, SRB1 and SRB2 are transmitted through the drift eNB." EX1006, [0026]. Since it is known in the art that the data of DRBs/SRBs is transmitted on PUSCH, Lin discloses or at least suggests that the UE transmits PUSCH, carrying the data of DRBs/SRBs, to the drift eNB/SCELL. EX1011, 125, FIGs. 8.5, 8.8; EX1014, [0070]; EX1003, ¶223. Thus, a POSITA would have understood, or at least found it obvious, that PUSCH transmission for the data of DRBs/SRBs is also stopped in response to RLF on SCELL, just like the PUCCH and SRS transmissions, as explicitly disclosed by Lin. EX1003, ¶224.

b. Disabling/releasing corresponding MAC entity

Lin also discloses, in "Reaction to the RLF," disabling/releasing the corresponding MAC entity for the drift eNB based on RLF detection on SCELL of the drift eNB. EX1006, [0063], [0070]-[0071]. As shown in annotated FIG. 4 below, in UE3 and UE4 that are in dual connectivity with the anchor eNB and drift eNB, "MAC 2" (in red) of UE3 corresponds to "PHY 2" (in green) of UE3 for the drift eNB, and "MAC 2" (in red) of UE4 corresponds to "PHY 3" (in green) of UE4 for the drift eNB. EX1006, [0030]; EX1003, ¶226.

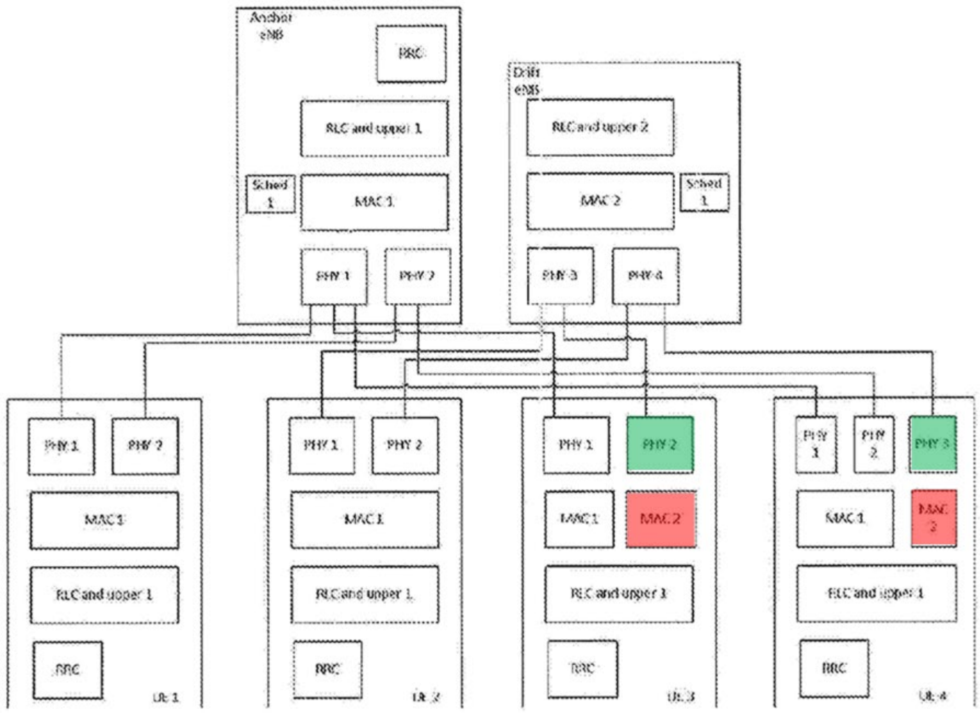


Fig. 4

EX1003 — FIG. V

Since the PHY entity (*e.g.*, PHY 2 or 3) is responsible for PUSCH, PUCCH, and SRS transmissions, disabling/releasing the corresponding MAC entity (*e.g.*, MAC 2) for the drift eNB based on RLF detection on SCELL would cause PHY 2 of UE3 and PHY 3 of UE4 to stop PUSCH, PUCCH, and SRS transmissions to the drift eNB. EX1017, 309; EX1003, ¶¶227-228. Specifically, disabling/releasing MAC entity would result in (i) no uplink scheduling grant received and decoded, (ii) no MAC protocol data units (PDU) assembled for PUSCH and PUCCH transmission, and (iii) no uplink time alignment maintenance for PUSCH, PUCCH, and SRS transmissions. EX1010, 9, 17-18, 22-23, 25-26; EX1011, 115-118; EX1003, ¶228.

c. Deactivating the RLF serving cell

In "Reaction to the RLF," Lin further discloses deactivating the RLF serving cell from the drift eNB (*i.e.*, RLF SCELL). EX1006, [0063]-[0068]. A POSITA would have understood, or at least found it obvious, that PUSCH, PUCCH, and SRS transmissions to SCELL would not be possible and thus, be stopped upon SCELL deactivation, which, in turn, prevent unnecessary uplink activity and mitigate interference, in view of Lin's disclosures and common knowledge in the art. EX1007, [0040], [0104]; EX1009, 40, 43-44; EX1013, [0039]; EX1003, ¶230.

Additionally, Pelletier teaches that deactivating SCell undergoing RLF includes stopping transmission of PUSCH, PUCCH, and SRS to the SCell. EX1007, [0047], [0085]-[0087], [0102], [0120]; EX1003, ¶231. As discussed in Section IX.B, a POSITA would have been motivated to combine Lin and Pelletier based on the "interrelated teachings of multiple patents," supplementing Lin's UE for deactivating SCELL in response to RLF detection with Pelletier's express teachings of stopping uplink transmission of PUSCH, PUCCH, and SRS to SCell in the deactivation process, resulting in [1.d]/stopping limitation. EX1003, ¶232.

Accordingly, Lin alone or in view of Pelletier at least suggests [1.d].

From the foregoing, Lin alone or in view of Pelletier renders obvious claim 1.

D. Dependent Claim 2

Lin discloses the UE is configured to receive, from the anchor eNB ("*master base station*"), an RRC reconfiguration message/command ("*RRC connection reconfiguration message*"), including information for SCELL removal, radio bearer reconfiguration, and SCELL reconfiguration, *e.g.*, RRC-related parameters ("*including secondary serving cell deconfiguration information for the secondary serving cell*"). Lin also discloses that the UE deconfigures SCELL based on the information in the RRC reconfiguration message/command ("*secondary serving cell deconfiguration information*").

Specifically, Lin discloses, in "Reaction to the RLF," "UE deactivates/deconfigures the serving cell(s) upon reception of the explicit command received from the anchor eNB, *e.g*. RRC reconfiguration for SCELL removal," and "anchor eNB should send RRC message to the UE for radio bearer reconfiguration and SCELL reconfiguration." EX1006, [0063]-[0072], [0077]-[0082].

Lin is clear that the RRC reconfiguration message/command is for "SCELL removal," "radio bearer reconfiguration," and "SCELL reconfiguration." EX1006, [0069]-[0070], [0082]. A POSITA would have understood, or at least found it obvious, that in order for the RRC reconfiguration message/command to trigger the UE to remove SECLL, reconfigure SCELL, and reconfigure radio bearer, the RRC reconfiguration message/command includes RRC-related parameters for deconfiguring the SCELL, which is the "*secondary serving cell deconfiguration information for the secondary serving cell*," according to the '283 patent. EX1001, 14:44-50; EX1003, ¶236.

Although Lin does not explicitly disclose the "*processor*" and "*receiving unit*," Lin alone or in view of Pelletier's suggests that Lin's UE has a processor (e.g., processor 118 of Pelletier) and a receiving unit (e.g., transceiver 120 of Pelletier) to perform its operations, including receiving the RRC reconfiguration message/command from the anchor eNB and deconfiguring SCELL. *See* Sections IX.B, IX.C.2-IX.C.3; EX1003, ¶¶237-238.

From the foregoing, Lin alone or in view of Pelletier renders obvious claim 2.

E. Dependent Claim 3

1. Lin alone or in view of Pelletier suggests [3.a].

Lin discloses, or at least suggests, that the UE is configured to receive, from the anchor eNB ("*master base station*"), radio link monitoring (RLM) parameters ("*radio link monitoring set*"), including values of constants and timers per serving cell ("*radio link information for a primary serving cell provided by the master base station and radio link information for the secondary serving cell provided by the small base station*").[5]

[5] The drift eNB of Lin is "*the small base station*." EX1006, [0006], [0030]; EX1003, ¶241; *see* FN3.

Specifically, in "**UE RLM** on multiple cells: Configurable RLM/RLF," Lin discloses the following: "[t]he values of constants and timers controlling the RLM/RLF on the serving cells, on which RLM/RLF is performed, should be **configured by the network** through RRC message," "[t]he parameters for RLM/RLF constants and timers can be configured **per serving cell**, *i.e.* the **network configures separate values** for RLM/RLF constants and timers **for each serving cell**, in which RLM/RLF will be performed," and "[i]f the SCELL is not the first cell activated in a group, the **configuration of RLM/RLF on this cell can be decided by eNB**." EX1006, [0032], [0038], [0045]-[0048]. Thus, a POSITA would have understood, or at least found it obvious, that the network/eNB configures the parameters for RLM/RLF constants and timers and sends them to the UE for the UE to perform RLM on PCELL and SCELL, respectively. EX1003, ¶¶242-244.

To the extent Lin does not explicitly state that the network/eNB from which the RLM parameters are sent is the anchor eNB, as opposed to the drift eNB, a POSITA would have understood, or at least found it obvious, that the anchor eNB configures and sends the RLM parameters. EX1003, ¶245.

As discussed in Sections IX.C.2 and IX.C.3, the anchor eNB plays a primary role, whereas the drift eNB plays a secondary role in the UE anchor-based architecture. *Id*. Specifically, Lin describes that the anchor eNB actively performs various actions to control the overall network, while the drift eNB passively acts based on the anchor eNB's instructions. EX1006, [0076]-[0087]. Thus, it would have been obvious for a POSITA to use the anchor eNB, instead of the drift eNB, to configure and send the RLM parameters. EX1003, ¶245.

In the same sub-section of "UE RLM on multiple cells: Configurable RLM/RLF," Lin provides various examples where the "RLM/RLF mechanism can be configured to one or more than one serving cell(s)," among which one such example teaches that "the **anchor eNB** can configure serving cells in the anchor eNB form a TAG and serving cells in the drift eNB form another TAG." EX1006, [0032]-[0033], [0036]. This explicit disclosure further confirms that the network/eNB from which the RLM parameters are sent refers to the anchor eNB. EX1003, ¶246.

As discussed in Section IX.D, Lin alone or in view of Pelletier suggests "*receiving unit*" of the UE also configured to receive the RLM set.

Therefore, Lin alone or in view of Pelletier suggests [3.a].

2. Lin alone or in view of Pelletier suggests [3.b].

As explained in Section IX.C.2, Lin alone or in view of Pelletier suggests that the processor of the UE is configured to detect an RLF for an SCELL. Lin further discloses that the RLF parameters are configured "per serving cell" with "separate values for RLM/RLF constants and timers for each serving cell, in which RLM/RLF will be performed." EX1006, [0048]. Thus, a POSITA would have understood that Lin alone or in view of Pelletier suggests that the processor of the UE is configured to detect the RLF for the SCELL based on the RLF parameters ("*radio link monitoring set*"). EX1003, ¶248.

Accordingly, Lin alone or in view of Pelletier suggests [3.b].

From the foregoing, Lin alone or in view of Pelletier renders obvious claim 3.

F. Dependent Claim 4

Claim 4 additionally requires "*the processor is configured to detect the RLF for the secondary serving cell through radio link monitoring for the secondary serving cell,*" which is disclosed by Lin for at least the same reasons explained in Section IX.E.2.

Thus, Lin alone or in view of Pelletier renders obvious claim 4.

G. Dependent Claim 5

Claim 5 additionally requires "*the processor is configured to detect the RLF for the secondary serving cell based on a radio link control protocol data unit (RLC PDU) retransmission count for the secondary serving cell,*" which is disclosed by Lin.

Specifically, Lin discloses "the UE generally consider radio link failure (RLF) to be detected upon physical layer problems based on … indication from RLC layer that the maximum number of retransmission[s] has been reached." EX1006, [0003], [0061], Claim 8.

H. Independent Claim 6

1. Lin discloses [6.P].

As discussed in Sections IX.C.1 and IX.C.3, Lin discloses an anchor eNB (*e.g.*, 201 or 301) ("*master base station*") having RLC capability ("*performing radio link control*") in a system capable of dual connectivity ("*wireless communication system supporting dual connectivity*").

Thus, Lin discloses [6.P].

2. Lin alone or in view of Pelletier suggests [6.a].

As explained in Sections IX.C.2 and IX.C.3, Lin discloses the anchor eNB is configured to receive, from the UE, an RLF message/report ("*RLF indicator*") indicating that RLF for an SCELL ("*secondary serving cell*") provided to the UE occurs from the drift eNB ("*secondary base station*"). EX1006, [0051], [0053]-[0054], [0063], [0068]. Moreover, in "Network side behavior" under "Reactions to the RLF," Lin discloses that "RLF message for the drift eNB is received by the anchor eNB." EX1006, [0076]-[0077].

Although Lin does not explicitly disclose "*receiving unit*," a POSITA would have understood, or at least found it obvious, that Lin's anchor eNB has a receiving unit to enable the anchor eNB to perform its operations. EX1003, ¶255.

For example, Pelletier discloses "base station 114a may include three transceivers, *i.e.*, one for each sector of the cell." EX1007, [0012]. Thus, a POSITA would have been motivated to combine Lin with Pelletier's transceiver of base station 114a ("*master base station*"), such that Lin's anchor eNB ("*master base station*") also includes a transceiver ("*receiving unit*") to implement its disclosed functions, including receiving the RLF message/report from the UE. *See* Section IX.B; EX1003, ¶255.

Therefore, Lin alone or in view of Pelletier suggests [6.a].

3. Lin alone or in view of Pelletier suggests [6.b] and [6.c].

As explained in Section IX.D, Lin discloses the anchor eNB is configured to generate an RRC reconfiguration message/command ("*radio resource control (RRC) connection reconfiguration message*"), including information triggering the UE to deconfigure and remove the SCELL ("*secondary serving cell deconfiguration information for the secondary serving cell*"), *e.g.*, RRC related-parameter, in response to the RLF message/report ("*RLF indicator*"), as well as transmit the RRC reconfiguration message/command to the UE.

Although Lin does not explicitly disclose "*processor*" and "*transmitting unit*," a POSITA would have understood, or at least found it obvious, that Lin's anchor eNB has a processor and a transmitting unit to enable the anchor eNB to perform its operations. EX1003, ¶257.

For example, Pelletier discloses "base station 114a may include three **transceivers**" and "[a] **processor** in association with software may be used to implement a radio frequency **transceiver** for use in a WTRU, UE." EX1007, [0012], [0202]. Thus, a POSITA would have been motivated to combine Lin with Pelletier's processor and transceiver of base station 114a ("*master base station*"), such that Lin's anchor eNB ("*master base station*") also includes a processor and a transceiver ("*transmitting unit*") to implement its disclosed functions, including generating and transmitting the RRC reconfiguration message/command. *See* Section IX.B; EX1003, ¶257.

Therefore, Lin alone or in view of Pelletier suggests [6.b] and [6.c].

4. Lin discloses [6.d].

As discussed in Section IX.C.4, Lin discloses [6.d].

5. Lin alone or in view of Pelletier suggests [6.e].

As discussed in Section IX.C.5, Lin alone or in view of Pelletier suggests [6.e]/stopping limitation.

From the foregoing, Lin alone or in view of Pelletier renders obvious claim 6.

I. Dependent Claim 7

Lin discloses that the anchor eNB is further configured to generate an RLF indication ("*indicator*") with UE identification, informing the drift eNB ("*secondary base station*") that RLF on an SCELL has occurred for the UE to deconfigure the SCELL, as well as to transmit the RLF indication to the drift eNB.

Specifically, in "Network side behavior" under "Reactions to the RLF," Lin discloses "if a RLF message for the drift eNB is received by the anchor eNB, the anchor eNB should … deconfigure the corresponding serving cell" and "inform[] to the drift eNB that RLF on the serving cells … generated from the drift eNB has occurred for a specific UE, and the UE identification is also indicated." EX1006, [0076]-[0079], [0083].

As discussed in Section IX.H.3, Lin alone or in view of Pelletier suggests "*processor*" and "*transmitting unit*" of the anchor eNB, which can be further configured to generate and transmit the RLF indication to the drift eNB.

Therefore, Lin alone or in view of Pelletier renders obvious claim 7.

J. Dependent Claim 8

1. Lin alone or in view of Pelletier suggests [8.a] and [8.b].

As discussed in Section IX.E.1, Lin discloses the anchor eNB is further configured to generate RLM parameters ("*radio link monitoring set*"), including values of constants and timers per serving cell, and to transmit the RLM parameters to the UE.

As discussed in Section IX.H.3, Lin alone or in view of Pelletier suggests "*processor*" and "*transmitting unit*" of the anchor eNB, which can be further configured to generate and transmit the RLM parameters to the UE.

Thus, Lin alone or in view of Pelletier suggests [8.a] and [8.b].

2. Lin alone or in view of Pelletier suggests [8.c].

As discussed in Sections IX.E.2 and IX.H.2, Lin alone or in view of Pelletier suggests that the receiving unit of the anchor eNB is further configured to receive the RLF message/report ("*RLF indicator*") from the UE, which is generated based on the RLM parameters ("*radio link monitoring set*").

Thus, Lin alone or in view of Pelletier suggests [8.c].

From the foregoing, Lin alone or in view of Pelletier renders obvious claim 8.

K. Independent Claim 9

1. Lin discloses [9.P].

Lin discloses [9.P], which is substantially the same as [1.P]. *See* Section IX.C.1. Specifically, Lin discloses a "method of radio link monitoring (RLM) and radio link failure (RLF) handling over a small cell network." EX1006, Abstract.

2. Lin discloses [9.a] and [9.b].

Lin discloses [9.a] and [9.b], which are substantially the same as [1.a]. *See* Section IX.C.2.

3. Lin discloses [9.c].

Lin discloses [9.c], which is substantially the same as [1.b]. *See* Section IX.C.3.

4. Lin discloses [9.d].

Lin discloses [9.d], which is the same as [1.c]. *See* Section IX.C.4.

5. Lin alone or in view of Pelletier suggests [9.e].

Lin alone or in view of Pelletier suggests [9.e], which is the same as [1.d]. *See* Section IX.C.5.

From the foregoing, Lin alone or in view of Pelletier renders obvious claim 9.

L. Dependent Claim 10

Lin alone or in view of Pelletier renders obvious claim 10, which is substantially the same as claim 2. *See* Section IX.D.

M. Dependent Claim 11

Lin alone or in view of Pelletier renders obvious claim 11, which is substantially the same as claim 4. *See* Section IX.F.

N. Dependent Claim 12

Lin alone or in view of Pelletier renders obvious claim 12, which is substantially the same as claim 3. *See* Section IX.E.

O. Dependent Claim 13

Lin alone or in view of Pelletier renders obvious claim 13, which is substantially the same as claim 5. *See* Section IX.G.

X. 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).

Dudda, Lin, and Pelletier have never been presented or otherwise considered by the Office during the original examination of the ’283 patent. *See generally* EX1002. None of the grounds raised in this Petition have ever been presented, much less discussed, during the original examination.

The disclosures or arguments considered by the Examiner in the original examination, which solely relied on Lin-548, are not substantially similar to those of the references relied upon in this Petition. *See* Section V.B. Particularly, PO argued that Lin-548 fails to disclose or suggest stopping PUCCH uplink transmission to SCELL. EX1002, 89. However, each of Dudda, Lin, and Pelletier discloses or suggests this limitation and thus, cannot be substantially similar to Lin-548 under PO’s own argument. *See* Sections VII.B.5, VIII.A, IX.C.5.

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 ’283 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 Dudda, Lin, and/or Pelletier, as demonstrated in Sections VII.B.5, VIII.A, and IX.C.5, which disclose or at least suggest the allegedly patentable stopping limitation. *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 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." *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 anticipation and single reference obviousness grounds based on two different references, each disclosing or suggesting all limitations of every challenged claim, including the limitation on which allowability hinged. 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 stayed 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 ’283 patent. Furthermore, expert reports are scheduled to be exchanged after the anticipated date for institution decision. EX1016, 4. To the extent the court issues a claim construction order prior to institution decision, it would not impact on the merits of this proceeding. 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. *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 PO’s validity contentions in the EDTX case. *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 current trial date in the EDTX case is late April 2026, which is at or around the same time as the projected statutory deadline of this IPR in September 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. 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. *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).

XI. CONCLUSION

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

Respectfully submitted,

BAYES PLLC

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

Date: March 18, 2025
8260 Greensboro Drive, Suite 625
McLean, VA 22102
(703) 995-9887

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 13,988 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 1001-1017** are being served on March 18, 2025, by U.S. Priority Express Mail at the following address of record for the subject patent.

58027 – H.C. Park & Associates, PLC
1894 Preston White Drive
Reston, VA 20191

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

Geoffrey Culbertson
Kelly Tidwell
gpc@texarkanalaw.com
kbt@texarkanalaw.com
PATTON TIDWELL & CULBERTSON, LLP

James A. Fussell, III
jfussell@mayerbrown.com
Jamie B. Beaber
jbeaber@mayerbrown.com
Tiffany A. Miller
tmiller@mayerbrown.com
Clark S. Bakewell
cbakewell@mayerbrown.com
Courtney Krawice
ckrawice@mayerbrown.com
Graham (Gray) M. Buccigross
gbuccigross@mayerbrown.com
MAYER BROWN LLP

/Ashley F. Cheung/
Ashley F. Cheung
Paralegal for Petitioner's Counsel