APPENDIX 9: PRELIMINARY INFRINGEMENT CONTENTIONS OF U.S. PATENT NO. 10,764,803

The Accused OnePlus '803 Products are those that are compatible with the LTE-A standard, and specifically with 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). An exemplary identification of the Accused OnePlus '803 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, 5, and 6 of U.S. Patent No. 10,764,803 are essential to mandatory sections of the LTE-A standard (*i.e.*, 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331). 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"). Based on publicly available information, the Accused OnePlus '803 Products comply with the LTE-A standard, which requires compliance with LTE-A cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and perform cellular communications in compliance with the aforementioned LTE-A cellular communication standards. *See* Appendix 1: OnePlus Products Compliance with Standards.

The Exemplary Evidence of Infringement also establishes that each of the Accused OnePlus '803 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 LTE-A cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331. *See* Appendix 1: OnePlus Products Components.

Thus, Appendix 1, taken together with the showing made herein, demonstrates infringement of U.S. Patent No. 10,764,803 by the Accused OnePlus '803 Products.

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[1.pre] A wireless transmit/receive unit (WTRU) comprising:	Each of the Accused OnePlus '803 Products is a wireless transmit/receive unit (WTRU). As shown in Appendix 1, each of the Accused OnePlus '803 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that is configured to operate in accordance with the LTE-A cellular communication standard. Each of

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	the Accused OnePlus ’803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and therefore is a wireless transmit/receive unit.
[1.a] a transceiver; and	Each of the Accused OnePlus ’803 Products comprises a transceiver. As shown in Appendix 1, each of the Accused OnePlus ’803 Products incorporates a transceiver or combination of transmitter and receiver equivalent to a transceiver that is configured to operate in accordance with the LTE-A cellular communication standard. Each of the Accused OnePlus ’803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and therefore comprises a transceiver or combination of transmitter and receiver equivalent to a transceiver.
[1.b] a processor; and	Each of the Accused OnePlus ’803 Products comprises a processor. As shown in Appendix 1, each of the Accused OnePlus ’803 Products incorporates a chipset that is configured to operate in accordance with the LTE-A cellular communication standard. Each of the Accused OnePlus ’803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and therefore comprises a processor.
[1.c] wherein the transceiver and the processor are configured to cause the WTRU to, while a primary cell is associated with a wireless network node and one or more non-primary cells are associated with the wireless network node:	For each of the Accused OnePlus ’803 Products, the receiver and the processor are configured to transceiver and the processor are configured to cause the WTRU to perform the steps in claim elements [1.d] – [1.f] while a primary cell is associated with a wireless network node and one or more non-primary cells are associated with the wireless network node. As shown in Appendix 1, each of the Accused OnePlus ’803 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that is configured to operate in accordance with the LTE-A cellular communication standard. Each of the Accused OnePlus ’803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and

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	3GPP TS 36.331, and therefore the transceiver (or combination of transmitter and receiver equivalent to a transceiver) and the processor are configured to cause the WTRU to perform the steps in claim elements [1.d] – [1.f] while a primary cell is associated with a wireless network node and one or more non-primary cells are associated with the wireless network node. 5.3.1.3 Connected mode mobility In RRC_CONNECTED, the network controls UE mobility, i.e. the network decides when the UE shall connect to which E-UTRA cell(s), or inter-RAT cell. For network controlled mobility in RRC_CONNECTED, the PCell can be changed using an *RRCConnectionReconfiguration* message including the *mobilityControlInfo* (handover), whereas the SCell(s) can be changed using the *RRCConnectionReconfiguration* message either with or without the *mobilityControlInfo*. The network triggers the handover procedure e.g. based on radio conditions, load. To facilitate this, the network may configure the UE to perform measurement reporting (possibly including the configuration of measurement gaps). The network may also initiate handover blindly, i.e. without having received measurement reports from the UE. Before sending the handover message to the UE, the source eNB prepares one or more target cells. The source eNB selects the target PCell. The source eNB may also provide the target eNB with a list of best cells on each frequency for which measurement information is available, in order of decreasing RSRP. The source eNB may also include available measurement information for the cells provided in the list. The target eNB decides which SCells are configured for use after handover, which may include cells other than the ones indicated by the source eNB.

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	The target eNB generates the message used to perform the handover, i.e. the message including the AS-configuration to be used in the target cell(s). The source eNB transparently (i.e. does not alter values/ content) forwards the handover message/ information received from the target to the UE. When appropriate, the source eNB may initiate data forwarding for (a subset of) the DRBs. After receiving the handover message, the UE attempts to access the target PCell at the first available RACH occasion according to Random Access resource selection defined in TS 36.321 [6], i.e. the handover is asynchronous. Consequently, when allocating a dedicated preamble for the random access in the target PCell, E-UTRA shall ensure it is available from the first RACH occasion the UE may use. Upon successful completion of the handover, the UE sends a message used to confirm the handover. If the target eNB does not support the release of RRC protocol which the source eNB used to configure the UE, the target eNB may be unable to comprehend the UE configuration provided by the source eNB. In this case, the target eNB should use the full configuration option to reconfigure the UE for Handover and Re-establishment. Full configuration option includes an initialization of the radio configuration, which makes the procedure independent of the configuration used in the source cell(s) with the exception that the security algorithms are continued for the RRC re-establishment. After the successful completion of handover, PDCP SDUs may be re-transmitted in the target cell(s). This only applies for DRBs using RLC-AM mode and for handovers not involving full configuration option. The further details are specified in TS 36.323 [8]. After the successful completion of handover not involving full configuration option, the SN and the HFN are reset except for the DRBs using RLC-AM mode (for which both SN and HFN continue). For reconfigurations involving the full configuration option, the PDCP entities are newly established (SN and HFN do not continue) for all DRBs irrespective of the RLC mode. The further details are specified in TS 36.323 [8]. One UE behaviour to be performed upon handover is specified, i.e. this is regardless of the handover procedures used within the network (e.g. whether the handover includes X2 or S1 signalling procedures). The source eNB should, for some time, maintain a context to enable the UE to return in case of handover failure. After having detected handover failure, the UE attempts to resume the RRC connection either in the source PCell or in another cell using the RRC re-establishment procedure. This connection resumption succeeds only if the accessed cell is prepared, i.e. concerns a cell of the source eNB or of another eNB towards which handover preparation has been performed. The cell in which the re-establishment procedure succeeds becomes the PCell while SCells, if configured, are released. Normal measurement and mobility procedures are used to support handover to cells broadcasting a CSG identity. In addition, E-UTRAN may configure the UE to report that it is entering or leaving the proximity of cell(s) included in its CSG whitelist. Furthermore, E-UTRAN may request the UE to provide additional information broadcast by the handover candidate cell e.g. cell global identity, CSG identity, CSG membership status. NOTE E-UTRAN may use the 'proximity report' to configure measurements as well as to decide whether or not to request additional information broadcast by the handover candidate cell. The additional information is used to verify whether or not the UE is authorised to access the target PCell and may also be needed to identify handover candidate cell (*PCI confusion* i.e. when the physical layer identity that is included in the measurement report does not uniquely identify the cell). TS 36.331 v10.6.0 at 35-36.

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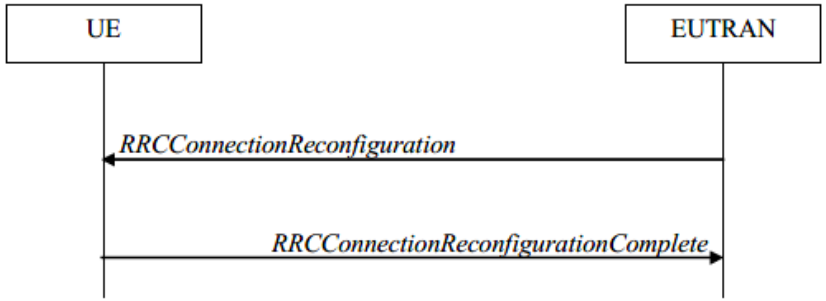
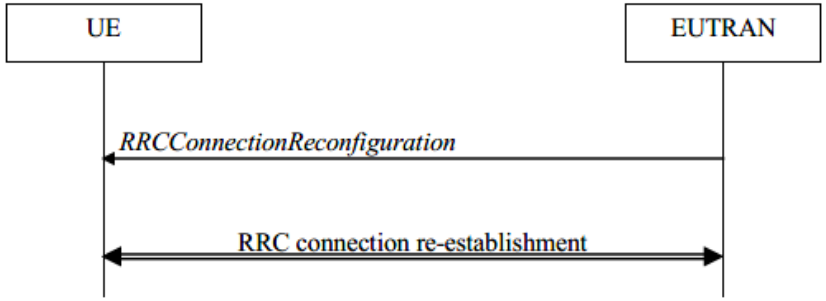
	5.3.5 RRC connection reconfiguration 5.3.5.1 General  **Figure 5.3.5.1-1: RRC connection reconfiguration, successful**  **Figure 5.3.5.1-2: RRC connection reconfiguration, failure** The purpose of this procedure is to modify an RRC connection, e.g. to establish/ modify/ release RBs, to perform handover, to setup/ modify/ release measurements, to add/ modify/ release SCells. As part of the procedure, NAS dedicated information may be transferred from E-UTRAN to the UE. TS 36.331 v10.6.0 at 46.

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	5.5 Carrier Aggregation In Carrier Aggregation (CA), two or more Component Carriers (CCs) are aggregated in order to support wider transmission bandwidths up to 100MHz. A UE may simultaneously receive or transmit on one or multiple CCs depending on its capabilities: - A Rel-10 UE with reception and/or transmission capabilities for CA can simultaneously receive and/or transmit on multiple CCs corresponding to multiple serving cells; - A Rel-8/9 UE can receive on a single CC and transmit on a single CC corresponding to one serving cell only. CA is supported for both contiguous and non-contiguous CCs with each CC limited to a maximum of 110 Resource Blocks in the frequency domain using the Rel-8/9 numerology. It is possible to configure a UE to aggregate a different number of CCs originating from the same eNB and of possibly different bandwidths in the UL and the DL. - The number of DL CCs that can be configured depends on the DL aggregation capability of the UE; - The number of UL CCs that can be configured depends on the UL aggregation capability of the UE; - It is not possible to configure a UE with more UL CCs than DL CCs; - In typical TDD deployments, the number of CCs and the bandwidth of each CC in UL and DL is the same. CCs originating from the same eNB need not to provide the same coverage. CCs shall be LTE Rel-8/9 compatible. Nevertheless, existing mechanisms (e.g. barring) may be used to avoid Rel-8/9 UEs to camp on a CC. TS 36.300 v10.6.0 at 46.

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6.4 Carrier Aggregation

In case of CA, the multi-carrier nature of the physical layer is only exposed to the MAC layer for which one HARQ entity is required per serving cell;

- In both uplink and downlink, there is one independent hybrid-ARQ entity per serving cell and one transport block is generated per TTI per serving cell in the absence of spatial multiplexing. Each transport block and its potential HARQ retransmissions are mapped to a single serving cell.

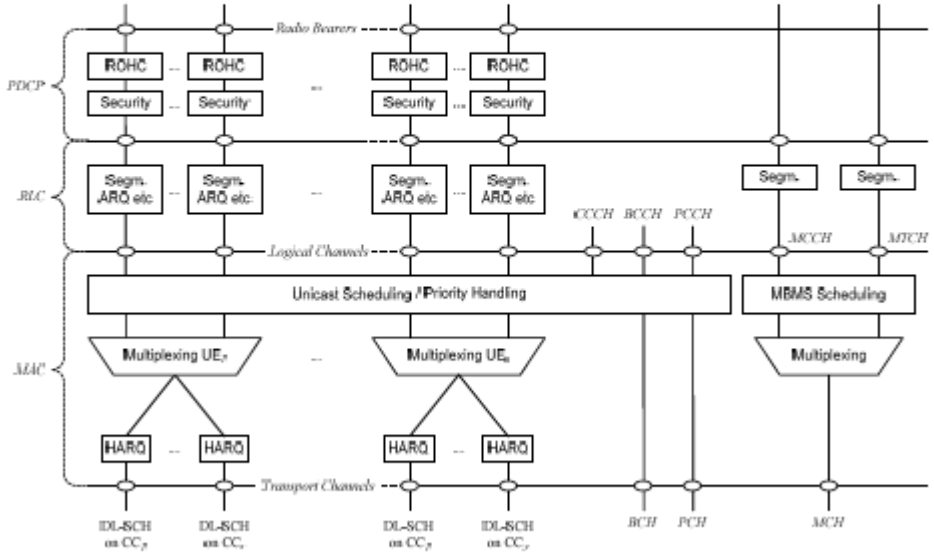

Figure 6.4-1: Layer 2 Structure for DL with CA configured

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	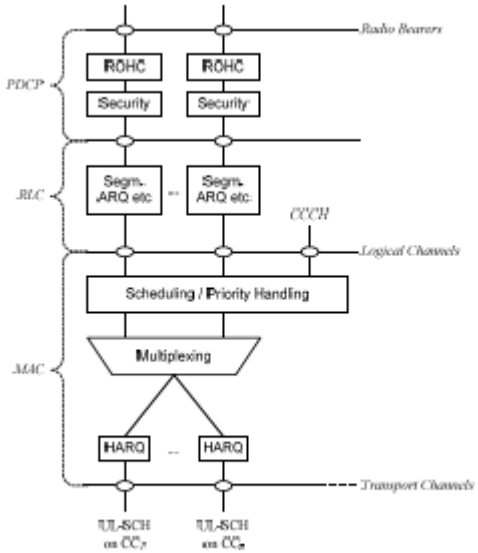 **Figure 6.4-2: Layer 2 Structure for UL with CA configured** TS 36.300 v10.6.0 at 52-53.

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	7.5 Carrier Aggregation When CA is configured, the UE only has one RRC connection with the network. At RRC connection establishment/re-establishment/handover, one serving cell provides the NAS mobility information (e.g. TAI), and at RRC connection re-establishment/handover, one serving cell provides the security input. This cell is referred to as the Primary Cell (PCell). In the downlink, the carrier corresponding to the PCell is the Downlink Primary Component Carrier (DL PCC) while in the uplink it is the Uplink Primary Component Carrier (UL PCC). Depending on UE capabilities, Secondary Cells (SCells) can be configured to form together with the PCell a set of serving cells. In the downlink, the carrier corresponding to an SCell is a Downlink Secondary Component Carrier (DL SCC) while in the uplink it is an Uplink Secondary Component Carrier (UL SCC). The configured set of serving cells for a UE therefore always consists of one PCell and one or more SCells: - For each SCell the usage of uplink resources by the UE in addition to the downlink ones is configurable (the number of DL SCCs configured is therefore always larger than or equal to the number of UL SCCs and no SCell can be configured for usage of uplink resources only); - From a UE viewpoint, each uplink resource only belongs to one serving cell; - The number of serving cells that can be configured depends on the aggregation capability of the UE (see subclause 5.5); - PCell can only be changed with handover procedure (i.e. with security key change and RACH procedure); - PCell is used for transmission of PUCCH; - Unlike SCells, PCell cannot be de-activated (see subclause 11.2); - Re-establishment is triggered when PCell experiences RLF, not when SCells experience RLF; - NAS information is taken from PCell. The reconfiguration, addition and removal of SCells can be performed by RRC. At intra-LTE handover, RRC can also add, remove, or reconfigure SCells for usage with the target PCell. When adding a new SCell, dedicated RRC signalling is used for sending all required system information of the SCell i.e. while in connected mode, UEs need not acquire broadcasted system information directly from the SCells. TS 36.300 v10.6.0 at 56.

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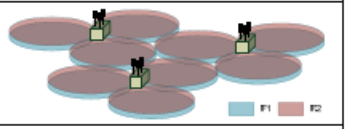
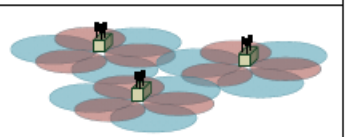
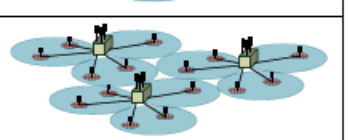
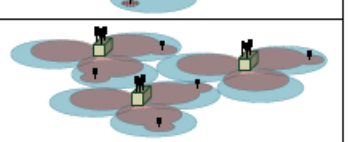
Annex J (informative): Carrier Aggregation

J.1 Deployment Scenarios

Table J.1-1 shows some of the potential deployment scenarios for CA. In Rel-10, for the uplink, the focus is laid on the support of intra-band carrier aggregations (e.g. scenarios #1, as well as scenarios #2 and #3 when F1 and F2 are in the same band). For the downlink, all scenarios should be supported in Rel-10.

Table J.1-1: CA Deployment Scenarios (F2 > F1).

#	Description	Example
1	F1 and F2 cells are co-located and overlaid, providing nearly the same coverage. Both layers provide sufficient coverage and mobility can be supported on both layers. Likely scenario is when F1 and F2 are of the same band, e.g., 2 GHz, 800 MHz, etc. It is expected that aggregation is possible between overlaid F1 and F2 cells.	
2	F1 and F2 cells are co-located and overlaid, but F2 has smaller coverage due to larger path loss. Only F1 provides sufficient coverage and F2 is used to improve throughput. Mobility is performed based on F1 coverage. Likely scenario when F1 and F2 are of different bands, e.g., F1 = {800 MHz, 2 GHz} and F2 = {3.5 GHz}, etc. It is expected that aggregation is possible between overlaid F1 and F2 cells.	
3	F1 and F2 cells are co-located but F2 antennas are directed to the cell boundaries of F1 so that cell edge throughput is increased. F1 provides sufficient coverage but F2 potentially has holes, e.g., due to larger path loss. Mobility is based on F1 coverage. Likely scenario is when F1 and F2 are of different bands, e.g., F1 = {800 MHz, 2 GHz} and F2 = {3.5 GHz}, etc. It is expected that F1 and F2 cells of the same eNB can be aggregated where coverage overlaps.	
4	F1 provides macro coverage and on F2 Remote Radio Heads (RRHs) are used to improve throughput at hot spots. Mobility is performed based on F1 coverage. Likely scenario is when F1 and F2 are of different bands, e.g., F1 = {800 MHz, 2 GHz} and F2 = {3.5 GHz}, etc. It is expected that F2 RRHs cells can be aggregated with the underlying F1 macro cells.	
5	Similar to scenario #2, but frequency selective repeaters are deployed so that coverage is extended for one of the carrier frequencies. It is expected that F1 and F2 cells of the same eNB can be aggregated where coverage overlaps.	

The reception timing difference at the physical layer of DL assignments and UL grants for the same TTI but from different serving cells (e.g. depending on number of control symbols, propagation and deployment scenario) does not affect MAC operation. A UE should cope with a relative propagation delay difference up to 30 µs among the component carriers to be aggregated in inter-band non-contiguous CA. This implies that a UE should cope with a delay spread of up to 31.3 µs among the component carriers monitored at the receiver, since the BS time alignment is specified to be up to 1.3 µs.

When CA is deployed frame timing, SFN and TDD-Config are aligned across cells that can be aggregated.

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	TS 36.300 v10.6.0 at 196.
[1.d] receive configuration information for the primary cell and the one or more non-primary cells;	Each of the Accused OnePlus '803 Products are configured to receive configuration information for the primary cell and the one or more non-primary cells. As shown in Appendix 1, each of the Accused OnePlus '803 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that is configured to operate in accordance with the LTE-A cellular communication standard. Each of the Accused OnePlus '803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and therefore the transceiver (or combination of transmitter and receiver equivalent to a transceiver) and the processor are configured to receive configuration information for the primary cell and the one or more non-primary cells. **5.3.1.3 Connected mode mobility** In RRC_CONNECTED, the network controls UE mobility, i.e. the network decides when the UE shall connect to which E-UTRA cell(s), or inter-RAT cell. For network controlled mobility in RRC_CONNECTED, the PCell can be changed using an *RRCConnectionReconfiguration* message including the *mobilityControlInfo* (handover), whereas the SCell(s) can be changed using the *RRCConnectionReconfiguration* message either with or without the *mobilityControlInfo*. The network triggers the handover procedure e.g. based on radio conditions, load. To facilitate this, the network may configure the UE to perform measurement reporting (possibly including the configuration of measurement gaps). The network may also initiate handover blindly, i.e. without having received measurement reports from the UE. Before sending the handover message to the UE, the source eNB prepares one or more target cells. The source eNB selects the target PCell. The source eNB may also provide the target eNB with a list of best cells on each frequency for which measurement information is available, in order of decreasing RSRP. The source eNB may also include available measurement information for the cells provided in the list. The target eNB decides which SCells are configured for use after handover, which may include cells other than the ones indicated by the source eNB.

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	The target eNB generates the message used to perform the handover, i.e. the message including the AS-configuration to be used in the target cell(s). The source eNB transparently (i.e. does not alter values/ content) forwards the handover message/ information received from the target to the UE. When appropriate, the source eNB may initiate data forwarding for (a subset of) the DRBs. After receiving the handover message, the UE attempts to access the target PCell at the first available RACH occasion according to Random Access resource selection defined in TS 36.321 [6], i.e. the handover is asynchronous. Consequently, when allocating a dedicated preamble for the random access in the target PCell, E-UTRA shall ensure it is available from the first RACH occasion the UE may use. Upon successful completion of the handover, the UE sends a message used to confirm the handover. If the target eNB does not support the release of RRC protocol which the source eNB used to configure the UE, the target eNB may be unable to comprehend the UE configuration provided by the source eNB. In this case, the target eNB should use the full configuration option to reconfigure the UE for Handover and Re-establishment. Full configuration option includes an initialization of the radio configuration, which makes the procedure independent of the configuration used in the source cell(s) with the exception that the security algorithms are continued for the RRC re-establishment. After the successful completion of handover, PDCP SDUs may be re-transmitted in the target cell(s). This only applies for DRBs using RLC-AM mode and for handovers not involving full configuration option. The further details are specified in TS 36.323 [8]. After the successful completion of handover not involving full configuration option, the SN and the HFN are reset except for the DRBs using RLC-AM mode (for which both SN and HFN continue). For reconfigurations involving the full configuration option, the PDCP entities are newly established (SN and HFN do not continue) for all DRBs irrespective of the RLC mode. The further details are specified in TS 36.323 [8]. One UE behaviour to be performed upon handover is specified, i.e. this is regardless of the handover procedures used within the network (e.g. whether the handover includes X2 or S1 signalling procedures). The source eNB should, for some time, maintain a context to enable the UE to return in case of handover failure. After having detected handover failure, the UE attempts to resume the RRC connection either in the source PCell or in another cell using the RRC re-establishment procedure. This connection resumption succeeds only if the accessed cell is prepared, i.e. concerns a cell of the source eNB or of another eNB towards which handover preparation has been performed. The cell in which the re-establishment procedure succeeds becomes the PCell while SCells, if configured, are released. Normal measurement and mobility procedures are used to support handover to cells broadcasting a CSG identity. In addition, E-UTRAN may configure the UE to report that it is entering or leaving the proximity of cell(s) included in its CSG whitelist. Furthermore, E-UTRAN may request the UE to provide additional information broadcast by the handover candidate cell e.g. cell global identity, CSG identity, CSG membership status. NOTE E-UTRAN may use the 'proximity report' to configure measurements as well as to decide whether or not to request additional information broadcast by the handover candidate cell. The additional information is used to verify whether or not the UE is authorised to access the target PCell and may also be needed to identify handover candidate cell (*PCI confusion* i.e. when the physical layer identity that is included in the measurement report does not uniquely identify the cell). TS 36.331 v10.6.0 at 35-36.

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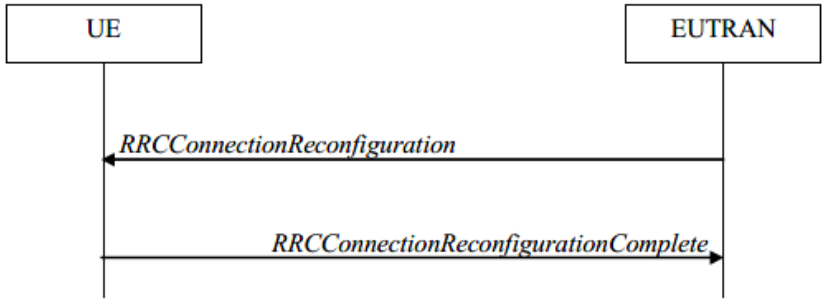
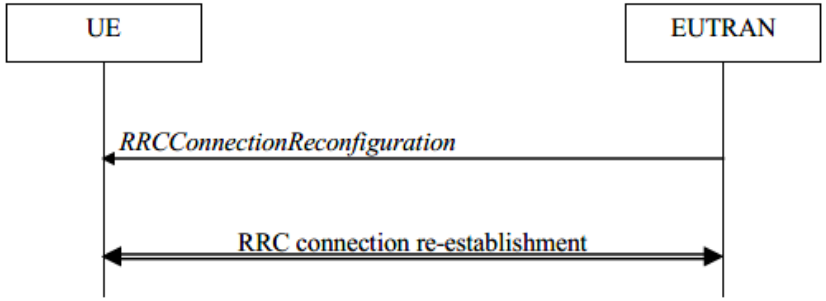
	5.3.5 RRC connection reconfiguration 5.3.5.1 General  **Figure 5.3.5.1-1: RRC connection reconfiguration, successful**  **Figure 5.3.5.1-2: RRC connection reconfiguration, failure** The purpose of this procedure is to modify an RRC connection, e.g. to establish/ modify/ release RBs, to perform handover, to setup/ modify/ release measurements, to add/ modify/ release SCells. As part of the procedure, NAS dedicated information may be transferred from E-UTRAN to the UE. TS 36.331 v10.6.0 at 46.

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	5.3.5.4 Reception of an *RRCConnectionReconfiguration* including the *mobilityControlInfo* by the UE (handover) If the *RRCConnectionReconfiguration* message includes the *mobilityControlInfo* and the UE is able to comply with the configuration included in this message, the UE shall: 1> stop timer T310, if running; 1> start timer T304 with the timer value set to *t304*, as included in the *mobilityControlInfo*; 1> if the *carrierFreq* is included: 2> consider the target PCell to be one on the frequency indicated by the *carrierFreq* with a physical cell identity indicated by the *targetPhysCellId*; 1> else: 2> consider the target PCell to be one on the frequency of the source PCell with a physical cell identity indicated by the *targetPhysCellId*; 1> start synchronising to the DL of the target PCell; NOTE 1: The UE should perform the handover as soon as possible following the reception of the RRC message triggering the handover, which could be before confirming successful reception (HARQ and ARQ) of this message. 1> reset MAC; … 1> if the received *RRCConnectionReconfiguration* includes the s*CellToAddModList*: 2> perform SCell addition or modification as specified in 5.3.10.3b; TS 36.331 v10.6.0 at 47-49.

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	– *RRCConnectionReconfiguration* The *RRCConnectionReconfiguration* message is the command to modify an RRC connection. It may convey information for measurement configuration, mobility control, radio resource configuration (including RBs, MAC main configuration and physical channel configuration) including any associated dedicated NAS information and security configuration. Signalling radio bearer: SRB1 RLC-SAP: AM Logical channel: DCCH Direction: E-UTRAN to UE

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RRCConnectionReconfiguration message

```
-- ASN1START

RRCConnectionReconfiguration ::=    SEQUENCE {
    rrc-TransactionIdentifier           RRC-TransactionIdentifier,
    criticalExtensions                  CHOICE {
        c1                                  CHOICE{
            rrcConnectionReconfiguration-r8     RRCConnectionReconfiguration-r8-IEs,
            spare7 NULL,
            spare6 NULL, spare5 NULL, spare4 NULL,
            spare3 NULL, spare2 NULL, spare1 NULL
        },
        criticalExtensionsFuture            SEQUENCE {}
    }
}

RRCConnectionReconfiguration-r8-IEs ::= SEQUENCE {
    measConfig                          MeasConfig                      OPTIONAL,   -- Need ON
    mobilityControlInfo                 MobilityControlInfo             OPTIONAL,   -- Cond HO
    dedicatedInfoNASList                SEQUENCE (SIZE(1..maxDRB)) OF
                                            DedicatedInfoNAS            OPTIONAL,   -- Cond nonHO
    radioResourceConfigDedicated        RadioResourceConfigDedicated    OPTIONAL, -- Cond HO-toEUTRA
    securityConfigHO                    SecurityConfigHO                OPTIONAL,   -- Cond HO
    nonCriticalExtension                RRCConnectionReconfiguration-v890-IEs   OPTIONAL
}

RRCConnectionReconfiguration-v890-IEs ::= SEQUENCE {
    lateNonCriticalExtension            OCTET STRING                    OPTIONAL,   -- Need OP
    nonCriticalExtension                RRCConnectionReconfiguration-v920-IEs       OPTIONAL
}

RRCConnectionReconfiguration-v920-IEs ::= SEQUENCE {
    otherConfig-r9                      OtherConfig-r9                  OPTIONAL,   -- Need ON
    fullConfig-r9                       ENUMERATED {true}               OPTIONAL,   -- Cond HO-
Reestab
    nonCriticalExtension                RRCConnectionReconfiguration-v1020-IEs      OPTIONAL
}

RRCConnectionReconfiguration-v1020-IEs ::= SEQUENCE {
    sCellToReleaseList-r10              SCellToReleaseList-r10          OPTIONAL,   -- Need ON
    sCellToAddModList-r10               SCellToAddModList-r10           OPTIONAL,   -- Need ON
    nonCriticalExtension                SEQUENCE {}                     OPTIONAL    -- Need OP
}

SCellToAddModList-r10 ::=       SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellToAddMod-r10

SCellToAddMod-r10 ::=           SEQUENCE {
    sCellIndex-r10                      SCellIndex-r10,
    cellIdentification-r10              SEQUENCE {
        physCellId-r10                      PhysCellId,
```

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```
        dl-CarrierFreq-r10                  ARFCN-ValueEUTRA
    }                                                                   OPTIONAL,   -- Cond SCellAdd
    radioResourceConfigCommonSCell-r10      RadioResourceConfigCommonSCell-r10  OPTIONAL,   -- Cond
SCellAdd
    radioResourceConfigDedicatedSCell-r10   RadioResourceConfigDedicatedSCell-r10   OPTIONAL,   --
Cond SCellAdd2
    ...
}

SCellToReleaseList-r10 ::=          SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellIndex-r10

SecurityConfigHO ::=                SEQUENCE {
    handoverType                        CHOICE {
        intraLTE                            SEQUENCE {
            securityAlgorithmConfig             SecurityAlgorithmConfig     OPTIONAL,   -- Cond
fullConfig
            keyChangeIndicator                  BOOLEAN,
            nextHopChainingCount                NextHopChainingCount
        },
        interRAT                            SEQUENCE {
            securityAlgorithmConfig             SecurityAlgorithmConfig,
            nas-SecurityParamToEUTRA            OCTET STRING (SIZE(6))
        }
    },
    ...
}


-- ASN1STOP
```

TS 36.331 v10.6.0 at 128-129.

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	– *MobilityControlInfo* The IE *MobilityControlInfo* includes parameters relevant for network controlled mobility to/within E-UTRA. ***MobilityControlInfo* information element**

```
-- ASN1START

MobilityControlInfo ::=     SEQUENCE {
    targetPhysCellId                    PhysCellId,
    carrierFreq                         CarrierFreqEUTRA                    OPTIONAL,   -- Cond HO-
toEUTRA
    carrierBandwidth                    CarrierBandwidthEUTRA               OPTIONAL,   -- Cond HO-
toEUTRA
    additionalSpectrumEmission          AdditionalSpectrumEmission          OPTIONAL,   -- Cond HO-
toEUTRA
    t304                                ENUMERATED {
                                            ms50, ms100, ms150, ms200, ms500, ms1000,
                                            ms2000, spare1},
    newUE-Identity                      C-RNTI,
    radioResourceConfigCommon           RadioResourceConfigCommon,
    rach-ConfigDedicated                RACH-ConfigDedicated                OPTIONAL,   -- Need OP
    ...
}

CarrierBandwidthEUTRA ::=           SEQUENCE {
    dl-Bandwidth                        ENUMERATED {
                                                n6, n15, n25, n50, n75, n100, spare10,
                                                spare9, spare8, spare7, spare6, spare5,
                                                spare4, spare3, spare2, spare1},
    ul-Bandwidth                        ENUMERATED {
                                                n6, n15, n25, n50, n75, n100, spare10,
                                                spare9, spare8, spare7, spare6, spare5,
                                                spare4, spare3, spare2, spare1} OPTIONAL -- Need OP
}

CarrierFreqEUTRA ::=                SEQUENCE {
    dl-CarrierFreq                      ARFCN-ValueEUTRA,
    ul-CarrierFreq                      ARFCN-ValueEUTRA                OPTIONAL    -- Cond FDD
}

-- ASN1STOP
```

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***MobilityControlInfo* field descriptions**

additionalSpectrumEmission
The UE requirements related to IE *AdditionalSpectrumEmission* are defined in TS 36.101 [42, table 6.2.4.1].

carrierBandwidth
Provides the parameters *Downlink bandwidth*, and *Uplink bandwidth*, see TS 36.101 [42].

dl-Bandwidth
Parameter: *Downlink bandwidth*, see TS 36.101 [42].

rach-ConfigDedicated
The dedicated random access parameters. If absent the UE applies contention based random access as specified in TS 36.321 [6].

t304
Timer T304 as described in section 7.3. ms50 corresponds with 50 ms, ms100 corresponds with 100 ms and so on.

ul-Bandwidth
Parameter: *Uplink bandwidth*, see TS 36.101 [42, table 5.6-1]. For TDD, the parameter is absent and it is equal to downlink bandwidth. If absent for FDD, apply the same value as applies for the downlink bandwidth.

Conditional presence	Explanation
FDD	The field is mandatory with default value (the default duplex distance defined for the concerned band, as specified in TS 36.101 [42]) in case of "FDD"; otherwise the field is not present.
HO-toEUTRA	The field is mandatory present in case of inter-RAT handover to E-UTRA; otherwise the field is optionally present, need ON.

TS 36.331 v10.6.0 at 206-07.

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	5.5 Carrier Aggregation In Carrier Aggregation (CA), two or more Component Carriers (CCs) are aggregated in order to support wider transmission bandwidths up to 100MHz. A UE may simultaneously receive or transmit on one or multiple CCs depending on its capabilities: - A Rel-10 UE with reception and/or transmission capabilities for CA can simultaneously receive and/or transmit on multiple CCs corresponding to multiple serving cells; - A Rel-8/9 UE can receive on a single CC and transmit on a single CC corresponding to one serving cell only. CA is supported for both contiguous and non-contiguous CCs with each CC limited to a maximum of 110 Resource Blocks in the frequency domain using the Rel-8/9 numerology. It is possible to configure a UE to aggregate a different number of CCs originating from the same eNB and of possibly different bandwidths in the UL and the DL. - The number of DL CCs that can be configured depends on the DL aggregation capability of the UE; - The number of UL CCs that can be configured depends on the UL aggregation capability of the UE; - It is not possible to configure a UE with more UL CCs than DL CCs; - In typical TDD deployments, the number of CCs and the bandwidth of each CC in UL and DL is the same. CCs originating from the same eNB need not to provide the same coverage. CCs shall be LTE Rel-8/9 compatible. Nevertheless, existing mechanisms (e.g. barring) may be used to avoid Rel-8/9 UEs to camp on a CC. TS 36.300 v10.6.0 at 46.

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6.4 Carrier Aggregation

In case of CA, the multi-carrier nature of the physical layer is only exposed to the MAC layer for which one HARQ entity is required per serving cell;

- In both uplink and downlink, there is one independent hybrid-ARQ entity per serving cell and one transport block is generated per TTI per serving cell in the absence of spatial multiplexing. Each transport block and its potential HARQ retransmissions are mapped to a single serving cell.

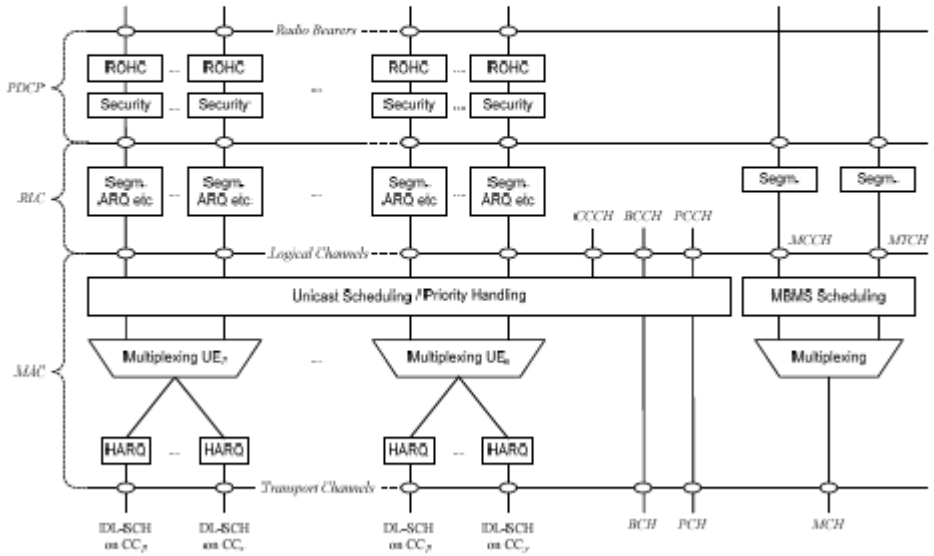

Figure 6.4-1: Layer 2 Structure for DL with CA configured

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	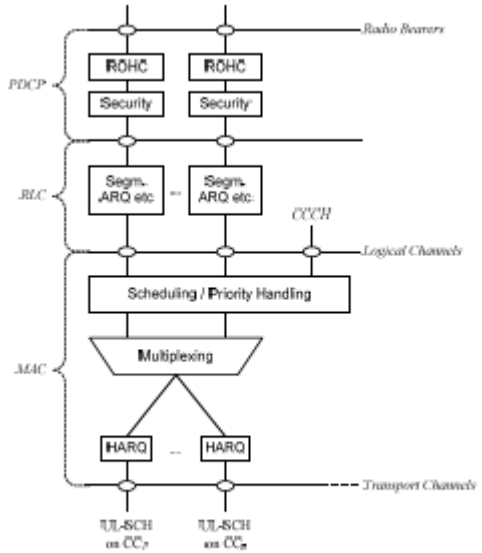 **Figure 6.4-2: Layer 2 Structure for UL with CA configured** TS 36.300 v10.6.0 at 52-53.

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	7.5 Carrier Aggregation When CA is configured, the UE only has one RRC connection with the network. At RRC connection establishment/re-establishment/handover, one serving cell provides the NAS mobility information (e.g. TAI), and at RRC connection re-establishment/handover, one serving cell provides the security input. This cell is referred to as the Primary Cell (PCell). In the downlink, the carrier corresponding to the PCell is the Downlink Primary Component Carrier (DL PCC) while in the uplink it is the Uplink Primary Component Carrier (UL PCC). Depending on UE capabilities, Secondary Cells (SCells) can be configured to form together with the PCell a set of serving cells. In the downlink, the carrier corresponding to an SCell is a Downlink Secondary Component Carrier (DL SCC) while in the uplink it is an Uplink Secondary Component Carrier (UL SCC). The configured set of serving cells for a UE therefore always consists of one PCell and one or more SCells: - For each SCell the usage of uplink resources by the UE in addition to the downlink ones is configurable (the number of DL SCCs configured is therefore always larger than or equal to the number of UL SCCs and no SCell can be configured for usage of uplink resources only); - From a UE viewpoint, each uplink resource only belongs to one serving cell; - The number of serving cells that can be configured depends on the aggregation capability of the UE (see subclause 5.5); - PCell can only be changed with handover procedure (i.e. with security key change and RACH procedure); - PCell is used for transmission of PUCCH; - Unlike SCells, PCell cannot be de-activated (see subclause 11.2); - Re-establishment is triggered when PCell experiences RLF, not when SCells experience RLF; - NAS information is taken from PCell. The reconfiguration, addition and removal of SCells can be performed by RRC. At intra-LTE handover, RRC can also add, remove, or reconfigure SCells for usage with the target PCell. When adding a new SCell, dedicated RRC signalling is used for sending all required system information of the SCell i.e. while in connected mode, UEs need not acquire broadcasted system information directly from the SCells. TS 36.300 v10.6.0 at 56.

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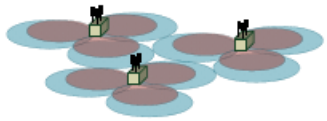
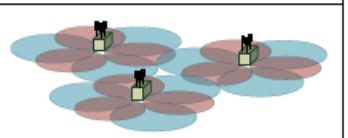
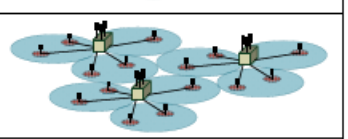
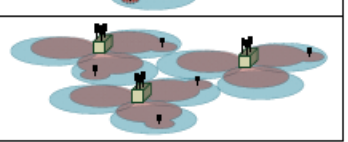
Annex J (informative): Carrier Aggregation

J.1 Deployment Scenarios

Table J.1-1 shows some of the potential deployment scenarios for CA. In Rel-10, for the uplink, the focus is laid on the support of intra-band carrier aggregations (e.g. scenarios #1, as well as scenarios #2 and #3 when F1 and F2 are in the same band). For the downlink, all scenarios should be supported in Rel-10.

Table J.1-1: CA Deployment Scenarios (F2 > F1).

#	Description	Example
1	F1 and F2 cells are co-located and overlaid, providing nearly the same coverage. Both layers provide sufficient coverage and mobility can be supported on both layers. Likely scenario is when F1 and F2 are of the same band, e.g., 2 GHz, 800 MHz, etc. It is expected that aggregation is possible between overlaid F1 and F2 cells.	
2	F1 and F2 cells are co-located and overlaid, but F2 has smaller coverage due to larger path loss. Only F1 provides sufficient coverage and F2 is used to improve throughput. Mobility is performed based on F1 coverage. Likely scenario when F1 and F2 are of different bands, e.g., F1 = {800 MHz, 2 GHz} and F2 = {3.5 GHz}, etc. It is expected that aggregation is possible between overlaid F1 and F2 cells.	
3	F1 and F2 cells are co-located but F2 antennas are directed to the cell boundaries of F1 so that cell edge throughput is increased. F1 provides sufficient coverage but F2 potentially has holes, e.g., due to larger path loss. Mobility is based on F1 coverage. Likely scenario is when F1 and F2 are of different bands, e.g., F1 = {800 MHz, 2 GHz} and F2 = {3.5 GHz}, etc. It is expected that F1 and F2 cells of the same eNB can be aggregated where coverage overlaps.	
4	F1 provides macro coverage and on F2 Remote Radio Heads (RRHs) are used to improve throughput at hot spots. Mobility is performed based on F1 coverage. Likely scenario is when F1 and F2 are of different bands, e.g., F1 = {800 MHz, 2 GHz} and F2 = {3.5 GHz}, etc. It is expected that F2 RRHs cells can be aggregated with the underlying F1 macro cells.	
5	Similar to scenario #2, but frequency selective repeaters are deployed so that coverage is extended for one of the carrier frequencies. It is expected that F1 and F2 cells of the same eNB can be aggregated where coverage overlaps.	

The reception timing difference at the physical layer of DL assignments and UL grants for the same TTI but from different serving cells (e.g. depending on number of control symbols, propagation and deployment scenario) does not affect MAC operation. A UE should cope with a relative propagation delay difference up to 30 µs among the component carriers to be aggregated in inter-band non-contiguous CA. This implies that a UE should cope with a delay spread of up to 31.3 µs among the component carriers monitored at the receiver, since the BS time alignment is specified to be up to 1.3 µs.

When CA is deployed frame timing, SFN and TDD-Config are aligned across cells that can be aggregated.

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	TS 36.300 v10.6.0 at 196.
[1.e] receive a message on the primary cell, the received message including an indication of at least one of the one or more non-primary cells from which the WTRU is to receive a downlink shared channel transmission; and	Each of the Accused OnePlus '803 Products are configured to receive a message on the primary cell, the received message including an indication of at least one of the one or more non-primary cells from which the WTRU is to receive a downlink shared channel transmission. As shown in Appendix 1, each of the Accused OnePlus '803 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that is configured to operate in accordance with the LTE-A cellular communication standard. Each of the Accused OnePlus '803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and therefore the transceiver (or combination of transmitter and receiver equivalent to a transceiver) and the processor are configured to receive a message on the primary cell, the received message including an indication of at least one of the one or more non-primary cells from which the WTRU is to receive a downlink shared channel transmission. 5.3.1.3 Connected mode mobility In RRC_CONNECTED, the network controls UE mobility, i.e. the network decides when the UE shall connect to which E-UTRA cell(s), or inter-RAT cell. For network controlled mobility in RRC_CONNECTED, the PCell can be changed using an *RRCConnectionReconfiguration* message including the *mobilityControlInfo* (handover), whereas the SCell(s) can be changed using the *RRCConnectionReconfiguration* message either with or without the *mobilityControlInfo*. The network triggers the handover procedure e.g. based on radio conditions, load. To facilitate this, the network may configure the UE to perform measurement reporting (possibly including the configuration of measurement gaps). The network may also initiate handover blindly, i.e. without having received measurement reports from the UE. Before sending the handover message to the UE, the source eNB prepares one or more target cells. The source eNB selects the target PCell. The source eNB may also provide the target eNB with a list of best cells on each frequency for which measurement information is available, in order of decreasing RSRP. The source eNB may also include available measurement information for the cells provided in the list. The target eNB decides which SCells are configured for use after handover, which may include cells other than the ones indicated by the source eNB.

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	… After receiving the handover message, the UE attempts to access the target PCell at the first available RACH occasion according to Random Access resource selection defined in TS 36.321 [6], i.e. the handover is asynchronous. Consequently, when allocating a dedicated preamble for the random access in the target PCell, E-UTRA shall ensure it is available from the first RACH occasion the UE may use. Upon successful completion of the handover, the UE sends a message used to confirm the handover. TS 36.331 v10.6.0 at 35-36. 5.4.2.3 Reception of the *RRCConnectionReconfiguration* by the UE If the UE is able to comply with the configuration included in the *RRCConnectionReconfiguration* message, the UE shall: … 1> if MAC successfully completes the random access procedure: 2> stop timer T304; 2> apply the parts of the CQI reporting configuration, the scheduling request configuration and the sounding RS configuration that do not require the UE to know the SFN of the target PCell, if any; 2> apply the parts of the measurement and the radio resource configuration that require the UE to know the SFN of the target PCell (e.g. measurement gaps, periodic CQI reporting, scheduling request configuration, sounding RS configuration), if any, upon acquiring the SFN of the target PCell; NOTE 1: Whenever the UE shall setup or reconfigure a configuration in accordance with a field that is received it applies the new configuration, except for the cases addressed by the above statements. 2> enter E-UTRA RRC_CONNECTED, upon which the procedure ends; NOTE 2: The UE is not required to determine the SFN of the target PCell by acquiring system information from that cell before performing RACH access in the target PCell. TS 36.331 v10.6.0 at 66-68.

U.S. Patent No. 10,764,803	Exemplary Evidence of Infringement
	4.2.1 MAC Entities E-UTRA defines two MAC entities; one in the UE and one in the E-UTRAN. These MAC entities handle the following transport channels: - Broadcast Channel (BCH); - Downlink Shared Channel(s) (DL-SCH); - Paging Channel (PCH);

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- Uplink Shared Channel(s) (UL-SCH);
- Random Access Channel(s) (RACH);
- Multicast Channel(s) (MCH).

The exact functions performed by the MAC entities are different in the UE from those performed in the E-UTRAN.

The RN includes both MAC entities; one for communication with UEs and one for communication with the E-UTRAN.

If the UE is configured with one or more SCells, there are multiple DL-SCH and there may be multiple UL-SCH per UE; one DL-SCH and UL-SCH on the PCell, one DL-SCH and zero or one UL-SCH for each SCell.

Figure 4.2.1-1 illustrates one possible structure for the UE side MAC entity, and it should not restrict implementation.

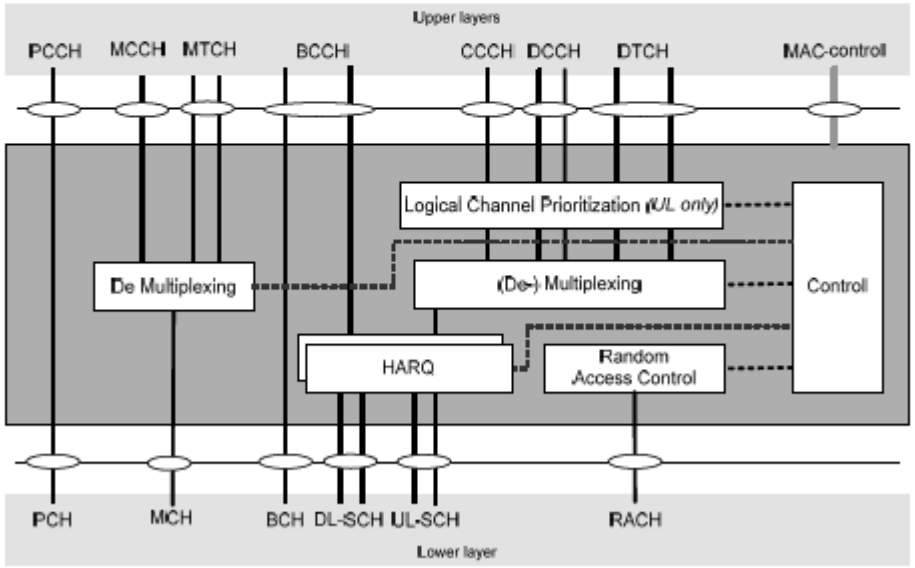

Figure 4.2.1-1: MAC structure overview, UE side

TS 36.321 v10.6.0 at 8-9.

U.S. Patent No. 10,764,803	Exemplary Evidence of Infringement
	11.2 Activation/Deactivation Mechanism To enable reasonable UE battery consumption when CA is configured, an activation/deactivation mechanism of SCells is supported (i.e. activation/deactivation does not apply to PCell). When an SCell is deactivated, the UE does not need to receive the corresponding PDCCH or PDSCH, cannot transmit in the corresponding uplink, nor is it required to perform CQI measurements. Conversely, when an SCell is active, the UE shall receive PDSCH and PDCCH (if the UE is configured to monitor PDCCH from this SCell), and is expected to be able to perform CQI measurements. The activation/deactivation mechanism is based on the combination of a MAC control element and deactivation timers. The MAC control element carries a bitmap for the activation and deactivation of SCells: a bit set to 1 denotes activation of the corresponding SCell, while a bit set to 0 denotes deactivation. With the bitmap, SCells can be activated and deactivated individually, and a single activation/deactivation command can activate/deactivate a subset of the SCells. One deactivation timer is maintained per SCell but one common value is configured per UE by RRC. At reconfiguration without mobility control information: - SCells added to the set of serving cells are initially "deactivated"; - SCells which remain in the set of serving cells (either unchanged or reconfigured) do not change their activation status ("activated" or "deactivated"). At reconfiguration with mobility control information (i.e. handover): - SCells are "deactivated". TS 36.300 v10.6.0 at 93.

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	5.13 Activation/Deactivation of SCells
	
	If the UE is configured with one or more SCells, the network may activate and deactivate the configured SCells. The PCell is always activated. The network activates and deactivates the SCell(s) by sending the Activation/Deactivation MAC control element described in subclause 6.1.3.8. Furthermore, the UE maintains a *sCellDeactivationTimer* timer per configured SCell and deactivates the associated SCell upon its expiry. The same initial timer value applies to each instance of the *sCellDeactivationTimer* and it is configured by RRC. The configured SCells are initially deactivated upon addition and after a handover.
	
	The UE shall for each TTI and for each configured SCell:
	
	- if the UE receives an Activation/Deactivation MAC control element in this TTI activating the SCell, the UE shall in the TTI according to the timing defined in [2]:
	  - activate the SCell; i.e. apply normal SCell operation including:
	  - SRS transmissions on the SCell;
	  - CQI/PMI/RI/PTI reporting for the SCell;
	  - PDCCH monitoring on the SCell;
	  - PDCCH monitoring for the SCell
	  - start or restart the *sCellDeactivationTimer* associated with the SCell;
	
	TS 36.321 v10.6.0 at 33.

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	5.3 DL-SCH data transfer
	
	5.3.1 DL Assignment reception
	
	Downlink assignments transmitted on the PDCCH indicate if there is a transmission on a DL-SCH for a particular UE and provide the relevant HARQ information.
	
	When the UE has a C-RNTI, Semi-Persistent Scheduling C-RNTI, or Temporary C-RNTI, the UE shall for each TTI during which it monitors PDCCH and for each Serving Cell:
	
	- if a downlink assignment for this TTI and this Serving Cell has been received on the PDCCH for the UE's C-RNTI, or Temporary C-RNTI:
	  - if this is the first downlink assignment for this Temporary C-RNTI:
	  - consider the NDI to have been toggled.
	  - if the downlink assignment is for UE's C-RNTI and if the previous downlink assignment indicated to the HARQ entity of the same HARQ process was either a downlink assignment received for the UE's Semi-Persistent Scheduling C-RNTI or a configured downlink assignment:
	  - consider the NDI to have been toggled regardless of the value of the NDI.
	  - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
	
	TS 36.321 v10.6.0 at 18.

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– *CrossCarrierSchedulingConfig*

The IE *CrossCarrierSchedulingConfig* is used to specify the configuration when the cross carrier scheduling is used in a cell.

***CrossCarrierSchedulingConfig* information elements**

```
-- ASN1START

CrossCarrierSchedulingConfig-r10 ::=        SEQUENCE {
    schedulingCellInfo-r10                CHOICE {
        own-r10                               SEQUENCE {                  -- No cross carrier
scheduling
            cif-Presence-r10                        BOOLEAN
        },
        other-r10                                 SEQUENCE {                  -- Cross carrier
scheduling
            schedulingCellId-r10                  ServCellIndex-r10,
            pdsch-Start-r10                       INTEGER (1..4)
        }
    }
}

-- ASN1STOP
```

***CrossCarrierSchedulingConfig* field descriptions**
cif-Presence The field is used to indicate whether carrier indicator field is present (value TRUE) or not (value FALSE) in PDCCH DCI formats, see TS 36.212 [22, 5.3.3.1].
pdsch-Start The starting OFDM symbol of PDSCH for the concerned SCell, see TS 36.213 [23. 7.1.6.4]. Values 1, 2, 3 are applicable when *dl-Bandwidth* for the concerned SCell is greater than 10 resource blocks, values 2, 3, 4 are applicable when *dl-Bandwidth* for the concerned SCell is less than or equal to 10 resource blocks, see TS 36.211 [21, Table 6.7-1].
schedulingCellId Indicates which cell signals the downlink allocations and uplink grants, if applicable, for the concerned SCell.

TS 36.331 v10.6.0 at 169.

– *ServCellIndex*

The IE *ServCellIndex* concerns a short identity, used to identify a serving cell (i.e. the PCell or an SCell). Value 0 applies for the PCell, while the *SCellIndex* that has previously been assigned applies for SCells.

***ServCellIndex* information element**

```
-- ASN1START

ServCellIndex-r10 ::=                   INTEGER (0..7)

-- ASN1STOP
```

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	TS 36.331 v10.6.0 at 213.

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– *PhysicalConfigDedicated*

The IE *PhysicalConfigDedicated* is used to specify the UE specific physical channel configuration.

PhysicalConfigDedicated information element

```
-- ASN1START

PhysicalConfigDedicated ::=     SEQUENCE {
    pdsch-ConfigDedicated               PDSCH-ConfigDedicated           OPTIONAL,       -- Need ON
    pucch-ConfigDedicated               PUCCH-ConfigDedicated           OPTIONAL,       -- Need ON
    pusch-ConfigDedicated               PUSCH-ConfigDedicated           OPTIONAL,       -- Need ON
    uplinkPowerControlDedicated         UplinkPowerControlDedicated     OPTIONAL,       -- Need ON
    tpc-PDCCH-ConfigPUCCH               TPC-PDCCH-Config                OPTIONAL,       -- Need ON
    tpc-PDCCH-ConfigPUSCH               TPC-PDCCH-Config                OPTIONAL,       -- Need ON
    cqi-ReportConfig                    CQI-ReportConfig                OPTIONAL,       -- Cond CQI-
r8
    soundingRS-UL-ConfigDedicated       SoundingRS-UL-ConfigDedicated   OPTIONAL,       -- Need ON
    antennaInfo                         CHOICE {
        explicitValue                       AntennaInfoDedicated,
        defaultValue                        NULL
    }       OPTIONAL,                                                                   -- Cond AI-r8
    schedulingRequestConfig             SchedulingRequestConfig     OPTIONAL,          -- Need ON
    ...,
    [[  cqi-ReportConfig-v920               CQI-ReportConfig-v920       OPTIONAL,       -- Cond CQI-
r8
        antennaInfo-v920                    AntennaInfoDedicated-v920   OPTIONAL        -- Cond AI-
r8
    ]],
    [[  antennaInfo-r10                 CHOICE {
            explicitValue-r10               AntennaInfoDedicated-r10,
            defaultValue                    NULL
        }       OPTIONAL,                                                               -- Cond AI-r10
        antennaInfoUL-r10               AntennaInfoUL-r10               OPTIONAL,       -- Need ON
        cif-Presence-r10                    BOOLEAN                         OPTIONAL,   -- Need ON
        cqi-ReportConfig-r10            CQI-ReportConfig-r10            OPTIONAL,       -- Cond CQI-
r10
        csi-RS-Config-r10               CSI-RS-Config-r10               OPTIONAL,       -- Need ON
        pucch-ConfigDedicated-v1020     PUCCH-ConfigDedicated-v1020     OPTIONAL,       -- Need ON
        pusch-ConfigDedicated-v1020     PUSCH-ConfigDedicated-v1020     OPTIONAL,       -- Need ON
        schedulingRequestConfig-v1020   SchedulingRequestConfig-v1020   OPTIONAL,       -- Need ON
        soundingRS-UL-ConfigDedicated-v1020
                                    SoundingRS-UL-ConfigDedicated-v1020 OPTIONAL,       -- Need ON
        soundingRS-UL-ConfigDedicatedAperiodic-r10
                                    SoundingRS-UL-ConfigDedicatedAperiodic-r10  OPTIONAL,   -- Need ON
        uplinkPowerControlDedicated-v1020   UplinkPowerControlDedicated-v1020   OPTIONAL    -- Need
ON
    ]],
    [[  additionalSpectrumEmissionCA-r10            CHOICE {
            release                                 NULL,
            setup                                   SEQUENCE {
                additionalSpectrumEmissionPCell-r10     AdditionalSpectrumEmission
            }
        }           OPTIONAL    -- Need ON
    ]]
}

PhysicalConfigDedicatedSCell-r10 ::=        SEQUENCE {
    -- DL configuration as well as configuration applicable for DL and UL
    nonULConfiguration-r10                  SEQUENCE {
        antennaInfo-r10                         AntennaInfoDedicated-r10    OPTIONAL,   -- Need ON
        crossCarrierSchedulingConfig-r10        CrossCarrierSchedulingConfig-r10    OPTIONAL,   --
Need ON
        csi-RS-Config-r10                       CSI-RS-Config-r10           OPTIONAL,   -- Need ON
        pdsch-ConfigDedicated-r10               PDSCH-ConfigDedicated       OPTIONAL    -- Need ON
    }                                                                   OPTIONAL,   -- Cond SCellAdd
    -- UL configuration
    ul-Configuration-r10                    SEQUENCE {
```

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	TS 36.331 v10.6.0 at 176.
[1.f] in response to the received message, receive and process the downlink shared channel transmission from the indicated at least one of the one or more non-primary cells.	Each of the Accused OnePlus ’803 Products are configured, in response to the received message, receive and process the downlink shared channel transmission from the indicated at least one of the one or more non-primary cells. As shown in Appendix 1, each of the Accused OnePlus ’803 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that is configured to operate in accordance with the LTE-A cellular communication standard. Each of the Accused OnePlus ’803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and therefore the transceiver (or combination of transmitter and receiver equivalent to a transceiver) and the processor are configured to receive and process the downlink shared channel transmission from the indicated at least one of the one or more non-primary cells in response to the received message.

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	11.2 Activation/Deactivation Mechanism To enable reasonable UE battery consumption when CA is configured, an activation/deactivation mechanism of SCells is supported (i.e. activation/deactivation does not apply to PCell). When an SCell is deactivated, the UE does not need to receive the corresponding PDCCH or PDSCH, cannot transmit in the corresponding uplink, nor is it required to perform CQI measurements. Conversely, when an SCell is active, the UE shall receive PDSCH and PDCCH (if the UE is configured to monitor PDCCH from this SCell), and is expected to be able to perform CQI measurements. The activation/deactivation mechanism is based on the combination of a MAC control element and deactivation timers. The MAC control element carries a bitmap for the activation and deactivation of SCells: a bit set to 1 denotes activation of the corresponding SCell, while a bit set to 0 denotes deactivation. With the bitmap, SCells can be activated and deactivated individually, and a single activation/deactivation command can activate/deactivate a subset of the SCells. One deactivation timer is maintained per SCell but one common value is configured per UE by RRC. At reconfiguration without mobility control information: - SCells added to the set of serving cells are initially "deactivated"; - SCells which remain in the set of serving cells (either unchanged or reconfigured) do not change their activation status ("activated" or "deactivated"). At reconfiguration with mobility control information (i.e. handover): - SCells are "deactivated". TS 36.300 v10.6.0 at 93.

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	5.3 DL-SCH data transfer
	
	5.3.1 DL Assignment reception
	
	Downlink assignments transmitted on the PDCCH indicate if there is a transmission on a DL-SCH for a particular UE and provide the relevant HARQ information.
	
	When the UE has a C-RNTI, Semi-Persistent Scheduling C-RNTI, or Temporary C-RNTI, the UE shall for each TTI during which it monitors PDCCH and for each Serving Cell:
	
	- if a downlink assignment for this TTI and this Serving Cell has been received on the PDCCH for the UE's C-RNTI, or Temporary C-RNTI:
	  - if this is the first downlink assignment for this Temporary C-RNTI:
	  - consider the NDI to have been toggled.
	  - if the downlink assignment is for UE's C-RNTI and if the previous downlink assignment indicated to the HARQ entity of the same HARQ process was either a downlink assignment received for the UE's Semi-Persistent Scheduling C-RNTI or a configured downlink assignment:
	  - consider the NDI to have been toggled regardless of the value of the NDI.
	  - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
	
	TS 36.321 v10.6.0 at 18.

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	5.3.2 HARQ operation 5.3.2.1 HARQ Entity There is one HARQ entity at the UE for each Serving Cell which maintains a number of parallel HARQ processes. Each HARQ process is associated with a HARQ process identifier. The HARQ entity directs HARQ information and associated TBs received on the DL-SCH to the corresponding HARQ processes (see subclause 5.3.2.2). The number of DL HARQ processes per HARQ entity is specified in [2], clause 7. When the physical layer is configured for downlink spatial multiplexing [2], one or two TBs are expected per subframe and they are associated with the same HARQ process. Otherwise, one TB is expected per subframe. The UE shall: - If a downlink assignment has been indicated for this TTI: - allocate the TB(s) received from the physical layer and the associated HARQ information to the HARQ process indicated by the associated HARQ information. - If a downlink assignment has been indicated for the broadcast HARQ process: - allocate the received TB to the broadcast HARQ process. NOTE: In case of BCCH a dedicated broadcast HARQ process is used. TS 36.321 v10.6.0 at 19. 5.3.2.2 HARQ process For each subframe where a transmission takes place for the HARQ process, one or two (in case of downlink spatial multiplexing) TBs and the associated HARQ information are received from the HARQ entity. For each received TB and associated HARQ information, the HARQ process shall: - if the NDI, when provided, has been toggled compared to the value of the previous received transmission corresponding to this TB; or - if the HARQ process is equal to the broadcast process and if this is the first received transmission for the TB according to the system information schedule indicated by RRC; or - if this is the very first received transmission for this TB (i.e. there is no previous NDI for this TB): - consider this transmission to be a new transmission. - else: - consider this transmission to be a retransmission.

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	The UE then shall:
	- if this is a new transmission:
	  - attempt to decode the received data.
	- else if this is a retransmission:
	  - if the data for this TB has not yet been successfully decoded:
	  - combine the received data with the data currently in the soft buffer for this TB and attempt to decode the combined data.
	- if the data which the UE attempted to decode was successfully decoded for this TB; or
	- if the data for this TB was successfully decoded before:
	  - if the HARQ process is equal to the broadcast process:
	  - deliver the decoded MAC PDU to upper layers.
	  - else if this is the first successful decoding of the data for this TB:
	  - deliver the decoded MAC PDU to the disassembly and demultiplexing entity.
	  - generate a positive acknowledgement (ACK) of the data in this TB.
	- else:
	  - replace the data in the soft buffer for this TB with the data which the UE attempted to decode.
	  - generate a negative acknowledgement (NACK) of the data in this TB.
	- if the HARQ process is associated with a transmission indicated with a Temporary C-RNTI and the Contention Resolution is not yet successful (see subclause 5.1.5); or
	- if the HARQ process is equal to the broadcast process; or
	- if *timeAlignmentTimer* is stopped or expired:
	  - do not indicate the generated positive or negative acknowledgement to the physical layer.
	- else:
	  - indicate the generated positive or negative acknowledgement for this TB to the physical layer.
	TS 36.321 v10.6.0 at 20-21.

[5] The WTRU of claim 1 wherein	For the WTRU of claim 1, the transceiver and the processor are configured to cause the WTRU

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the transceiver and the processor are further configured to cause the WTRU to receive a grant for an uplink transmission from the primary cell and to transmit the uplink transmission based on the received grant.	to receive a grant for an uplink transmission from the primary cell and to transmit the uplink transmission based on the received grant.
	
	As shown in Appendix 1, each of the Accused OnePlus '803 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that is configured to operate in accordance with the LTE-A cellular communication standard. Each of the Accused OnePlus '803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and therefore the transceiver (or combination of transmitter and receiver equivalent to a transceiver) and the processor are configured to cause the WTRU to receive a grant for an uplink transmission from the primary cell and to transmit the uplink transmission based on the received grant.
	
	5.1.4 Random Access Response reception
	
	Once the Random Access Preamble is transmitted and regardless of the possible occurrence of a measurement gap, the UE shall monitor the PDCCH of the PCell for Random Access Response(s) identified by the RA-RNTI defined below, in the RA Response window which starts at the subframe that contains the end of the preamble transmission [7] plus three subframes and has length *ra-ResponseWindowSize* subframes. The RA-RNTI associated with the PRACH in which the Random Access Preamble is transmitted, is computed as:
	
	RA-RNTI= 1 + t_id+10*f_id
	
	Where t_id is the index of the first subframe of the specified PRACH (0≤ t_id <10), and f_id is the index of the specified PRACH within that subframe, in ascending order of frequency domain (0≤ f_id< 6). The UE may stop monitoring for Random Access Response(s) after successful reception of a Random Access Response containing Random Access Preamble identifiers that matches the transmitted Random Access Preamble.
	
	…
	
	- if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble (see subclause 5.1.3), the UE shall:
	  - consider this Random Access Response reception successful;
	  - process the received Timing Advance Command (see subclause 5.2);
	  - indicate the *preambleInitialReceivedTargetPower* and the amount of power ramping applied to the latest preamble transmission to lower layers (i.e., (PREAMBLE_TRANSMISSION_COUNTER – 1) * *powerRampingStep*);
	  - process the received UL grant value and indicate it to the lower layers;

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	…

NOTE: The UL grant value received in the Random Access Response is valid for the PCell.

TS 36.321 v10.6.0 at 14-15.

5.4.1 UL Grant reception

In order to transmit on the UL-SCH the UE must have a valid uplink grant (except for non-adaptive HARQ retransmissions) which it may receive dynamically on the PDCCH or in a Random Access Response or which may be configured semi-persistently. To perform requested transmissions, the MAC layer receives HARQ information from lower layers. When the physical layer is configured for uplink spatial multiplexing, the MAC layer can receive up to two grants (one per HARQ process) for the same TTI from lower layers.

When *timeAlignmentTimer* is running and the UE has a C-RNTI, Semi-Persistent Scheduling C-RNTI, or Temporary C-RNTI, the UE shall for each TTI and for each Serving Cell and for each grant received for this TTI:

- if an uplink grant for this TTI and this Serving Cell has been received on the PDCCH for the UE's C-RNTI or Temporary C-RNTI; or
- if an uplink grant for this TTI has been received in a Random Access Response:
  - if the uplink grant is for UE's C-RNTI and if the previous uplink grant delivered to the HARQ entity for the same HARQ process was either an uplink grant received for the UE's Semi-Persistent Scheduling C-RNTI or a configured uplink grant:
    - consider the NDI to have been toggled for the corresponding HARQ process regardless of the value of the NDI.
  - deliver the uplink grant and the associated HARQ information to the HARQ entity for this TTI.
- else, if this Serving Cell is the PCell and if an uplink grant for this TTI has been received for the PCell on the PDCCH of the PCell for the UE's Semi-Persistent Scheduling C-RNTI:
  - if the NDI in the received HARQ information is 1:
    - consider the NDI for the corresponding HARQ process not to have been toggled;
    - deliver the uplink grant and the associated HARQ information to the HARQ entity for this TTI.

TS 36.321 v10.6.0 at 21.

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	5.4.2.1 HARQ entity
	
	There is one HARQ entity at the UE for each Serving Cell with configured uplink, which maintains a number of parallel HARQ processes allowing transmissions to take place continuously while waiting for the HARQ feedback on the successful or unsuccessful reception of previous transmissions.
	
	…
	
	For each TTI, the HARQ entity shall:
	- identify the HARQ process(es) associated with this TTI, and for each identified HARQ process:
	  - if an uplink grant has been indicated for this process and this TTI:
	  - if the received grant was not addressed to a Temporary C-RNTI on PDCCH and if the NDI provided in the associated HARQ information has been toggled compared to the value in the previous transmission of this HARQ process; or
	  - if the uplink grant was received on PDCCH for the C-RNTI and the HARQ buffer of the identified process is empty; or
	  - if the uplink grant was received in a Random Access Response:

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	- if there is a MAC PDU in the Msg3 buffer and the uplink grant was received in a Random Access Response: - obtain the MAC PDU to transmit from the Msg3 buffer. - else: - obtain the MAC PDU to transmit from the "Multiplexing and assembly" entity; - deliver the MAC PDU and the uplink grant and the HARQ information to the identified HARQ process; - instruct the identified HARQ process to trigger a new transmission. - else: - deliver the uplink grant and the HARQ information (redundancy version) to the identified HARQ process; - instruct the identified HARQ process to generate an adaptive retransmission. - else, if the HARQ buffer of this HARQ process is not empty: - instruct the identified HARQ process to generate a non-adaptive retransmission. When determining if NDI has been toggled compared to the value in the previous transmission UE shall ignore NDI received in all uplink grants on PDCCH for its Temporary C-RNTI. TS 36.321 v10.6.0 at 22-23.
[6] The WTRU of claim 5 wherein the transceiver and the processor are further configured to cause the WTRU to process an acknowledgement/negative acknowledgement to the uplink transmission received only from the primary cell.	For the WTRU of claim 5, the transceiver and the processor are configured to cause the WTRU to process an acknowledgement/negative acknowledgement to the uplink transmission received only from the primary cell. As shown in Appendix 1, each of the Accused OnePlus '803 Products incorporates a chipset, antenna or antennas, memory, and transceiver or combination of transmitter and receiver that is configured to operate in accordance with the LTE-A cellular communication standard. Each of the Accused OnePlus '803 Products complies with one or more of LTE-A Release 10 or later cellular communication protocols including at least 3GPP TS 36.300, 3GPP TS 36.321, and 3GPP TS 36.331, and therefore the transceiver (or combination of transmitter and receiver equivalent to a transceiver) and the processor are configured to cause the WTRU to process an acknowledgement/negative acknowledgement to the uplink transmission received only from the

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	primary cell. 4.2.1 MAC Entities … If the UE is configured with one or more SCells, there are multiple DL-SCH and there may be multiple UL-SCH per UE; one DL-SCH and UL-SCH on the PCell, one DL-SCH and zero or one UL-SCH for each SCell. TS 36.321 v10.6.0 at 8-9.

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	5.4.2.2 HARQ process Each HARQ process is associated with a HARQ buffer. Each HARQ process shall maintain a state variable CURRENT_TX_NB, which indicates the number of transmissions that have taken place for the MAC PDU currently in the buffer, and a state variable HARQ_FEEDBACK, which indicates the HARQ feedback for the MAC PDU currently in the buffer. When the HARQ process is established, CURRENT_TX_NB shall be initialized to 0. The sequence of redundancy versions is 0, 2, 3, 1. The variable CURRENT_IRV is an index into the sequence of redundancy versions. This variable is up-dated modulo 4. New transmissions are performed on the resource and with the MCS indicated on PDCCH or Random Access Response. Adaptive retransmissions are performed on the resource and, if provided, with the MCS indicated on PDCCH. Non-adaptive retransmission is performed on the same resource and with the same MCS as was used for the last made transmission attempt. The UE is configured with a Maximum number of HARQ transmissions and a Maximum number of Msg3 HARQ transmissions by RRC: *maxHARQ-Tx* and *maxHARQ-Msg3Tx* respectively. For transmissions on all HARQ processes and all logical channels except for transmission of a MAC PDU stored in the Msg3 buffer, the maximum number of transmissions shall be set to *maxHARQ-Tx*. For transmission of a MAC PDU stored in the Msg3 buffer, the maximum number of transmissions shall be set to *maxHARQ-Msg3Tx*. When the HARQ feedback is received for this TB, the HARQ process shall: - set HARQ_FEEDBACK to the received value. If the HARQ entity requests a new transmission, the HARQ process shall: - set CURRENT_TX_NB to 0; - set CURRENT_IRV to 0; - store the MAC PDU in the associated HARQ buffer; - store the uplink grant received from the HARQ entity; - set HARQ_FEEDBACK to NACK; - generate a transmission as described below. TS 36.321 v10.6.0 at 23-24.