**3GPP TSG-RAN WG2 Meeting #110 electronic R2-200xxxx**

1 June – 12 June 2020

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **37.340** | **CR** | **0192** | **rev** | **3** | **Current version:** | **16.1.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Miscellaneous correction to 37.340 for IAB | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IAB-Core | | | | |  | ***Date:*** | | | 2020-06-01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | In last meeting, RAN2 agreed that “For the EN-DC case, the SRB2 on LTE leg carries information that consists of an F1-AP message encapsulated in SCTP/IP or F1-C related SCTP/IP packet”.  This clarification of F1-AP transfer over E-UTRA should be captured in the TS 37.340.  It should be clarified that IAB-MT supports the fast MCG recovery. And the new SCG failure cases for IAB-MT should be added.  Minor updates on the terminology. | | | | | | | | |
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| ***Summary of change:*** | | In section 3.1, change “IAB-node-DU” to “IAB-DU”, change “IAB-node-MT” to “IAB-MT”  In section 7.7, add the SCG failure cases of “For IAB-MT, reception of a BH RLF indication from SCG.”  In section 7.7, add “The fast MCG link recovery is supported by IAB-MT same as UE.”  In section 7.11, clarify that in EN-DC the F1AP message transferred over E-UTRA is encapsulated in SCTP/IP and in addition also F1-C related SCTP/IP packets without F1AP can be transferred over E-UTRA.”.  And change the title to “F1-C transfer over E-UTRA” | | | | | | | | |
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| ***Consequences if not approved:*** | | Not clear how F1AP transfers over E-UTRA works.  Not clear how IAB-MT supports the MCG/SCG failure recovery. | | | | | | | | |
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| ***Clauses affected:*** | | 3.1, 7.7, 7.11 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

--------------------- [Start of 1st change] ---------------------------------

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1] and TS 36.300 [2].

**Child node**: IAB-DU's next hop neighbour node; the child node is also an IAB-node.

**En-gNB:** node providing NR user plane and control plane protocol terminations towards the UE, and acting as Secondary Node in EN-DC.

**Fast MCG link recovery:** in MR-DC, an RRC procedure where the UE sends an MCG Failure Information message to the MN via the SCG upon the detection of a radio link failure on the MCG.

**IAB-donor:** gNB that provides network access to UEs via a network of backhaul and access links.

**IAB-MT:** IAB-node function that terminates the Uu interface to the parent node using the procedures and behaviours specified for UEs unless stated otherwise.

**IAB-node:** RAN node that supports NR access links to UEs and NR backhaul links to parent nodes and child nodes. The IAB-node does not support backhauling via E-UTRA.

**Master Cell Group**: in MR-DC, a group of serving cells associated with the Master Node, comprising of the SpCell (PCell) and optionally one or more SCells.

**Master node**: in MR-DC, the radio access node that provides the control plane connection to the core network. It may be a Master eNB (in EN-DC), a Master ng-eNB (in NGEN-DC) or a Master gNB (in NR-DC and NE-DC).

**MCG bearer**: in MR-DC, a radio bearer with an RLC bearer (or two RLC bearers, in case of CA packet duplication) only in the MCG.

**MN terminated bearer:** in MR-DC, a radio bearer for which PDCP is located in the MN.

**MCG SRB**: in MR-DC, a direct SRB between the MN and the UE.

**Multi-Radio Dual Connectivity:** Dual Connectivity between E-UTRA and NR nodes, or between two NR nodes.

**Ng-eNB**: as defined in TS 38.300 [3].

**NR sidelink communication**: AS functionality enabling at least V2X Communication as defined in TS 23.287 [18], between two or more nearby UEs, using NR technology but not traversing any network node.

**Parent node:** IAB-MT's next hop neighbour node; the parent node can be IAB-node or IAB-donor-DU.

**PCell**: SpCell of a master cell group.

**PSCell**: SpCell of a secondary cell group.

**RLC bearer:** RLC and MAC logical channel configuration of a radio bearer in one cell group.

**Secondary Cell Group**: in MR-DC, a group of serving cells associated with the Secondary Node, comprising of the SpCell (PSCell) and optionally one or more SCells.

**Secondary node**: in MR-DC, the radio access node, with no control plane connection to the core network, providing additional resources to the UE. It may be an en-gNB (in EN-DC), a Secondary ng-eNB (in NE-DC) or a Secondary gNB (in NR-DC and NGEN-DC).

**SCG bearer**: in MR-DC, a radio bearer with an RLC bearer (or two RLC bearers, in case of CA packet duplication) only in the SCG.

**SN terminated bearer:** in MR-DC, a radio bearer for which PDCP is located in the SN.

**SpCell**: primary cell of a master or secondary cell group.

**SRB3**: in EN-DC, NGEN-DC and NR-DC, a direct SRB between the SN and the UE.

**Split bearer:** in MR-DC, a radio bearer with RLC bearers both in MCG and SCG.

**Split PDU Session (or PDU Session split):** a PDU Session whose QoS Flows are served by more than one SDAP entities in the NG-RAN.

**Split SRB**: in MR-DC, a SRB between the MN and the UE with RLC bearers both in MCG and SCG.

**User plane resource configuration:** in MR-DC with 5GC, encompasses radio network resources and radio access resources related to either one or more PDU sessions, one or more QoS flows, one or more DRBs, or any combination thereof.

**V2X sidelink communication**: AS functionality enabling V2X Communication as defined in TS 23.285 [19], between nearby UEs, using E-UTRA technology but not traversing any network node.

--------------------- [End of1st change] ---------------------------------

--------------------- [Start of 2nd change] ---------------------------------

## 7.7 SCG/MCG failure handling

RLF is declared separately for the MCG and for the SCG.

If radio link failure is detected for MCG, and fast MCG link recovery is configured, the UE triggers fast MCG link recovery. Otherwise, the UE initiates the RRC connection re-establishment procedure. The fast MCG link recovery is supported by IAB-MT same as UE.

During fast MCG link recovery, the UE suspends MCG transmissions for all radio bearers and reports the failure with *MCG Failure Information* message to the MN via the SCG, using the SCG leg of split SRB1 or SRB3.

The UE includes in the *MCG Failure Information* message the measurement results available according to current measurement configuration of both the MN and the SN. Once the fast MCG link recovery is triggered, the UE maintains the current measurement configurations from both the MN and the SN, and continues measurements based on configuration from the MN and the SN, if possible. The UE initiates the RRC connection re-establishment procedure if it does not receive an *RRC reconfiguration* message or *RRC release* message within a certain time after fast MCG link recovery was initiated.

Upon reception of the MCG Failure Indication, the MN can send *RRC reconfiguration* message or *RRC release* message to the UE, using the SCG leg of split SRB1 or SRB3. Upon receiving an *RRC reconfiguration* message, the UE resumes MCG transmissions for all radio bearers. Upon receiving an *RRC release* message, the UE releases all the radio bearers and configurations.

The following SCG failure cases are supported:

- SCG RLF;

- SN change failure;

- For EN-DC, NGEN-DC and NR-DC, SCG configuration failure (only for messages on SRB3);

- For EN-DC, NGEN-DC and NR-DC, SCG RRC integrity check failure (on SRB3);

- For EN-DC, NGEN-DC and NR-DC, consistent UL LBT failure on PSCell;

- For IAB-MT, reception of a BH RLF indication from SCG.

Upon SCG failure, if MCG transmissions of radio bearers are not suspended, the UE suspends SCG transmissions for all radio bearers and reports the SCG Failure Information to the MN, instead of triggering re-establishment. If SCG failure is detected while MCG transmissions for all radio bearers are suspended, the UE initiates the RRC connection re-establishment procedure.

In all SCG failure cases, the UE maintains the current measurement configurations from both the MN and the SN and the UE continues measurements based on configuration from the MN and the SN if possible. The SN measurements configured to be routed via the MN will continue to be reported after the SCG failure.

NOTE: UE may not continue measurements based on configuration from the SN after SCG failure in certain cases (e.g. UE cannot maintain the timing of PSCell).

The UE includes in the *SCG Failure Information* message the measurement results available according to current measurement configuration of both the MN and the SN. The MN handles the *SCG Failure Information* message and may decide to keep, change, or release the SN/SCG. In all the cases, the measurement results according to the SN configuration and the SCG failure type may be forwarded to the old SN and/or to the new SN.

--------------------- [End of2nd change] ---------------------------------

--------------------- [Start of 3rd change] ---------------------------------

## 7.11 F1-C transfer over E-UTRA

In EN-DC, the F1-AP message encapsulated in SCTP/IP or F1-C related SCTP/IP packet can be transferred between IAB-donor and IAB-node via E-UTRA. SRB2 is used for transporting the F1-AP message encapsulated in SCTP/IP or F1-C related SCTP/IP packet between IAB-MT and MN [10], and the F1-AP message encapsulated in SCTP/IP or F1-C related SCTP/IP packet is transferred as a container via X2-AP between MN and SN.

--------------------- [End ofchange] ---------------------------------