**3GPP TSG RAN WG4 Meeting #94-e-Bis R4-2008598**

**Electronic Meeting, April 20-30, 2020**

**Agenda Item:** 6.5.3.2

**Source:** Ericsson

**Title:** TP to TS 38.174 v0.0.1: RRC re-direction requirements for IAB-MT

**Document for:** Approval

1. Introduction

In RAN4#92bis according to the approved WF it was agreed to introduce RRC release with re-direction requirements for IAB-MT [1]. Section 2 provides text proposal on IAB-MT RRC re-direction requirements for the IAB specification TS 38.174 V0.0.1 (Integrated access and backhaul radio transmission and reception).

# Text Proposal

--------------------------------------------------Start of TP------------------------------------------------------

12.1.1.3 SA: RRC Connection Release with Redirection

12.1.1.3.1 Introduction

This clause contains requirements on the IAB-MT regarding RRC connection release with redirection procedure. RRC connection release with redirection is initiated by the *RRCRelease* message with redirection to E-UTRAN or NR from NR specified in TS 38.331 [15]. The RRC connection release with redirection procedure is specified in clause TBD of TS 38.331 [15].

12.1.1.3.2 Requirements

12.1.1.3.2.1 RRC connection release with redirection to NR

The IAB-MT shall be capable of performing the RRC connection release with redirection to the target NR cell within Tconnection\_release\_redirect\_NR.

The time delay (Tconnection\_release\_redirect\_NR) is the time between the end of the last slot containing the RRC command, “*RRCRelease*” (TS 38.331 [15]) on the NR PDSCH and the time the IAB-MT starts to send random access to the target NR cell. The time delay (Tconnection\_release\_redirect\_NR) shall be less than:

Tconnection\_release\_redirect\_NR = TRRC\_procedure\_delay + Tidentify-NR + TSI-NR + TRACH

The target NR cell shall be considered detetable when for each relevant SSB, the side conditions should be met that,

* the conditions of SSB\_RP and SSB Ês/Iot according to Annex TBD for a corresponding NR Band are fulfilled.

TRRC\_procedure\_delay: It is the RRC procedure delay for processing the received message “*RRCRelease*” as defined in clause TBD of TS 38.331 [15].

Tidentify-NR: It is the time to identify the target NR cell and depends on the frequency range (FR) of the target NR cell. It is defined in Table 12.1.1.3.2-1. Note that Tidentify-NR = TPSS/SSS-sync + Tmeas, in which TPSS/SSS-sync is the cell search time and Tmeas is the measurement time due to cell selection criteria evaluation.

TSI-NR: It is the time required for acquiring all the relevant system information of the target NR cell. This time depends upon whether the IAB-MT is provided with the relevant system information of the target NR cell or not by the old NR cell before the RRC connection is released.

TRACH: It is the delay uncertainty in acquiring the first available PRACH occasion in the target NR cell. TRACH can be up to the summation of SSB to PRACH occasion association period and 10 ms. SSB to PRACH occasion associated period is defined in clause 14 of TS 38.213 [10].

Trs is the SMTC periodicity of the target NR cell if the IAB-MT has been provided with an SMTC configuration for the target cell in the redirection command, otherwise Trs is the SMTC periodicity configured in the *measObjectNR* having the same SSB frequency and subcarrier spacing configured for the RRC connection release with redirection. If the IAB-MT is not capable of 4 SMTC configurations per frequency [15], then the requirements shall apply provided that the IAB-MT is configured with only one SMTC configuration on carrier configured configured for RRC connection release with redirection. If the IAB-MT has been provided with higher layer signaling of *smtcj*, where 1≤*j*≤4 [15] and is also capable of 4 SMTC configurations per frequency [15], then Tsmtc follows *smtcj* according to the physical cell ID of the target cell. If the IAB-MT is not provided with SMTC configuration or measurement object for the frequency which is also configured for the RRC connection release with redirection then:

* the requirement in this clause is applied with Trs = 160 ms if the SSB transmission periodicity is not larger than 160 ms; otherwise,
* there is no requirement if the SSB transmission periodicity is larger than 160ms.

**Table 12.1.1.3.2-1: Time to identify target NR cell for RRC connection release with redirection to NR**

|  |  |
| --- | --- |
| **Frequency range (FR) of target NR cell** | **Tidentify-NR** |
| FR1 | MAX (5440 ms, 11×Trs) |
| FR2 | MAX (7040 ms, 8×11×Trs) |

--------------------------------------------------End of TP------------------------------------------------------

1. References
2. R4-2005318, WF on NR IAB RRM requirements, Qualcomm