

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION**

PANTECH CORPORATION and PANTECH
WIRELESS, LLC

Plaintiffs,

v.

ONEPLUS TECHNOLOGY (SHENZHEN)
CO., LTD.,

Defendant.

Case No. 5:24-cv-00038-RWS-JBB

JURY TRIAL DEMANDED

**PLAINTIFF PANTECH CORPORATION AND PANTECH WIRELESS, LLC’S
PATENT RULE 3-1 AND 3-2 INFRINGEMENT CONTENTIONS**

Pursuant to Patent Rules (“P.R.”) 3-1 and 3-2, Plaintiffs Pantech Corporation and Pantech Wireless, LLC (collectively, “Pantech”) hereby serve their Infringement Contentions and accompanying disclosure against Defendant OnePlus Technology (Shenzhen) Co., Ltd. (“OnePlus” or “Defendant”).

These contentions are based on information reasonably available to Pantech at this time. Pantech’s investigation of the facts relevant to this case is ongoing, discovery has not yet begun, and the Court has not yet construed the claims. Further, important information about many or all of OnePlus’s products is not publicly available, including information relevant to the patents-in-suit and these Infringement Contentions. Accordingly, Pantech reserves the right to modify and/or supplement these disclosures as information becomes available, based on the Court’s claim constructions, and/or based on positions taken by OnePlus.

A. P.R. 3-1(b): Identification of Accused Instrumentalities

Pursuant to P.R. 3-1(b) and based on the information presently available, Pantech incorporates herein by reference the identification of Accused Instrumentalities set forth in the Complaint (*see* Dkt. No. 1) and in the attached Appendices 1-9. Pantech further identifies the following Accused Instrumentalities of which it is currently aware:

- As to claim 7 and 9 of U.S. Patent No. 9,288,824 (the '824 Patent), the accused products include the OnePlus 6T; OnePlus 7 Pro; OnePlus 7T; OnePlus 7T Pro; OnePlus 7T Pro McLaren; OnePlus 8; OnePlus 8 Pro; OnePlus 8T; OnePlus 9; OnePlus 9 Pro; OnePlus 10 Pro; OnePlus 10T; OnePlus 11; OnePlus 12; OnePlus 12R; OnePlus Nord N10; OnePlus Nord N100; OnePlus Nord N20; OnePlus Nord N200; OnePlus Nord N30; OnePlus Nord N300; and the OnePlus Open; and any additional or yet to be released products that comply with one or more of LTE, LTE Release 8 or later cellular communication protocols including at least 3GPP TS 36.321 (Release 8 and higher), 3GPP TS 36.300 (Release 8 and higher), and 3GPP TS 36.331 (Release 8 and higher), and support the LTE contention based random access procedure described in these technical specifications as identified in Appendix 2 (collectively, "the Accused OnePlus '824 Products").
- As to claims 1-5 of U.S. Patent No. 11,212,838 (the '838 Patent), the accused products include the OnePlus 7 Pro; OnePlus 7T; OnePlus 7T Pro; OnePlus 7T Pro McLaren; OnePlus 8; OnePlus 8 Pro; OnePlus 8T; OnePlus 9; OnePlus 9 Pro; OnePlus 10 Pro; OnePlus 10T; OnePlus 11; OnePlus 12; OnePlus 12R; OnePlus Nord N10; OnePlus Nord N100; OnePlus Nord N20; OnePlus Nord N200; OnePlus Nord N30; OnePlus Nord N300; and the OnePlus Open; and any additional or yet to be released products that comply with one or more of LTE-A, LTE Release 10 or later cellular communication protocols including at least 3GPP TS 36.321 (Release 10 and higher) and 3GPP TS 36.331 (Release 10 and higher), and that support uplink resource control using medium access control (MAC) timer information described in these technical specifications as identified in Appendix 3 (collectively, "the Accused OnePlus '838 Products").
- As to claims 1-4 of U.S. Patent No. 9,763,283 (the '283 Patent), the accused products include the OnePlus 7T Pro McLaren; OnePlus 8; OnePlus 8 Pro; OnePlus 8T; OnePlus 9; OnePlus 9 Pro; OnePlus 10 Pro; OnePlus 10T; OnePlus 11; OnePlus 12; OnePlus 12R; OnePlus Nord N10; OnePlus Nord N20; OnePlus Nord N200; OnePlus Nord N30; OnePlus Nord N300; and the OnePlus Open; and any additional or yet to be released products that comply with one or more of 5G, 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.321 (Release 16

and higher), 3GPP TS 38.331 (Release 16 and higher), 3GPP TS 38.101-3 (Release 16 and higher), and 3GPP TS 38.300 (Release 16 and higher), and that support radio link control to support dual connectivity described in these technical specifications as identified in Appendix 4 (collectively, “the Accused OnePlus ’283 Products”).

- As to claims 8-11 of U.S. Patent No. 10,863,573 (the ’573 Patent), the accused products include the OnePlus 7T Pro McLaren; OnePlus 8; OnePlus 8 Pro; OnePlus 8T; OnePlus 9; OnePlus 9 Pro; OnePlus 10 Pro; OnePlus 10T; OnePlus 11; OnePlus 12; OnePlus 12R; OnePlus Nord N10; OnePlus Nord N20; OnePlus Nord N200; OnePlus Nord N30; OnePlus Nord N300; and the OnePlus Open; and any additional or yet to be released products that comply with one or more of 5G, 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 (Release 16 and higher), 3GPP TS 38.323 (Release 16 and higher), 3GPP TS 37.340 (Release 16 and higher), and 3GPP TS 38.300 (Release 16 and higher), and that support radio resource control and the packet data convergence protocol described in these technical specifications as identified in Appendix 5 (collectively, “the Accused OnePlus ’573 Products”).
- As to claims 12, 14, 15, and 16 of U.S. Patent No. 9,369,251 (the ’251 Patent), the accused products include the OnePlus 7 Pro; OnePlus 7T; OnePlus 7T Pro; OnePlus 7T Pro McLaren; OnePlus 8; OnePlus 8 Pro; OnePlus 8T; OnePlus 9; OnePlus 9 Pro; OnePlus 10 Pro; OnePlus 10T; OnePlus 11; OnePlus 12; OnePlus 12R; OnePlus Nord N10; OnePlus Nord N100; OnePlus Nord N20; OnePlus Nord N200; OnePlus Nord N30; OnePlus Nord N300; and the OnePlus Open; and any additional or yet to be released products that comply with one or more of LTE-A, LTE Release 10 or later cellular communication protocols including at least 3GPP TS 36.211 (Release 10 and higher) and 3GPP 36.331 (Release 10 and higher), and that support the LTE-A contention based cell-specific reference signal described in these technical specifications as identified in Appendix 6 (collectively, “the Accused OnePlus ’251 Products”).
- As to claims 1, 3, and 4 of U.S. Patent No. 9,769,776 (the ’776 Patent), the accused products include the OnePlus 10 Pro; OnePlus 10T; OnePlus 11; OnePlus 12; OnePlus 12R; OnePlus Nord N20; OnePlus Nord N200; OnePlus Nord N30; OnePlus Nord N300; and the OnePlus Open; and any additional or yet to be released products that comply with one or more of 5G, 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 (Release 16 and higher) and 3GPP TS 38.321 (Release 16 and higher), and that support uplink synchronizing in a multiple component carrier system described in these technical specifications as identified in Appendix 7 (collectively, “the Accused OnePlus ’776 Products”).

- As to claims 8-11 and 14 of U.S. Patent No. 8,995,372 (the '372 Patent), the accused products include the OnePlus 7T Pro McLaren; OnePlus 8; OnePlus 8 Pro; OnePlus 8T; OnePlus 9; OnePlus 9 Pro; OnePlus 10 Pro; OnePlus 10T; OnePlus 11; OnePlus 12; OnePlus 12R; OnePlus Nord N10; OnePlus Nord N20; OnePlus Nord N200; OnePlus Nord N30; OnePlus Nord N300; and the OnePlus Open; and any additional or yet to be released products that comply with one or more of 5G, 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 (Release 16 and higher), 3GPP TS 38.321 (Release 16 and higher), 3GPP TS 38.300 (Release 16 and higher), and 3GPP TS 38.213 (Release 16 and higher), and that support random access in a wireless communication system described in these technical specifications as identified in Appendix 8 (collectively, "the Accused OnePlus '372 Products").
- As to claims 1, 5, and 6 of U.S. Patent No. 10,764,803 (the '803 Patent), the accused products include the OnePlus 7 Pro; OnePlus 7T; OnePlus 7T Pro; OnePlus 7T Pro McLaren; OnePlus 8; OnePlus 8 Pro; OnePlus 8T; OnePlus 9; OnePlus 9 Pro; OnePlus 10 Pro; OnePlus 10T; OnePlus 11; OnePlus 12; OnePlus 12R; OnePlus Nord N10; OnePlus Nord N100; OnePlus Nord N20; OnePlus Nord N200; OnePlus Nord N30; OnePlus Nord N300; and the OnePlus Open; and any additional or yet to be released products that comply with one or more of LTE-A, LTE Release 10 or later cellular communication protocols including at least 3GPP TS 36.300 (Release 10 and higher), 3GPP TS 36.321 (Release 10 and higher), and 3GPP TS 36.331 (Release 10 and higher), and that support enhanced uplink (EU) operation described in these technical specifications as identified in Appendix 9 (collectively, "the Accused OnePlus '803 Products").

Pantech's identification of the Accused Instrumentalities is based on information reasonably available to Pantech at this time. Based on such information, Pantech is not aware of other phones or devices imported, used, or sold by or on behalf of OnePlus in the United States that include the accused functionality. To the extent that Pantech learns through discovery of additional phones imported, used, or sold by OnePlus in the United States with the accused functionality, including but not limited to the foregoing identified devices, Pantech reserves its rights to add those products to this lawsuit.

Pantech further reserves the right to supplement these Infringement Contentions based on information developed in the course of this lawsuit through discovery or additional factual investigation, in view of the Court's claim construction rulings, or as other circumstances may

require. Specifically, should discovery reveal that OnePlus has committed acts of infringement related to any products other than those listed above, including newly released products or additional products with similar functionality identified in Appendices 1-9, Pantech reserves the right to supplement these contentions.

B. P.R. 3-1(c): Claim Charts

Pursuant to P.R. 3-1(c), and based on the information presently available, Pantech attaches hereto the following Appendices 1-9 identifying specifically where each element of each asserted claim is found within the Accused Instrumentalities: Appendix 1 (Accused Product Evidence Applicable to Each Patent), Appendix 2 (the '824 Patent), Appendix 3 (the '838 Patent), Appendix 4 (the '283 Patent), Appendix 5 (the '573 Patent), Appendix 6 (the '251 Patent), Appendix 7 (the '776 Patent), Appendix 8 (the '372 Patent), and Appendix 9 (the '803 Patent).

Appendices 2-9 (with incorporation of Appendix 1) identify a claim chart for the asserted claims of the patents-in-suit and the Accused Instrumentalities. As explained below, the OnePlus Accused Instrumentalities infringe based on the functionalities and infringement theories set forth in Appendices 2-9 for each of the corresponding patents-in-suit.

1. The '824 Patent and Appendix 2

With respect to the '824 Patent, Appendix 2 (which references Appendix 1) shows how each element of claims 7 and 9 is found in the Accused OnePlus '824 Products.

As shown in Appendices 1 and 2, each of the Accused OnePlus '824 Products is a device configured to perform the LTE contention based random access procedure described in these technical specifications as identified in Appendix 2. Each of the Accused OnePlus '824 Products contains a chipset, application processor, SoC, or system-on-chip (*e.g.*, the Qualcomm Snapdragon 8 Gen 2 Mobile Platform) (referred to herein as the “chipset”) that incorporates a processor and modem. Each such chipset (and thus each accused device) complies with one or more of LTE

<https://service.oneplus.com/global/user-manual> website contains user manuals instructing users how to make telephone calls using telecommunications networks, which include LTE-A compliant networks.

Defendant also contributorily infringes the '251 Patent under 35 U.S.C. § 271(c) by offering to sell, selling, and importing into the United States the Accused OnePlus '251 Products, which are especially made or adapted for use in an infringement of the '251 Patent. The Accused OnePlus '251 Products include a chipset with LTE-A functionality (including processor and modem) that is not a staple article of commerce suitable for substantial non-infringing use, and indeed has no substantial non-infringing use. In particular, each of the Accused OnePlus '251 Products is advertised to be compliant with LTE-A and used for LTE-A communications. Further, the chipset used in the Accused OnePlus '251 Products contain hardware, software, and/or firmware that performs at least a portion of the claimed functionalities, as shown in Appendix 6, with no substantial non-infringing use.

6. The '776 Patent and Appendix 7

With respect to the '776 Patent, Appendix 7 (which references Appendix 1) shows how each element of claims 1, 3, and 4 is found in the Accused OnePlus '776 Products.

As shown in Appendices 1 and 7, each of the Accused OnePlus '776 Products is a device configured to perform uplink synchronizing in a multiple component carrier system described in these technical specifications as identified in Appendix 7. Each of the Accused OnePlus '776 Products contains a chipset, application processor, SoC, or system-on-chip (*e.g.*, the Qualcomm Snapdragon 8 Gen 2 Mobile Platform) (referred to herein as the “chipset”) that incorporates a processor and modem. Each such chipset (and thus each accused device) complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321 and supports uplink synchronizing in a multiple component carrier

system in accordance with the 5G Release 16 or later cellular communication standard. *See, e.g.*, <https://www.oneplus.com/us/oneplus-12>; <https://www.qualcomm.com/content/dam/qcomm-martech/dm-assets/documents/Snapdragon-8-Gen-2-Product-Brief.pdf>.

If “a patent covers mandatory aspects of a standard,” it is “enough to prove infringement by showing standard compliance.” *Godo Kaisha IP Bridge 1 v. TCL Commun. Tech. Holdings Ltd.*, 967 F.3d 1380, 1383-84 (Fed. Cir. 2020) (“In cases involving standard essential patents, we have endorsed standard compliance as a way of proving infringement”). As shown in Appendix 7, claims 1, 3, and 4 of the ’776 Patent cover mandatory aspects of the 5G standard, including at least 3GPP TS 38.331 (Release 16 and higher) and 3GPP TS 38.321 (Release 16 and higher). Thus, the Accused OnePlus ’776 Products’ compliance with the standard (shown in Appendix 1) and such technical specifications demonstrates infringement of the ’776 Patent.

Defendant has and continues to directly infringe claims 1, 3, and 4 of the ’776 Patent by making, using, testing, selling, importing, offering to sell within the United States, importing into the United States, and providing to and within the United States the Accused OnePlus ’776 Products. This is done either by Defendant itself, or its alter-ego, OnePlus USA Corp. OnePlus USA Corp. is Defendant’s alter-ego at least because Defendant established OnePlus USA Corp. to sell the Accused Products to clients in the United States; determines market needs in consumer groups in the United States; arranges frequent communications and written contracts for the manufacturer of the Accused Products to sell to importers, who will sell to OnePlus USA Corp.; communicates with wireless carriers in the United States about its products; obtains necessary PTCRB, Federal Communication Commission, and Underwriters Laboratory certifications for the Accused Products; and actively manages this sales channel into the United States through the use of channel managers.

Defendant also indirectly infringes claims 1, 3, and 4 of the '776 Patent under 35 U.S.C. § 271(b) and (c). Defendant was made aware of the '776 Patent and its infringement thereof at least as early as the filing date of the Complaint in this action on March 14, 2024, which contained detailed infringement allegations.

Defendant has induced and continues to induce others to infringe at least claims 1, 3, and 4 of the '776 Patent under 35 U.S.C. § 271(b) with specific intent or willful blindness. Defendant induced infringement by, among other things, actively aiding and abetting others to infringe. Defendant directly and/or indirectly markets, advertises, offers for sale, sells, or distributes the Accused OnePlus '776 Products to OnePlus USA Corp., which directly and/or indirectly markets, advertises, offers for sale, sells, or distributes the Accused OnePlus '776 Products to customers who are end users and wireless telecommunications network subscribers, and to network operators, thereby directly infringing the '776 Patent. Defendant established OnePlus USA Corp. to sell the Accused OnePlus '776 Products to clients in the United States; determines market needs in consumer groups in the United States; arranges frequent communications and written contracts for the manufacturer of the Accused OnePlus '776 Products to sell to importers, who will sell to OnePlus USA Corp.; communicates with wireless carriers in the United States about its products; obtains necessary PTCRB, Federal Communication Commission, and Underwriters Laboratory certifications for the Accused OnePlus '776 Products; and actively manages this sales channel into the United States through the use of channel managers. Further, Defendant advertises that the Accused OnePlus '776 Products have 5G connectivity and otherwise comply with the 5G standards, and provides the Accused OnePlus '776 Products for the advertised purpose of 5G communications by customers. *See, e.g.*, Appendix 1. Defendant's advertising also identifies the processors used in the Accused OnePlus '776 Products, which comply with the 5G standards.

Further, Defendant provides instructional materials, training, and services for the use of 5G communications by customers. For example, the <https://service.oneplus.com/global/user-manual> website contains user manuals instructing users how to make telephone calls using telecommunications networks, which include 5G compliant networks.

Defendant also contributorily infringes the '776 Patent under 35 U.S.C. § 271(c) by offering to sell, selling, and importing into the United States the Accused OnePlus '776 Products, which are especially made or adapted for use in an infringement of the '776 Patent. The Accused OnePlus '776 Products include a chipset with 5G functionality (including processor and modem) that is not a staple article of commerce suitable for substantial non-infringing use, and indeed has no substantial non-infringing use. In particular, each of the Accused OnePlus '776 Products is advertised to be compliant with 5G and used for 5G communications. Further, the chipset used in the Accused OnePlus '776 Products contain hardware, software, and/or firmware that performs at least a portion of the claimed functionalities, as shown in Appendix 7, with no substantial non-infringing use.

7. The '372 Patent and Appendix 8

With respect to the '372 Patent, Appendix 8 (which references Appendix 1) shows how each element of claims 8-11 and 14 is found in the Accused OnePlus '372 Products.

As shown in Appendices 1 and 8, each of the Accused OnePlus '372 Products is a device configured to perform random access in a wireless communication system described in these technical specifications as identified in Appendix 8. Each of the Accused OnePlus '372 Products contains a chipset, application processor, SoC, or system-on-chip (*e.g.*, the Qualcomm Snapdragon 8 Gen 2 Mobile Platform) (referred to herein as the “chipset”) that incorporates a processor and modem. Each such chipset (and thus each accused device) complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331, 3GPP TS

C. P.R. 3-1(d): Literal Infringement and Infringement Under the Doctrine of Equivalents

Pursuant to P.R. 3-1(d), Pantech asserts that each element of each claim is literally present in each of the Accused Instrumentalities. To the extent any claim limitation is found not to be literally present, Pantech asserts that such limitation is present under the doctrine of equivalents in each of the Accused Instrumentalities. By asserting that a claim element may be present under the doctrine of equivalents, Pantech does not waive its right to assert literal infringement of that claim element. Additionally, information about infringement under the doctrine of equivalents is set forth in the attached claim charts at Appendices 1-9.

D. P.R. 3-1(e): Priority Based on Earlier Applications

Pursuant to P.R. 3-1(e), Pantech asserts that the patents-in-suit are entitled to claim priority to at least the following applications:

Asserted Patent	Priority Applications
'824 Patent	U.S. Patent Application No. 13/340,447, filed Dec. 29, 2011 U.S. Patent Application No. 12/347,352, filed on Dec. 31, 2008 KR 10-2008-0047656, filed on May 22, 2008 U.S. Provisional Application No. 61/018,492, filed on Jan. 1, 2008
'838 Patent	U.S. Patent Application No. 14/876,337, filed on Oct. 6, 2015 U.S. Patent Application No. 14/319,608, filed Jun. 30, 2014 U.S. Patent Application No. 12/238,910 filed Sep. 26, 2008 U.S. Provisional Application No. 60/975,985, filed on Sept. 28, 2007 U.S. Provisional Application No. 60/982,528, filed on Oct. 25, 2007 U.S. Provisional Application No. 61/018,999, filed on Jan. 4, 2008 U.S. Provisional Application No. 61/025,441, filed on Feb. 1, 2008 U.S. Provisional Application No. 61,038,576, filed on Mar. 21, 2008 U.S. Provisional Application No. 61/074,288, filed on Jun. 20, 2008 U.S. Provisional Application No. 61/083,409, filed on Jul. 24, 2008
'283 Patent	KR 10-2013-0037776, filed on April 5, 2013 PCT/KR2014/002939, filed on April 4, 2014
'573 Patent	KR-10-2013-0053408, filed on May 10, 2013 U.S. Patent Application No. 14/890,407, filed on Nov. 10, 2015 PCT/KR2014/004189, filed on May 9, 2014
'251 Patent	KR 10-2010-0077590, filed on August 11, 2010 KR 10-2010-0078536, filed on August 13, 2010 KR 10-2010-0098005, filed on October 7, 2010

	KR 10-2010-0098006, filed on October 7, 2010 U.S. Patent Application No. 14/547,112, filed on Nov. 18, 2014 U.S. Patent Application No. 13/816,182, filed on Feb. 8, 2013 PCT/KR2011/005919, filed on Aug. 11, 2011
'776 Patent	KR 10-2012-0030216, filed on March 23, 2012 U.S. Patent Application No. 14/626,047, filed Feb. 19, 2015 U.S. Patent Application No. 13/849,296, filed on Mar. 22, 2013
'372 Patent	KR 10-2010-0027782, filed on Mar. 29, 2010 PCT/KR2011/002159, filed on Mar. 29, 2011
'803 Patent	U.S. Patent Application No. 15/212,403, filed on Jul. 18, 2016 U.S. Patent Application No. 13/236,133, filed on Sep. 19, 2011 U.S. Patent Application No. 10/925,426, filed on Aug. 25, 2004 U.S. Provisional Application No. 60/497,747 filed on Aug. 25, 2003 U.S. Provisional Application No. 60/507,554 filed on Oct. 1, 2003 U.S. Provisional Application No. 60/508,797 filed on Oct. 3, 2003 U.S. Provisional Application No. 60/520,207 filed on Nov. 14, 2003 U.S. Provisional Application No. 60/585,174 filed on Jul. 2, 2004

Pantech further directs OnePlus to the patents themselves and the file histories, which contain information regarding the patents' priority dates.

The foregoing priority dates are based on information reasonably available to Pantech at this time. Pantech reserves the right to supplement these Infringement Contentions based on information developed in the course of this lawsuit through discovery or additional factual investigation, including through discovery of inventors and/or prosecution counsel of the patents-in-suit. Specifically, Pantech believes that discovery of the inventors and/or prosecution counsel may reveal evidence that the inventions claimed in the patents-in-suit were conceived prior to the priority dates based on applications set forth above. In such instance, Pantech reserves the right to supplement these contentions.

E. P.R. 3-1(f): Identification of Any Pantech Instrumentalities that Practice Claimed Inventions

Pursuant to P.R. 3-1(f), Pantech states that it is not presently aware of any of its own apparatuses, products, devices, processes, methods, acts, or other instrumentalities that practice the claimed inventions of the patents-in-suit.

F. P.R. 3-1(g): Source Code

Pantech does not presently assert that any asserted claim element of the patents-in-suit is a software limitation. Software may be relevant to the infringement proof for each of the patents-in-suit, however, and Pantech reserves the right to request and rely upon software to prove infringement.

G. Document Production Accompanying Disclosure

Pursuant to P.R. 3-2, Pantech hereby discloses the following documents accompanying its Disclosure of Asserted Claims and Infringement Contentions that correspond to the following categories:

P.R. 3-2(a): Based on its reasonable search and investigation, Pantech states that it does not have any documents that fall within this category.

P.R. 3-2(b): Based on its reasonable search and investigation, Pantech states that it does not have any documents that fall within this category. Pantech may, however, seek such documentation through third-party discovery of inventors and/or prosecution counsel for the patents-in-suit.

P.R. 3-2(c): A copy of the file histories is being produced concurrently herewith at Bates Nos. PANTECH_ONEPLUSII0000233 through PANTECH_ONEPLUSII0004214.

Dated: November 27, 2024

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CERTIFICATE OF SERVICE

I hereby certify that on November 27, 2024, I caused a copy of PLAINTIFF PANTECH CORPORATION AND PANTECH WIRELESS, LLC'S PATENT RULE 3-1 AND 3-2 INFRINGEMENT CONTENTIONS to be served on counsel of record via e-mail and electronic repository Box.

Dated: November 27, 2024

/s/ James A. Fussell, III
James A. Fussell, III

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

The Accused OnePlus '776 Products are those that are compatible with the 5G standard, and specifically with 3GPP TS 38.331 (Release 16 and higher) and 3GPP TS 38.321 (Release 16 and higher). An exemplary identification of the Accused OnePlus '776 Products, based on the information presently available, is set forth in Plaintiffs' Patent Rule 3-1 and 3-2 Infringement Contentions, at Section A.

The Exemplary Evidence of Infringement disclosed herein establishes that asserted claims 1, 3, and 4 of U.S. Patent No. 9,769,776 are essential to mandatory sections of the 5G standard (*i.e.*, with 3GPP TS 38.331 and 3GPP TS 38.321). If “a patent covers mandatory aspects of a standard,” it is “enough to prove infringement by showing standard compliance.” *Godo Kaisha IP Bridge I v. TCL Commun. Tech. Holdings Ltd.*, 967 F.3d 1380, 1383-84 (Fed. Cir. 2020) (“In cases involving standard essential patents, we have endorsed standard compliance as a way of proving infringement”). Based on publicly available information, the Accused OnePlus '776 Products comply with the 5G standard, which requires compliance with 5G cellular communication protocols including at least TS 38.331 and 3GPP TS 38.321, and perform cellular communications in compliance with the aforementioned 5G cellular communication standards. *See* Appendix 1: OnePlus Products Compliance with Standards.

The Exemplary Evidence of Infringement also establishes that each of the Accused OnePlus '776 Products contains a chipset, application processor, SoC, or system-on-chip (*e.g.*, the Qualcomm Snapdragon 8 Gen 2 Mobile Platform) (referred to herein as the “chipset”) that incorporates a processor and/or modem. Each such chipset (and thus each accused device) complies with one or more of 5G cellular communication protocols including at least TS 38.331 and 3GPP TS 38.321. *See* Appendix 1: OnePlus Products Components.

Thus, Appendix 1, taken together with the showing made herein, demonstrates infringement of U.S. Patent No. 9,769,776 by the Accused OnePlus '776 Products.

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
[1.pre] A user equipment (UE) comprising:	Each of the Accused OnePlus '776 Products is user equipment (UE). As shown in Appendix 1, each of the Accused OnePlus '776 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that operate in accordance with the 5G cellular communication standard. Each of the Accused OnePlus '776 Products complies with one or more of 5G Release 16 or later cellular

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321, and is therefore user equipment (UE).</p> <p>5.3.5 RRC reconfiguration</p> <p>5.3.5.1 General</p> <div data-bbox="961 477 1360 688" style="text-align: center;"> <pre> sequenceDiagram participant UE participant Network Network->>UE: RRCReconfiguration UE->>Network: RRCReconfigurationComplete </pre> </div> <p align="center">Figure 5.3.5.1-1: RRC reconfiguration, successful</p> <div data-bbox="961 760 1360 971" style="text-align: center;"> <pre> sequenceDiagram participant UE participant Network Network->>UE: RRCReconfiguration UE->>Network: RRC connection re-establishment </pre> </div> <p align="center">Figure 5.3.5.1-2: RRC reconfiguration, failure</p> <p>The purpose of this procedure is to modify an RRC connection, e.g. to establish/modify/release RBs/BH RLC channels, to perform reconfiguration with sync, to setup/modify/release measurements, to add/modify/release SCells and cell groups, to add/modify/release conditional handover configuration, to add/modify/release conditional PSCell change configuration. As part of the procedure, NAS dedicated information may be transferred from the Network to the UE.</p> <p>3GPP TS 38.331 v16.4.1 at 61-62.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>5.3.5.3 Reception of an <i>RRCReconfiguration</i> by the UE</p> <p>The UE shall perform the following actions upon reception of the <i>RRCReconfiguration</i>, or upon execution of the conditional reconfiguration (CHO or CPC):</p> <p>...</p> <p>1> if the <i>RRCReconfiguration</i> includes the <i>secondaryCellGroup</i>:</p> <p>2> perform the cell group configuration for the SCG according to 5.3.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 63.</p> <p>5.3.5.5 Cell Group configuration</p> <p>5.3.5.5.1 General</p> <p>The network configures the UE with Master Cell Group (MCG), and zero or one Secondary Cell Group (SCG). In (NG)EN-DC, the MCG is configured as specified in TS 36.331 [10], and for NE-DC, the SCG is configured as specified in TS 36.331 [10]. The network provides the configuration parameters for a cell group in the <i>CellGroupConfig</i> IE.</p> <p>The UE performs the following actions based on a received <i>CellGroupConfig</i> IE:</p> <p>...</p> <p>1> if the <i>CellGroupConfig</i> contains the <i>mac-CellGroupConfig</i>:</p> <p>2> configure the MAC entity of this cell group as specified in 5.3.5.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 70.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>5.3.5.5.5 MAC entity configuration</p> <p>The UE shall:</p> <ul style="list-style-type: none"> 1> if SCG MAC is not part of the current UE configuration (i.e. SCG establishment): <ul style="list-style-type: none"> 2> create an SCG MAC entity; 1> if any DAPS bearer is configured: <ul style="list-style-type: none"> 2> reconfigure the MAC main configuration for the target cell group in accordance with the received <i>mac-CellGroupConfig</i> excluding <i>tag-ToReleaseList</i> and <i>tag-ToAddModList</i>; 1> else: <ul style="list-style-type: none"> 2> reconfigure the MAC main configuration of the cell group in accordance with the received <i>mac-CellGroupConfig</i> excluding <i>tag-ToReleaseList</i> and <i>tag-ToAddModList</i>; 1> if the received <i>mac-CellGroupConfig</i> includes the <i>tag-ToReleaseList</i>: <ul style="list-style-type: none"> 2> for each <i>TAG-Id</i> value included in the <i>tag-ToReleaseList</i> that is part of the current UE configuration: <ul style="list-style-type: none"> 3> release the TAG indicated by <i>TAG-Id</i>; 1> if the received <i>mac-CellGroupConfig</i> includes the <i>tag-ToAddModList</i>: <ul style="list-style-type: none"> 2> for each <i>tag-Id</i> value included in <i>tag-ToAddModList</i> that is not part of the current UE configuration (TAG addition): <ul style="list-style-type: none"> 3> add the TAG, corresponding to the <i>tag-Id</i>, in accordance with the received <i>timeAlignmentTimer</i>; 2> for each <i>tag-Id</i> value included in <i>tag-ToAddModList</i> that is part of the current UE configuration (TAG modification): <ul style="list-style-type: none"> 3> reconfigure the TAG, corresponding to the <i>tag-Id</i>, in accordance with the received <i>timeAlignmentTimer</i>. <p>3GPP TS 38.331 v16.4.1 at 73-74.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p align="center">MAC-CellGroupConfig</p> <p>The IE <i>MAC-CellGroupConfig</i> is used to configure MAC parameters for a cell group, including DRX.</p> <p align="center">MAC-CellGroupConfig information element</p> <pre> -- ASN1START -- TAG-MAC-CELLGROUPCONFIG-START MAC-CellGroupConfig ::= SEQUENCE { drx-Config SetupRelease { DRX-Config } OPTIONAL, -- Need M schedulingRequestConfig SchedulingRequestConfig OPTIONAL, -- Need M bsr-Config BSR-Config OPTIONAL, -- Need M tag-Config TAG-Config OPTIONAL, -- Need M phr-Config SetupRelease { PHR-Config } OPTIONAL, -- Need M skipUplinkTxDynamic BOOLEAN, [[csi-Mask BOOLEAN OPTIONAL, -- Need M dataInactivityTimer SetupRelease { DataInactivityTimer } OPTIONAL, -- Cond MCG-Only]], [[usePreBSR-r16 ENUMERATED {true} OPTIONAL, -- Need R schedulingRequestID-LBT-SCell-r16 SchedulingRequestId OPTIONAL, -- Need R lch-BasedPrioritization-r16 ENUMERATED {enabled} OPTIONAL, -- Need R schedulingRequestID-BFR-SCell-r16 SchedulingRequestId OPTIONAL, -- Need R drx-ConfigSecondaryGroup-r16 SetupRelease { DRX-ConfigSecondaryGroup } OPTIONAL, -- Need M]], [[enhancedSkipUplinkTxDynamic-r16 ENUMERATED {true} OPTIONAL, -- Need R enhancedSkipUplinkTxConfigured-r16 ENUMERATED {true} OPTIONAL, -- Need R]],] } DataInactivityTimer ::= ENUMERATED {s1, s2, s3, s5, s7, s10, s15, s20, s40, s50, s60, s80, s100, s120, s150, s180} -- TAG-MAC-CELLGROUPCONFIG-STOP -- ASN1STOP ... </pre> <div style="border: 1px solid black; padding: 2px; margin-top: 10px;"> <p>tag-Config The field is used to configure parameters for a time-alignment group. The field is not present if any DAPS bearer is configured.</p> </div> <p>3GPP TS 38.331 v16.4.1 at 440-41.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement			
	<p>– TAG-Config</p> <p>The IE <i>TAG-Config</i> is used to configure parameters for a time-alignment group.</p> <p style="text-align: center;">TAG-Config information element</p> <pre> -- ASN1START -- TAG-TAG-CONFIG-START TAG-Config ::= tag-ToReleaseList SEQUENCE (SIZE (1..maxNrofTAGs)) OF TAG-Id OPTIONAL, -- Need N tag-ToAddModList SEQUENCE (SIZE (1..maxNrofTAGs)) OF TAG OPTIONAL, -- Need N } TAG ::= tag-Id TAG-Id, timeAlignmentTimer TimeAlignmentTimer, ... } TAG-Id ::= INTEGER (0..maxNrofTAGs-1) TimeAlignmentTimer ::= ENUMERATED {ms500, ms750, ms1280, ms1920, ms2560, ms5120, ms10240, infinity} -- TAG-TAG-CONFIG-STOP -- ASN1STOP </pre> <table border="1" data-bbox="695 711 1864 802"> <thead> <tr> <th data-bbox="695 711 1864 732">TAG field descriptions</th> </tr> </thead> <tbody> <tr> <td data-bbox="695 732 1864 764">tag-Id Indicates the TAG of the SpCell or an SCell, see TS 38.321 [3]. Uniquely identifies the TAG within the scope of a Cell Group (i.e. MCG or SCG).</td> </tr> <tr> <td data-bbox="695 764 1864 802">timeAlignmentTimer Value in ms of the <i>timeAlignmentTimer</i> for TAG with ID <i>tag-Id</i>, as specified in TS 38.321 [3].</td> </tr> </tbody> </table> <p>3GPP TS 38.331 v16.4.1 at 646.</p> <h2 data-bbox="682 889 989 938">1 Scope</h2> <p>The present document specifies the NR MAC protocol.</p> <p>...</p> <p>Timing Advance Group: A group of Serving Cells that is configured by RRC and that, for the cells with a UL configured, using the same timing reference cell and the same Timing Advance value. A Timing Advance Group containing the SpCell of a MAC entity is referred to as Primary Timing Advance Group (PTAG), whereas the term Secondary Timing Advance Group (STAG) refers to other TAGs.</p> <p>TS 38.321 v16.4.0 at 8-10.</p>	TAG field descriptions	tag-Id Indicates the TAG of the SpCell or an SCell, see TS 38.321 [3]. Uniquely identifies the TAG within the scope of a Cell Group (i.e. MCG or SCG).	timeAlignmentTimer Value in ms of the <i>timeAlignmentTimer</i> for TAG with ID <i>tag-Id</i> , as specified in TS 38.321 [3].
TAG field descriptions				
tag-Id Indicates the TAG of the SpCell or an SCell, see TS 38.321 [3]. Uniquely identifies the TAG within the scope of a Cell Group (i.e. MCG or SCG).				
timeAlignmentTimer Value in ms of the <i>timeAlignmentTimer</i> for TAG with ID <i>tag-Id</i> , as specified in TS 38.321 [3].				

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
<p>[1.a] a receiver to receive, from a base station, a first field comprising a first serving cell index (SCellIndex) to release a serving cell (SCell) associated with the first SCellIndex</p>	<p>Each of the Accused OnePlus '776 Products comprises a receiver to receive, from a base station, a first field comprising a first serving cell index (SCellIndex) to release a serving cell (SCell) associated with the first SCellIndex.</p> <p>As shown in Appendix 1, each of the Accused OnePlus '776 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that operate in accordance with the 5G cellular communication standard. Each of the Accused OnePlus '776 Products complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321, and therefore comprises a receiver to receive, from a base station, a first field comprising a first serving cell index (SCellIndex) to release a serving cell (SCell) associated with the first SCellIndex.</p> <p>5.3.5.5 Cell Group configuration</p> <p>5.3.5.5.1 General</p> <p>The network configures the UE with Master Cell Group (MCG), and zero or one Secondary Cell Group (SCG). In (NG)EN-DC, the MCG is configured as specified in TS 36.331 [10], and for NE-DC, the SCG is configured as specified in TS 36.331 [10]. The network provides the configuration parameters for a cell group in the <i>CellGroupConfig</i> IE.</p> <p>The UE performs the following actions based on a received <i>CellGroupConfig</i> IE:</p> <p>...</p> <p>1> if the <i>CellGroupConfig</i> contains the <i>mac-CellGroupConfig</i>:</p> <p> 2> configure the MAC entity of this cell group as specified in 5.3.5.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 70.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>5.3.5.5.8 SCell Release</p> <p>The UE shall:</p> <p>1> if the release is triggered by reception of the <i>sCellToReleaseList</i>:</p> <p>2> for each <i>sCellIndex</i> value included in the <i>sCellToReleaseList</i>:</p> <p>3> if the current UE configuration includes an SCell with value <i>sCellIndex</i>:</p> <p>4> release the SCell.</p> <p>3GPP TS 38.331 v16.4.1 at 75.</p> <p align="center">– CellGroupConfig</p> <p>The <i>CellGroupConfig</i> IE is used to configure a master cell group (MCG) or secondary cell group (SCG). A cell group comprises of one MAC entity, a set of logical channels with associated RLC entities and of a primary cell (SpCell) and one or more secondary cells (SCells).</p> <p align="center">CellGroupConfig information element</p> <pre> -- ASN1START -- TAG-CELLGROUPCONFIG-START -- Configuration of one Cell-Group: CellGroupConfig ::= cellGroupId rlc-BearerToAddModList rlc-BearerToReleaseList mac-CellGroupConfig physicalCellGroupConfig spCellConfig SEQUENCE { CellGroupId, SEQUENCE (SIZE (1..maxLC-ID)) OF RLC-BearerConfig SEQUENCE (SIZE (1..maxLC-ID)) OF LogicalChannelIdentity MAC-CellGroupConfig PhysicalCellGroupConfig SpCellConfig } sCellToAddModList sCellToReleaseList ... SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellConfig SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellIndex OPTIONAL, -- Need N OPTIONAL, -- Need N OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need N OPTIONAL, -- Need N </pre> <p>3GPP TS 38.331 v16.4.1 at 372-73.</p>
<p>[1.b] and a second field comprising at least one SCellIndex to add one or more SCell associated with the at least one SCellIndex and an identifier of a timing advance group (TAG) associated with the one or more</p>	<p>Each of the Accused OnePlus '776 Products comprises a receiver to receive, from a base station, a second field comprising at least one SCellIndex to add one or more SCell associated with the at least one SCellIndex and an identifier of a timing advance group (TAG) associated with the one or more SCell.</p> <p>As shown in Appendix 1, each of the Accused OnePlus '776 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
<p>SCell;</p>	<p>operate in accordance with the 5G cellular communication standard. Each of the Accused OnePlus '776 Products complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321, and therefore comprises a receiver to receive, from a base station, a second field comprising at least one SCellIndex to add one or more SCell associated with the at least one SCellIndex and an identifier of a timing advance group (TAG) associated with the one or more SCell.</p> <p>5.3.5.5 Cell Group configuration</p> <p>5.3.5.5.1 General</p> <p>The network configures the UE with Master Cell Group (MCG), and zero or one Secondary Cell Group (SCG). In (NG)EN-DC, the MCG is configured as specified in TS 36.331 [10], and for NE-DC, the SCG is configured as specified in TS 36.331 [10]. The network provides the configuration parameters for a cell group in the <i>CellGroupConfig</i> IE.</p> <p>The UE performs the following actions based on a received <i>CellGroupConfig</i> IE:</p> <p>...</p> <p>1> if the <i>CellGroupConfig</i> contains the <i>mac-CellGroupConfig</i>:</p> <p>2> configure the MAC entity of this cell group as specified in 5.3.5.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 70.</p> <p align="center">— CellGroupConfig</p> <p>The <i>CellGroupConfig</i> IE is used to configure a master cell group (MCG) or secondary cell group (SCG). A cell group comprises of one MAC entity, a set of logical channels with associated RLC entities and of a primary cell (SpCell) and one or more secondary cells (SCells).</p> <p align="center">CellGroupConfig information element</p> <pre> -- ASN1START -- TAG-CELLGROUPCONFIG-START -- Configuration of one Cell-Group: CellGroupConfig ::= SEQUENCE { cellGroupId CellGroupId, rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLC-ID)) OF RLC-BearerConfig OPTIONAL, -- Need N rlc-BearerToReleaseList SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity OPTIONAL, -- Need N mac-CellGroupConfig MAC-CellGroupConfig OPTIONAL, -- Need M physicalCellGroupConfig PhysicalCellGroupConfig OPTIONAL, -- Need M spCellConfig SpCellConfig OPTIONAL, -- Need M } sCellToAddModList SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellConfig OPTIONAL, -- Need N sCellToReleaseList SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellIndex OPTIONAL, -- Need N ... </pre>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<pre> ... } SCellConfig ::= sCellIndex sCellConfigCommon sCellConfigDedicated [[smtc]], [[sCellState-r16 secondaryDRX-GroupConfig-r16]]] -- TAG-CELLGROUPCONFIG-STOP -- ASN1STOP </pre> <p>SEQUENCE { SCellIndex, ServingCellConfigCommon ServingCellConfig SSB-MTC ENUMERATED {activated} ENUMERATED {true}</p> <p>OPTIONAL, -- Cond SCellAdd OPTIONAL, -- Cond SCellAddMod OPTIONAL -- Need S OPTIONAL, -- Cond SCellAddSync OPTIONAL -- Cond DRX-Config2</p> <p>3GPP TS 38.331 v16.4.1 at 372-74.</p> <p>– ServingCellConfig</p> <p>The IE <i>ServingCellConfig</i> is used to configure (add or modify) the UE with a serving cell, which may be the SpCell or an SCell of an MCG or SCG. The parameters herein are mostly UE specific but partly also cell specific (e.g. in additionally configured bandwidth parts). Reconfiguration between a PUCCH and PUCCHless SCell is only supported using an SCell release and add.</p> <p style="text-align: center;">ServingCellConfig information element</p> <pre> -- ASN1START -- TAG-SERVINGCELLCONFIG-START ServingCellConfig ::= tdd-UL-DL-ConfigurationDedicated initialDownlinkBWP downlinkBWP-ToReleaseList downlinkBWP-ToAddModList firstActiveDownlinkBWP-Id bwp-InactivityTimer defaultDownlinkBWP-Id uplinkConfig supplementaryUplink pdsch-ServingCellConfig cs1-MeasConfig sCellDeactivationTimer crossCarrierSchedulingConfig tag-Id dummy1 pathlossReferenceLinking servingCellMO [[lte-CRS-ToMatchAround rateMatchPatternToAddModList rateMatchPatternToReleaseList </pre> <p>SEQUENCE { TDD-UL-DL-ConfigDedicated BWP-DownlinkDedicated SEQUENCE (SIZE (1..maxNrofBWPs)) OF BWP-Id SEQUENCE (SIZE (1..maxNrofBWPs)) OF BWP-Downlink BWP-Id ENUMERATED {ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60, ms80, ms100, ms200, ms300, ms500, ms750, ms1280, ms1920, ms2560, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 } BWP-Id UplinkConfig UplinkConfig SetupRelease { PDCCH-ServingCellConfig } SetupRelease { PDSCH-ServingCellConfig } SetupRelease { CSI-MeasConfig } ENUMERATED {ms20, ms40, ms80, ms160, ms200, ms240, ms320, ms400, ms480, ms520, ms640, ms720, ms840, ms1280, spare2, spare1} OPTIONAL, -- Cond ServingCellWithoutPUCCH CrossCarrierSchedulingConfig TAG-Id, ENUMERATED {enabled} ENUMERATED {spCell, sCell} MeasObjectId SetupRelease { RateMatchPatternLTE-CRS } SEQUENCE (SIZE (1..maxNrofRateMatchPatterns)) OF RateMatchPattern SEQUENCE (SIZE (1..maxNrofRateMatchPatterns)) OF RateMatchPatternId</p> <p>OPTIONAL, -- Cond TDD OPTIONAL, -- Need M OPTIONAL, -- Need N OPTIONAL, -- Need N OPTIONAL, -- Need N OPTIONAL, -- Cond SyncAndCellAdd OPTIONAL, --Need R OPTIONAL, -- Need S OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Cond ServingCellWithoutPUCCH OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Cond SCellOnly OPTIONAL, -- Cond MeasObject OPTIONAL, -- Need M OPTIONAL, -- Need N OPTIONAL, -- Need N</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	3GPP TS 38.331 v16.4.1 at 605.
[1.c] a radio resource control (RRC) processor to release the SCell associated with the first SCellIndex and	<p>Each of the Accused OnePlus '776 Products comprises a radio resource control (RRC) processor to release the SCell associated with the first SCellIndex.</p> <p>As shown in Appendix 1, each of the Accused OnePlus '776 Products incorporates a chipset that operates in accordance with the 5G cellular communication standard. Each of the Accused OnePlus '776 Products complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321, and therefore comprises a radio resource control (RRC) processor configured to release the SCell associated with the first SCellIndex.</p> <p>5.3.5.5 Cell Group configuration</p> <p>5.3.5.5.1 General</p> <p>The network configures the UE with Master Cell Group (MCG), and zero or one Secondary Cell Group (SCG). In (NG)EN-DC, the MCG is configured as specified in TS 36.331 [10], and for NE-DC, the SCG is configured as specified in TS 36.331 [10]. The network provides the configuration parameters for a cell group in the <i>CellGroupConfig</i> IE.</p> <p>The UE performs the following actions based on a received <i>CellGroupConfig</i> IE:</p> <p>...</p> <p>1> if the <i>CellGroupConfig</i> contains the <i>mac-CellGroupConfig</i>:</p> <p> 2> configure the MAC entity of this cell group as specified in 5.3.5.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 70.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>5.3.5.5.8 SCell Release</p> <p>The UE shall:</p> <p>1> if the release is triggered by reception of the <i>sCellToReleaseList</i>:</p> <p>2> for each <i>sCellIndex</i> value included in the <i>sCellToReleaseList</i>:</p> <p>3> if the current UE configuration includes an SCell with value <i>sCellIndex</i>:</p> <p>4> release the SCell.</p> <p>3GPP TS 38.331 v16.4.1 at 75.</p> <p align="center">– CellGroupConfig</p> <p>The <i>CellGroupConfig</i> IE is used to configure a master cell group (MCG) or secondary cell group (SCG). A cell group comprises of one MAC entity, a set of logical channels with associated RLC entities and of a primary cell (SpCell) and one or more secondary cells (SCells).</p> <p align="center">CellGroupConfig information element</p> <pre> -- ASN1START -- TAG-CELLGROUPCONFIG-START -- Configuration of one Cell-Group: CellGroupConfig ::= cellGroupId SEQUENCE { rlc-BearerToAddModList SEQUENCE (SIZE (1..maxLC-ID)) OF RLC-BearerConfig OPTIONAL, -- Need N rlc-BearerToReleaseList SEQUENCE (SIZE (1..maxLC-ID)) OF LogicalChannelIdentity OPTIONAL, -- Need N mac-CellGroupConfig MAC-CellGroupConfig OPTIONAL, -- Need M physicalCellGroupConfig PhysicalCellGroupConfig OPTIONAL, -- Need M spCellConfig SpCellConfig OPTIONAL, -- Need M } sCellToAddModList SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellConfig OPTIONAL, -- Need N sCellToReleaseList SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellIndex OPTIONAL, -- Need N ... </pre> <p>3GPP TS 38.331 v16.4.1 at 372-73.</p>
<p>[1.d] to add the one or more SCell as an available SCell for use with the UE and</p>	<p>Each of the Accused OnePlus '776 Products comprises a radio resource control (RRC) processor to add the one or more SCell as an available SCell for use with the UE.</p> <p>As shown in Appendix 1, each of the Accused OnePlus '776 Products incorporates a chipset that operates in accordance with the 5G cellular communication standard. Each of the Accused OnePlus '776 Products complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321, and therefore</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>comprises a radio resource control (RRC) processor configured to add the one or more SCell as an available SCell for use with the UE.</p> <p>5.3.5.5 Cell Group configuration</p> <p>5.3.5.5.1 General</p> <p>The network configures the UE with Master Cell Group (MCG), and zero or one Secondary Cell Group (SCG). In (NG)EN-DC, the MCG is configured as specified in TS 36.331 [10], and for NE-DC, the SCG is configured as specified in TS 36.331 [10]. The network provides the configuration parameters for a cell group in the <i>CellGroupConfig</i> IE.</p> <p>The UE performs the following actions based on a received <i>CellGroupConfig</i> IE:</p> <p>...</p> <p>1> if the <i>CellGroupConfig</i> contains the <i>mac-CellGroupConfig</i>:</p> <p>2> configure the MAC entity of this cell group as specified in 5.3.5.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 70.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>5.3.5.5.5 MAC entity configuration</p> <p>The UE shall:</p> <ul style="list-style-type: none"> 1> if SCG MAC is not part of the current UE configuration (i.e. SCG establishment): <ul style="list-style-type: none"> 2> create an SCG MAC entity; 1> if any DAPS bearer is configured: <ul style="list-style-type: none"> 2> reconfigure the MAC main configuration for the target cell group in accordance with the received <i>mac-CellGroupConfig</i> excluding <i>tag-ToReleaseList</i> and <i>tag-ToAddModList</i>; 1> else: <ul style="list-style-type: none"> 2> reconfigure the MAC main configuration of the cell group in accordance with the received <i>mac-CellGroupConfig</i> excluding <i>tag-ToReleaseList</i> and <i>tag-ToAddModList</i>; 1> if the received <i>mac-CellGroupConfig</i> includes the <i>tag-ToReleaseList</i>: <ul style="list-style-type: none"> 2> for each <i>TAG-Id</i> value included in the <i>tag-ToReleaseList</i> that is part of the current UE configuration: <ul style="list-style-type: none"> 3> release the TAG indicated by <i>TAG-Id</i>; 1> if the received <i>mac-CellGroupConfig</i> includes the <i>tag-ToAddModList</i>: <ul style="list-style-type: none"> 2> for each <i>tag-Id</i> value included in <i>tag-ToAddModList</i> that is not part of the current UE configuration (TAG addition): <ul style="list-style-type: none"> 3> add the TAG, corresponding to the <i>tag-Id</i>, in accordance with the received <i>timeAlignmentTimer</i>; 2> for each <i>tag-Id</i> value included in <i>tag-ToAddModList</i> that is part of the current UE configuration (TAG modification): <ul style="list-style-type: none"> 3> reconfigure the TAG, corresponding to the <i>tag-Id</i>, in accordance with the received <i>timeAlignmentTimer</i>. <p>3GPP TS 38.331 v16.4.1 at 73-74.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>5.3.5.5.9 SCell Addition/Modification</p> <p>The UE shall:</p> <ul style="list-style-type: none"> 1> for each <i>sCellIndex</i> value included in the <i>sCellToAddModList</i> that is not part of the current UE configuration (SCell addition): <ul style="list-style-type: none"> 2> add the SCell, corresponding to the <i>sCellIndex</i>, in accordance with the <i>sCellConfigCommon</i> and <i>sCellConfigDedicated</i>; 2> if the <i>sCellState</i> is included: <ul style="list-style-type: none"> 3> configure lower layers to consider the SCell to be in activated state; 2> else: <ul style="list-style-type: none"> 3> configure lower layers to consider the SCell to be in deactivated state; 2> for each <i>measId</i> included in the <i>measIdList</i> within <i>VarMeasConfig</i>: <ul style="list-style-type: none"> 3> if SCells are not applicable for the associated measurement; and 3> if the concerned SCell is included in <i>cellsTriggeredList</i> defined within the <i>VarMeasReportList</i> for this <i>measId</i>: <ul style="list-style-type: none"> 4> remove the concerned SCell from <i>cellsTriggeredList</i> defined within the <i>VarMeasReportList</i> for this <i>measId</i>; 1> for each <i>sCellIndex</i> value included in the <i>sCellToAddModList</i> that is part of the current UE configuration (SCell modification): <ul style="list-style-type: none"> 2> modify the SCell configuration in accordance with the <i>sCellConfigDedicated</i>; 2> if the <i>sCellToAddModList</i> was received in an <i>RRCReconfiguration</i> message including <i>reconfigurationWithSync</i>, or received in an <i>RRCResume</i> message, or received in an <i>RRCReconfiguration</i> message including <i>reconfigurationWithSync</i> embedded in an <i>RRCResume</i> message or embedded in an <i>RRCReconfiguration</i> message or embedded in an E-UTRA <i>RRCConnectionReconfiguration</i> message or embedded in an E-UTRA <i>RRCConnectionResume</i> message: <ul style="list-style-type: none"> 3> if the <i>sCellState</i> is included: <ul style="list-style-type: none"> 4> configure lower layers to consider the SCell to be in activated state; 3> else: <ul style="list-style-type: none"> 4> configure lower layers to consider the SCell to be in deactivated state. <p>3GPP TS 38.331 v16.4.1 at 75-76.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
<p>[1.e] to associate the one or more SCell with another available SCell associated with same TAG identifier, wherein the TAG is associated with SCells having timing based on a same timing advance (TA) value.</p>	<p>Each of the Accused OnePlus '776 Products comprises a radio resource control (RRC) processor to associate the one or more SCell with another available SCell associated with same TAG identifier, wherein the TAG is associated with SCells having timing based on a same timing advance (TA) value.</p> <p>As shown in Appendix 1, each of the Accused OnePlus '776 Products incorporates a chipset that operates in accordance with the 5G cellular communication standard. Each of the Accused OnePlus '776 Products complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321, and therefore comprises a radio resource control (RRC) processor configured to associate the one or more SCell with another available SCell associated with same TAG identifier, wherein the TAG is associated with SCells having timing based on a same timing advance (TA) value.</p> <p align="center">— <i>CellGroupConfig</i></p> <p>The <i>CellGroupConfig</i> IE is used to configure a master cell group (MCG) or secondary cell group (SCG). A cell group comprises of one MAC entity, a set of logical channels with associated RLC entities and of a primary cell (SpCell) and one or more secondary cells (SCells).</p> <p align="center">CellGroupConfig information element</p> <pre> -- ASN1START -- TAG-CELLGROUPCONFIG-START -- Configuration of one Cell-Group: CellGroupConfig ::= cellGroupId SEQUENCE { rlc-BearerToAdModList SEQUENCE (SIZE (1..maxLC-ID)) OF RLC-BearerConfig OPTIONAL, -- Need N rlc-BearerToReleaseList SEQUENCE (SIZE (1..maxLC-ID)) OF LogicalChannelIdentity OPTIONAL, -- Need N mac-CellGroupConfig MAC-CellGroupConfig OPTIONAL, -- Need M physicalCellGroupConfig PhysicalCellGroupConfig OPTIONAL, -- Need M spCellConfig SpCellConfig OPTIONAL, -- Need M sCellToAdModList SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellConfig OPTIONAL, -- Need N sCellToReleaseList SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellIndex OPTIONAL, -- Need N ... } -- </pre>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<pre> } SCellConfig ::= sCellIndex sCellConfigCommon sCellConfigDedicated ... [[smtc]], [[sCellState-r16 secondaryDRX-GroupConfig-r16]]] -- TAG-CELLGROUPCONFIG-STOP -- ASN1STOP </pre> <p>SEQUENCE [SCellIndex, ServingCellConfigCommon ServingCellConfig OPTIONAL, -- Cond SCellAdd OPTIONAL, -- Cond SCellAddMod SSB-MTC OPTIONAL -- Need S ENUMERATED {activated} ENUMERATED {true} OPTIONAL, -- Cond SCellAddSync OPTIONAL -- Cond DRX-Config2 </p> <p>3GPP TS 38.331 v16.4.1 at 372-74.</p> <p>– ServingCellConfig</p> <p>The IE <i>ServingCellConfig</i> is used to configure (add or modify) the UE with a serving cell, which may be the SpCell or an SCell of an MCG or SCG. The parameters herein are mostly UE specific but partly also cell specific (e.g. in additionally configured bandwidth parts). Reconfiguration between a PUCCH and PUCCHless SCell is only supported using an SCell release and add.</p> <p>ServingCellConfig information element</p> <pre> -- ASN1START -- TAG-SERVINGCELLCONFIG-START ServingCellConfig ::= tdd-UL-DL-ConfigurationDedicated initialDownlinkBWP downlinkBWP-ToReleaseList downlinkBWP-ToAddModList firstActiveDownlinkBWP-Id bwp-InactivityTimer defaultDownlinkBWP-Id uplinkConfig supplementaryUplink pdsch-ServingCellConfig pdsch-ServingCellConfig csi-MeasConfig sCellDeactivationTimer crossCarrierSchedulingConfig tag-Id dummy1 pathlossReferenceLinking servingCellMO ... [[lte-CRS-ToMatchAround rateMatchPatternToAddModList rateMatchPatternToReleaseList </pre> <p>TDD-UL-DL-ConfigDedicated BWP-DownlinkDedicated SEQUENCE (SIZE (1..maxNrofBWPs)) OF BWP-Id SEQUENCE (SIZE (1..maxNrofBWPs)) OF BWP-Downlink BWP-Id ENUMERATED {ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60, ms80, ms100, ms200, ms300, ms500, ms750, ms1280, ms1920, ms2560, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 } OPTIONAL, --Need R OPTIONAL, -- Need S OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M OPTIONAL, -- Need M ENUMERATED {ms20, ms40, ms80, ms160, ms200, ms240, ms320, ms400, ms480, ms520, ms640, ms720, ms840, ms1280, spare2, spare1} OPTIONAL, -- Cond ServingCellWithoutPUCCH TAG-Id, ENUMERATED {enabled} ENUMERATED {spCell, sCell} OPTIONAL, -- Need R OPTIONAL, -- Cond SCellOnly OPTIONAL, -- Cond MeasObject SEQUENCE (SIZE (1..maxNrofBWPs)) OF BWP-Id SEQUENCE (SIZE (1..maxNrofRateMatchPatterns)) OF RateMatchPattern SEQUENCE (SIZE (1..maxNrofRateMatchPatterns)) OF RateMatchPatternId OPTIONAL, -- Need M OPTIONAL, -- Need N OPTIONAL, -- Need N </p> <p>3GPP TS 38.331 v16.4.1 at 605.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>Timing Advance Group: A group of Serving Cells that is configured by RRC and that, for the cells with a UL configured, using the same timing reference cell and the same Timing Advance value. A Timing Advance Group containing the SpCell of a MAC entity is referred to as Primary Timing Advance Group (PTAG), whereas the term Secondary Timing Advance Group (STAG) refers to other TAGs.</p> <p>TS 38.321 v16.4.0 at 9-10.</p>
<p>[3] The UE of claim 1, wherein the receiver receives the first and second field through a RRC connection reconfiguration message.</p>	<p>For each of the Accused OnePlus '776 Products, the receiver receives the first and second field through a RRC connection reconfiguration message.</p> <p>As shown in Appendix 1, each of the Accused OnePlus '776 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that operate in accordance with the 5G cellular communication standard. Each of the Accused OnePlus '776 Products complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321, and therefore comprises a receiver to receive the first and second field through a RRC connection reconfiguration message.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>5.3.5 RRC reconfiguration</p> <p>5.3.5.1 General</p> <div data-bbox="961 386 1360 597" style="text-align: center;"> <pre> sequenceDiagram participant UE participant Network Network->>UE: RRCReconfiguration UE-->>Network: RRCReconfigurationComplete </pre> </div> <p>Figure 5.3.5.1-1: RRC reconfiguration, successful</p> <div data-bbox="961 669 1360 880" style="text-align: center;"> <pre> sequenceDiagram participant UE participant Network Network->>UE: RRCReconfiguration UE-->>Network: RRC connection re-establishment </pre> </div> <p>Figure 5.3.5.1-2: RRC reconfiguration, failure</p> <p>The purpose of this procedure is to modify an RRC connection, e.g. to establish/modify/release RBs/BH RLC channels, to perform reconfiguration with sync, to setup/modify/release measurements, to add/modify/release SCells and cell groups, to add/modify/release conditional handover configuration, to add/modify/release conditional PSCell change configuration. As part of the procedure, NAS dedicated information may be transferred from the Network to the UE.</p> <p>3GPP TS 38.331 v16.4.1 at 61-62.</p> <p>5.3.5.3 Reception of an <i>RRCReconfiguration</i> by the UE</p> <p>The UE shall perform the following actions upon reception of the <i>RRCReconfiguration</i>, or upon execution of the conditional reconfiguration (CHO or CPC):</p> <p>...</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>1> if the <i>RRCReconfiguration</i> includes the <i>secondaryCellGroup</i>:</p> <p>2> perform the cell group configuration for the SCG according to 5.3.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 63.</p> <p>5.3.5.5 Cell Group configuration</p> <p>5.3.5.5.1 General</p> <p>The network configures the UE with Master Cell Group (MCG), and zero or one Secondary Cell Group (SCG). In (NG)EN-DC, the MCG is configured as specified in TS 36.331 [10], and for NE-DC, the SCG is configured as specified in TS 36.331 [10]. The network provides the configuration parameters for a cell group in the <i>CellGroupConfig</i> IE.</p> <p>The UE performs the following actions based on a received <i>CellGroupConfig</i> IE:</p> <p>...</p> <p>1> if the <i>CellGroupConfig</i> contains the <i>mac-CellGroupConfig</i>:</p> <p>2> configure the MAC entity of this cell group as specified in 5.3.5.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 70.</p>
<p>[4] The UE of claim 1, wherein the receiver receives, from the base station, the first field comprising an indication to remove an SCell from SCells available to the UE.</p>	<p>For each of the Accused OnePlus '776 Products, the receiver receives, from the base station, the first field comprising an indication to remove an SCell from SCells available to the UE.</p> <p>As shown in Appendix 1, each of the Accused OnePlus '776 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that operate in accordance with the 5G cellular communication standard. Each of the Accused OnePlus '776 Products complies with one or more of 5G Release 16 or later cellular communication protocols including at least 3GPP TS 38.331 and 3GPP TS 38.321, and therefore comprises a receiver to receive, from the base station, the first field comprising an indication to remove an SCell from SCells available to the UE.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p>5.3.5.5 Cell Group configuration</p> <p>5.3.5.5.1 General</p> <p>The network configures the UE with Master Cell Group (MCG), and zero or one Secondary Cell Group (SCG). In (NG)EN-DC, the MCG is configured as specified in TS 36.331 [10], and for NE-DC, the SCG is configured as specified in TS 36.331 [10]. The network provides the configuration parameters for a cell group in the <i>CellGroupConfig</i> IE.</p> <p>The UE performs the following actions based on a received <i>CellGroupConfig</i> IE:</p> <p>...</p> <p>1> if the <i>CellGroupConfig</i> contains the <i>mac-CellGroupConfig</i>:</p> <p>2> configure the MAC entity of this cell group as specified in 5.3.5.5.5;</p> <p>3GPP TS 38.331 v16.4.1 at 70.</p> <p>5.3.5.5.8 SCell Release</p> <p>The UE shall:</p> <p>1> if the release is triggered by reception of the <i>sCellToReleaseList</i>:</p> <p>2> for each <i>sCellIndex</i> value included in the <i>sCellToReleaseList</i>:</p> <p>3> if the current UE configuration includes an SCell with value <i>sCellIndex</i>:</p> <p>4> release the SCell.</p> <p>3GPP TS 38.331 v16.4.1 at 75.</p>

APPENDIX 7: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 9,769,776

U.S. Patent No. 9,769,776	Exemplary Evidence of Infringement
	<p align="center">– <i>CellGroupConfig</i></p> <p>The <i>CellGroupConfig</i> IE is used to configure a master cell group (MCG) or secondary cell group (SCG). A cell group comprises of one MAC entity, a set of logical channels with associated RLC entities and of a primary cell (SpCell) and one or more secondary cells (SCells).</p> <p align="center">CellGroupConfig information element</p> <pre> -- ASN1START -- TAG-CELLGROUPCONFIG-START -- Configuration of one Cell-Group: CellGroupConfig ::= cellGroupId SEQUENCE { cellGroupId, rlc-BearerToAdModList SEQUENCE (SIZE(1..maxLC-ID)) OF RLC-BearerConfig OPTIONAL, -- Need N rlc-BearerToReleaseList SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity OPTIONAL, -- Need N mac-CellGroupConfig MAC-CellGroupConfig OPTIONAL, -- Need M physicalCellGroupConfig PhysicalCellGroupConfig OPTIONAL, -- Need M spCellConfig SpCellConfig OPTIONAL, -- Need M } sCellToAdModList SEQUENCE (SIZE {1..maxNrofSCells}) OF SCellConfig OPTIONAL, -- Need N sCellToReleaseList SEQUENCE (SIZE {1..maxNrofSCells}) OF SCellIndex OPTIONAL, -- Need N ... </pre> <p>3GPP TS 38.331 v16.4.1 at 372-73.</p>