**3GPP TSG-RAN WG3 Meeting #127R3-250828**

**Athens, Greece, February 17th – 21st 2025**

Agenda Item: 12.2

Source: Ericsson, Huawei, Nokia, Nokia Shanghai Bell, Samsung, Qualcomm, Lenovo, LG Electronics, NTTDOCOMO, ZTE

Title: (TP for WAB BL CR for TS 38.401): Functional Aspects of WAB-Nodes

Document for: Agreements

# Introduction

**For NG connection management**

**Capture in TS38.401 that NG connection(s) removal for a WAB-gNB is supported.**

**FFS whether to Introduce a “WAB-gNB” indication in the NG SETUP REQUEST message.**

**For WAB authorization**

**TS 38.401 to capture RAN-related aspects of WAB-node authorization based on TS 23.501.**

**When the authorization status of a WAB-gNB changes from “authorized” to “not authorized”:**

* **The WAB-gNB node attempts to hand over and/or releases the UEs.**
* **The NG and Xn connections of the WAB-gNB are removed.**
* **As agreed in SA2, “backhaul PDU Sessions are available for the MWAB gNB to be able to perform OAM control shutdown, which may include handing ove the UEs it serves”**

**The above is based on SA2 conclusion to capture handling of the BH PDU sessions of the WAB-MT and the deregistration of WAB-MT.**

**For User location information**

**Include Additional ULI into the User Location Information IE in TS 38.413. Additional ULI contains a CGI and a TAI.**

**In case the additional ULI has changed e.g. due to WAB-node movement, the WAB-gNB derives the new additional ULI and it reports it to the network, if required by the CN via legacy procedures. Add this description into TS38.401**

**In case of WAB-MT connects via NTN, the Additional ULI is determined based on WAB-node geo-location. The latter applies to intra PLMN and inter PLMN cases.**

**For PCI collision avoidance**

**For WAB deployments, the legacy mechanism can be reused for PCI collision avoidance. PCI space can be partitioned by allocating a range of PCIs to WAB cells.**

# TP for WAB BL CR for TS 38.401

-------------------------------------------Start of changes-------------------------------------------

3 Definitions and abbreviations

>>>>>>>>>>>>>>>>>>Unchanged parts are skipped<<<<<<<<<<<<<<<<<<

3.2 Abbreviations

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].

5GC 5G Core Network

>>>>>>>>>>>>>>>>>>Unchanged parts are skipped<<<<<<<<<<<<<<<<<<

OAM Operation, Administration and Maintenance

PLMN Public Land Mobile Network

>>>>>>>>>>>>>>>>>>Unchanged parts are skipped<<<<<<<<<<<<<<<<<<

UL Uplink

ULI User Location Information

WAB Wireless Access Backhaul

-------------------------------------------Next change-------------------------------------------

X Wireless Access Backhaul

>>>>>>>>>>>>>>>>>>Unchanged parts are skipped<<<<<<<<<<<<<<<<<<

X.3 NG connection management

Based on the OAM configuration, the WAB-gNB can setup NG interface with an AMF. When disconnecting from an AMF is required, due to inter-AMF mobility of a WAB-gNB or when the authorization status of the WAB-gNB changes from “authorized” to “not authorized”, the WAB-gNB may request the removal of the NG interface by triggering the NG Removal procedure toward the AMF.

X.4 WAB-node authorization

WAB-node authorization includes the authorization of the WAB-MT’s backhaul support and the service authorization of the WAB-gNB as defined in TS 23.501 [3].

The authorization of the WAB-MT is different from the service authorization/configuration/activation of the WAB-gNB.

Authorization of the WAB-MT is defined in TS 23.501 [3].

Authorization of the WAB-gNB provides the service authorization, i.e., the right to serve UEs. The service authorization of the WAB-gNB is performed by, e.g., OAM/SeGW using legacy procedures.

The WAB-gNB authorization status is determined by the OAM, based on, e.g., time or WAB-gNB location, as defined in TS 23.501 [3].

When the WAB-gNB’s service authorization status changes from “authorized” to “not authorized”:

1. The WAB-gNB attempts to handover, or release, the UEs.
2. The NG and Xn connections of the WAB-gNB are removed.
3. The PDU sessions of the WAB-MT used for backhauling may be released.

The WAB-MT’s PLMN/SNPN is expected to ensure that the backhaul PDU sessions of the WAB-MT maintained long enough for the WAB-gNB to perform UE handover/release and the removal of NG and Xn connections, as specified in TS 23.501 [3].

X.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 the 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, if required by the core network.

X.6 PCI collision avoidance

In WAB-node deployments, the legacy mechanism for PCI collision avoidance can be reused. PCI space can be partitioned by allocating a range of PCIs to WAB-gNB cells.

-------------------------------------------End of changes-------------------------------------------