**3GPP TSG-RAN WG3 Meeting #129-bisR3-257263**

**Prague, Czech Republic, 13 – 17 October, 2025**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.401** | **CR** | **0487** | **rev** | **1** | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Correction of WAB | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_WAB\_5GFemto-Core | | | | |  | ***Date:*** | | | 2025-10-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19) Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | * Clause 6.1.7 contains such text “backhaul and access of WAB-node”, but there is no clear definition on the access link and backhaul link of WAB. * The label of the protocol stack figure title in clause 6.1.7 should state that it refers to WAB- it is not a general protocol stack for NG-RAN. * The reporting of additional ULI may not be required by CN, if reported via non-UE associated procedures, so the text of updating additional ULI in section 12.5 is not proper. * In clause 12.7.1, the last sentence emphasize that the continuity of OAM connection should be ensured as the WAB-node moves, this sentence itself is correct, but it is redundant because similar sentence has already been captured in clause 12.2.1 * In clause 12.8, the last sentence indicates that the WAB-gNB should be configurable with respect to whether it should accept or reject Xn setup requests received from WAB-gNBs, we think “should” is improper, because the determination of whether to accept or reject Xn connection from other WAB-gNBs can also be up to the WAB-gNB’s implementation. A proper implementaiton for WAB-gNB to make such decision can be based on e.g., its own moving status. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Add description for access and backhaul link in clause 6.1.7. * Add “for WAB” in the title of protocol stack figures in clause 6.1.7. * Update the description for the report of updated additional ULI to CN in clause 12.5. * Remove the last sentence in clause 12.7.1. * Change “should” to be “can” in the last sentence of clause 12.8. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The WAB part is misleading, e.g., unclear of “if required by CN” for additional ULI report, unknown definition of access and backhaul link for WAB. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.7, 12.5, 12.7.1, 12.8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Rev 1: Revert the change about removing “report additional ULI via legacy procedures” in clause 12.7.1, and update the wording about backhauling in clause 6.1.7. | | | | | | | | |

*Start of Change*

### 6.1.7 Wireless Access Backhaul architecture

A WAB-node consists of a WAB-gNB and a WAB-MT. The WAB-gNB is based on the gNB functionality specified in TS 38.300 [2] and serves UEs by means of a terrestrial NR Uu access radio link.

The WAB-MT is served by a BH-gNB via an NR Uu radio link used for backhauling. The WAB-gNB’s traffic, including NG, Xn and OAM traffic is transported via backhaul PDU session(s) of the WAB-MT.

NOTE: The use of other types of backhaul, e.g. non-3GPP backhaul, is up to implementation.

The WAB-gNB and the WAB-MT may connect to the same PLMN or to different PLMNs.

Figure 6.1.7-1 shows the WAB architecture for 5GS.



Figure 6.1.7-1: The WAB architecture

In in-band scenarios, backhaul and access of the WAB-node use terrestrial radio links. In out-of-band scenarios, the backhaul can use a terrestrial or a non-terrestrial radio link, while the access uses terrestrial radio link. The WAB-MT may connect to a public PLMN or an SNPN.

The WAB-gNB may connect to a public PLMN or an SNPN.

Figure 6.1.7-2 shows protocol stacks for NG Control plane and NG User plane transport via the wireless backhaul.



Figure 6.1.7-2: Protocol stacks for NG Control plane and NG User plane transport of WAB

Figure 6.1.7-3 shows protocol stacks for Xn Control plane and Xn User plane transport for WAB-node.



Figure 6.1.7-3: Protocol stacks for Xn Control plane and Xn User plane transport of WAB

.

*Next Change*

## 12.5 User Location Information for UEs served by a WAB-gNB

For UEs served by a WAB-gNB, in addition to the User Location Information (ULI), the WAB-gNB also provides the core network with Additional ULI, which includes a TAI and a NR CGI pertinent to the WAB-gNB’s broadcasted PLMN/SNPN.

If the PLMN/SNPN broadcasted by a WAB-gNB is the same as the PLMN/SNPN serving the WAB-MT, and the WAB-MT connects to the BH-gNB by means of a terrestrial link, the Additional ULI for UEs served by the WAB-gNB includes the TAI and the NR CGI of the cell serving the WAB-MT.

If the PLMN/SNPN serving the WAB-MT is different from the WAB-gNB’s broadcasted PLMN/SNPN, and the WAB-MT connects to the BH-gNB by means of a terrestrial link, the Additional ULI for UEs served by the WAB-gNB is determined by the WAB-gNB, based on the WAB-node’s geo-location.

If the WAB-MT connects to the BH-gNB by means of a non-terrestrial link, the Additional ULI for UEs served by WAB-gNB is determined by the WAB-gNB, based on WAB-node’s geo-location. This applies regardless of whether the PLMN/SNPN serving the WAB-MT is the same as, or different than, the WAB-gNB’s broadcasted PLMN/SNPN.

In case Additional ULI for UEs served by a WAB-gNB changes, e.g., due to WAB-node movement, the WAB-gNB derives the new Additional ULI and reports it via legacy procedures to the core network.

## 12.7 WAB-node mobility

### 12.7.1 WAB-MT mobility

The WAB-MT reuses legacy mobility procedures defined for the UE. During the WAB-node’s movement, when the BH PDU session(s) of WAB-MT are re-established, the co-located WAB-gNB may need to update the IP address(es) used for its traffic. In case IPsec tunnel mode is used to protect the WAB-gNB’s traffic, MOBIKE (IETF RFC 4555 [29]) can be used to avoid the change of inner IP address(es) used for this traffic. Otherwise, following procedures can be used for handling the IP address change of the WAB-gNB’s traffic:

- NG-C and Xn-C can be migrated to the new IP address(es) via legacy procedures defined in TS 38.412 [37] and TS 38.422 [38], respectively.

- NG-U GTP-U tunnels can be migrated via the legacy NGAP PDU Session Resource Modify Indication procedure.

*Next Change*

12.8 Xn connection management

A WAB-gNB can establish an Xn connection with the BH-gNB serving the co-located WAB-MT, and with the neighbouring gNBs. During the setup or update of its Xn connections, the WAB-gNB can include an ID of the WAB-MT, to indicate that it is a WAB-gNB. In case the peer gNB is the WAB-MT’s BH-gNB, the WAB-MT ID makes the BH-gNB aware of the co-location of the WAB-MT and the WAB-gNB. The WAB-MT ID consists of the C-RNTI assigned to the WAB-MT by the BH-gNB, and the cell ID of BH-gNB´s cell serving the WAB-MT.

Establishment of Xn connections between two WAB-gNBs can be avoided. To achieve this, the WAB-gNB may reject the Xn setup initiated by another WAB-gNB, e.g., based on the presence of the WAB-MT ID received in the XN SETUP REQUEST message.

A WAB-gNB can be configurable with respect to whether it should accept or reject Xn setup requests received from WAB-gNBs.

*End of Change*