**3GPP TSG RAN meeting #108 RP-250xxxx**

**Prague, Czech Republic, June 9-13, 2025**

## Status Report to TSG

**Agenda item:** 9.3.3.3

|  |  |
| --- | --- |
| **WI / SI Name** | Additional topological enhancements for NR |
| included in this status report | Study Item: No | Core part: Yes | Performance part:No | Testing part:No |
| **Acronym** | NR\_WAB\_5GFemto |
| **Unique ID** | 1051125 |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-243009 |
| **Target Completion Date****(indicate if changed)** | Study Item: n/a | Core part:09/2025 | Performance part: n/a | Testing part: n/a |
| **Overall Completion level** | Study Item: n/a | Core part: 83 % | Performance Part: n/a | Testing part: n/a |

Note: Overall completion level percentage numbers should use one of the colors below:

* xx%: Normal progress, no RAN plenary action needed
* xx%: Progress behind schedule, may need RAN plenary intervention. If so, SR should clearly define requested action
* xx%: Progress critically behind, RAN plenary shall intervene. SR should define requested action

**Source:**

|  |  |
| --- | --- |
| **Leading WG** | RAN3 |
| **Rapporteur** | **Name** | Min, Tianyang |
| **Company** | NTT DOCOMO |
| **Email** | tianyang.min.ex@nttdocomo.com |
| **Secondary WG** | RAN2 |
| **Rapporteur** | **Name** | Schumacher, Joe |
| **Company** | AT&T |
| **Email** | joseph.schumacher@att.com |

## 1 Work plan related evaluation

|  |  |
| --- | --- |
| **Do you want to modify the time budget for this WI/SI compared to what was endorsed at the last RAN meeting?** | No |

*If you answered No: Then please remove the Excel file from the zip file of this status report.*

*If you answered Yes: Then please fill out the attached Excel template to request a modification of the time budgets for your WI /SI. The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI. The basis are the endorsed time budgets of the last RAN meeting. Please highlight all changes of the values.
 One time unit (TU) corresponds to ~ 2 hours in the meeting.
 If this status report covers a WI with Core and Performance part, then please have one line for each in the attached Excel table.
 Note: If no Excel table is attached, then this means no time budget change.*

**Additional explanations/motivations for the time budget changes in the attached Excel table:**

## 2. Detailed progress in RAN WGs since last TSG meeting (for all involved WGs)

 NOTE: Agreements and Open issues impacted cross-TSG aspects shall be explicitly highlighted

## 2.1 RAN3

#### 2.1.1 Agreements

**WAB**

RAN3#127bis meeting

Include a WAB-MT Identifier in the XN SETUP REQUEST, XN SETUP RESPONSE, NG-RAN NODE CONFIGURATION UPDATE and NG-RAN NODE CONFIGURATION UPDATE ACK e.g. for colocation discovery for resource multiplexing or for WAB node indication.

When access and backhaul links of a WAB node are operated out-of-band, there is no need for WAB resource coordination.

RAN3 assumes that WAB deployments use out-of-band operation in case access and backhaul use different PLMNs.

In this release, In-band WAB operation is only considered for intra PLMN scenarios where BH gNB is upgraded with WAB-specific enhancements.

For WAB resource coordination, introduce a new class-1 Xn procedure between WAB-gNB and BH gNB. The message content can be based on relevant parts of the XnAP IEs defined in clauses 9.2.2.94-97 of TS 38.423.

After RAN3 has finished specifying WAB resource coordination, RAN3 to send an LS to inform RAN1 and RAN2 about conclusions.

RAN3 to agree the WAB-gNB reports the additional ULI to the network within the NG Setup and RAN Configuration Update procedures.

RAN#128 meeting

The “WAB-MT ID” sent from the WAB-gNB to the BH-gNB consists of the WAB-MT’s C-RNTI assigned by the BH-gNB and the cell id of BH-gNB´s cell serving the WAB MT.

It is possible to establish an Xn connection between two WAB-gNBs. It is possible to prevent establishment of such connections.

The specifications shall not define any priority between the WAB-gNB or the BH-gNB on how to split resources.

**5G Femto**

RAN3#127bis meeting

If the SMF sends both IP versions in the Transport Layer Address IE, the NR Femto node selects the correct IP version.

RAN#128 meeting

Agree to capture security aspects confirmed by SA3 in a TP to the BLCR to TS38.300.

Agree to send a reply LS to SA3. Detailed LS text to be discussed and converged upon base LS on R3-253566.

Agree that terminology alignment is needed between the “NR Femto Node” and NR Femto” terms.

Agree to adopt the term NR Femto Node and reflect that in a revision of R3-253450.

#### 2.2.2 Remaining Open issues

**WAB**

The WAB-gNB should be notified about the target BH-gNB before the WAB-MT HO.

The BH-gNB can provide the TNL information of neighbour gNBs to the WAB node.

If non-terrestrial link is used between WAB MT and BH gNB and/or between BH gNB and BH CN, the WAB-gNB informs UE’s CN that the BH includes a non-terrestrial link.

FFS how a WAB node know the BH-gNB is using a non-terrestrial link. Possible options include BH-gNB informs WAB-gNB via Xn.

**Femto**

The Femto GW hosts the following function:

- Selection of an IP version to be used for NG-U, if a NG-U UP transport layer information configuration contains two transport layer addresses of different versions.

To be further discussed: whether to send a specific Femto indication in the NG: Initial UE message, from NR Femto to enable control of sending Allowed PNI NPN List or not.

## 3. Detailed progress in SA/CT WGs since last TSG meeting (for all involved WGs)

N/A

## 4. References

RP-242395　　New WID on additional topological enhancements for NR NTT DOCOMO, INC., AT&T

**RAN3#127bis**

R3-251620 WAB radio resource coordination (Qualcomm Inc.) discussion

R3-251583 Functional Aspects of WAB-Nodes (Ericsson, Jio Platforms) discussion

R3-251584 (TP for WAB BL CR for TS 38.401) Functional Aspects of WAB-Nodes (Ericsson, Jio Platforms) Other

R3-251619 Remaining aspects of WAB (Qualcomm Inc.) discussion

R3-251621 BL draft CR to TS 38.300 on Support of WAB (Qualcomm, Ericsson, CATT, ZTE, Nokia, Nokia Shanghai Bell) draftCR

R3-251637 (TP to BLCR for TS 38.401) On support of WAB (CATT) other

R3-251638 (TP to BLCR for TS 38.423) On resource coordination and Xn management for WAB (CATT) other

R3-251694 (TP to BL CR of 38.423 on WAB) Discussion on access and reliability for WAB (NEC) other

R3-251727 (TP to BL CR for TS 38.401) Discussion on NG management and Xn management for WAB (Nokia, Nokia Shanghai Bell) other

R3-251728 (TP for TS 38.423) Enhancement for WAB (Nokia, Nokia Shanghai Bell) Other

R3-251842 (TP to BLCR for TS 38.410) Discussion on WAB mobility (Samsung) discussion

R3-251843 Discussion on other aspects for the support of WAB (Samsung) discussion

R3-251850 (TPs for WAB BL CRs) Architecture, Access Control and Additional ULI for WAB (Huawei) other

R3-251851 (TP for WAB BL CR for TS 38.401) Radio Resource multiplexing coordination for WAB-node (Huawei) other

R3-251942 (TP to BL CR 38.401) Architecture and configuration for WAB-node (Lenovo) other

R3-251943 (TP to BL CR 38.423) WAB-node co-location discovery (Lenovo) other

R3-251960 Discussion on enhancements for WAB (CANON Research Centre France) discussion

R3-252100 Further consideration on support of WAB (LG Electronics) discussion

R3-252101 (TP to TS 38.401, 38.413 and 38.423) TP for WAB support (LG Electronics) other

R3-252134 On Multi-hop Prevention and Functionalities for WAB (China Telecom) discussion

R3-252135 On RAN2 Impact of WAB (China Telecom) discussion

R3-252224 (TP to 38.401) Discussion on multi hop prevention and additional ULI for WAB (ZTE Corporation) other

R3-252225 (TP to TS 36.300) Discussion on supporting WAB (ZTE Corporation) other

R3-252251 Discussion on Wireless Access Backhaul (NTTDOCOMO, INC.) discussion

R3-252303 Summary of Offline Discussion on additional topological enhancement (NTTDOCOMO, INC.) discussion

R3-251524 LS on NR Femto node shared by PLMN and PNI-NPN (SA2(LGE)) LS in

R3-252252 Discussion on 5G femto (NTTDOCOMO, INC.) discussion

R3-252102 (TP to TS 38.300) Further discussion on access control in 5G Femto (LG Electronics) other

R3-252103 [Draft] Reply LS on NR Femto node shared by PLMN and PNI-NPN (LG Electronics) LS out To: SA2 CC: RAN2

R3-252012 Completion of Functional Aspects of NR Femto (Nokia, BT) discussion

R3-252013 Reply LS on NR Femto Node shared by PLMN and PNI NPN (Nokia ) LS out To: SA2 CC:

R3-251622 (TP to draft BL CR to TS 38.300) Discussion on NR Femto node shared by PLMN and PNI-NPN (Qualcomm Inc.) other

R3-251853 (TP for Femto BL CR for TS 38.300) Discussion on SA2's LS on NR Femto node shared by PLMN and PNI-NPN (Huawei) other

R3-251901 Sharing between PLMN and PNI-NPN (Ericsson LM) discussion

R3-251845 (draft Reply LS to SA2) Discussion on LS from SA2 for NR Femto (Samsung) discussion

R3-251703 Discussion on access control for NR Femto (ZTE Corporation) other

R3-251861 On remaining issues for NR Femto (China Telecom) discussion

R3-251639 Discussion on remain issue of NR Femto (CATT) discussion

R3-251640 (TP to BLCR for TS 38.300) Introduction of Functional Split for NR Femto (CATT) other

R3-251702 (TP to TS 38.300) Discussion on function split for NR Femto (ZTE Corporation) other

R3-251844 (TP to TS 38.300) Discussion on functional split for NR Femto (Samsung) discussion

R3-251852 (TP for Femto BL CR for TS 38.300/38.413) Discussion on functional split and remaining issues for NR Femto (Huawei) other

R3-251944 Discussion on remaining issues for NR Femto (Lenovo) discussion

R3-251945 (TP to BL CR 38.300) Architecture and function split for NR Femto (Lenovo) other

R3-251900 IP Version Selection when the NR Femto GW Is Deployed (Ericsson LM) other

R3-251682 Mobility for NR Femto (NEC) discussion

R3-251786 Discussion on Slice Feature and Access Control for NR Femto (Baicells Technologies Co. Ltd) discussion

R3-251789 TP to BL CR for TS 38.300 and TS 38.413 on NR Femto (Baicells Technologies Co. Ltd) other

**RAN3#128**

R3-253013 Reply LS on FS\_VMR\_Ph2 solution impacts to RAN (Additional ULI) (SA2(Qualcomm)) LS in

noted

R3-253018 Reply LS on MWAB-gNB Configurations (SA2(Qualcomm)) LS in

noted

R3-253019 Reply LS on PWS enhancement for MWAB and MBSR (SA2(Ericsson)) LS in

noted

R3-253390 (TP to BL CR for TS 38.401) Discussion on NG/Xn management and other Stage-2 issues for WAB (Nokia, Nokia Shanghai Bell) other

R3-253168 Remaining aspects of WAB (Qualcomm Inc.) discussion

R3-253132 WAB-Node Resource Coordination (Ericsson) discussion

R3-253414 Way Forward On Multi-hop Prevention for WAB (China Telecom, CATT, Huawei, DoCoMo, Lenovo, Samsung, NEC) discussion

R3-253131 (TP for WAB BL CR for TS 38.401): Functional Aspects of WAB-Nodes (Ericsson, Jio Platforms) other

R3-253169 WAB radio resource coordination (Qualcomm Inc.) discussion

R3-253170 BL draft CR to TS 38.300 on Support of WAB (Qualcomm, Ericsson, CATT, ZTE, Nokia, Nokia Shanghai Bell) draftCR

R3-253175 Further consideration on support of WAB (LG Electronics) discussion

R3-253176 (TP to TS 38.401, 38.413 and 38.423) TP for WAB support (LG Electronics) other

R3-253211 (TP to BL CR of 38.423 on WAB) Discussion on access and reliability for WAB (NEC) other

R3-253223 Remaining aspects for the support of WAB (CANON Research Centre France) discussion

R3-253301 [Draft] LS on Multi-hop Topology Avoidance for WAB (CATT, China Telecom, Huawei, NTT Docomo, Lenovo, Samsung, NEC) LS out To: RAN2 CC: SA2

R3-253302 (TP for BLCR to 38.401) On support of WAB (CATT) other

R3-253303 (TP for BLCRs to 38.423, 38.473) On resource coordination and Xn management for WAB (CATT) other

R3-253320 (TP to BL CR 38.423) Architecture and configuration for WAB-node (Lenovo) other

R3-253321 (TP to BL CR 38.423) Radio resource configuration for WAB-node (Lenovo) other

R3-253344 (TPs for WAB BL CRs) Architecture, Access Control and Additional ULI for WAB (Huawei) other

R3-253345 (TP for WAB BL CRs) Radio Resource multiplexing Coordination for WAB-node (Huawei) other

R3-253391 (TP to BL CR for TS 38.413 and TS 38.423) Enhancement for WAB (Nokia, Nokia Shanghai Bell) other

R3-253404 (TP to 38.413, 38.401) Discussion on remaining issues for support of WAB (ZTE Corporation) other

R3-253412 Discussion on Wireless Access Backhaul (NTT DOCOMO INC.) discussion

R3-253415 RAN2 impact of WAB (China Telecom) discussion

R3-253537 (TP to 38.423 38.473) Supporting resource coordination in WAB (ZTE Corporation) other

R3-253635 (TP to BLCR for TS 38.410) Discussion on WAB mobility (Samsung) discussion

R3-253636 Discussion on the left issues for WAB (Samsung) discussion

R3-253760 Summary of Offline Discussion on additional topological enhancement (NTT Docomo) discussion

R3-253347 (TP for Femto BL CR for TS 38.300) Security related issues for NR Femto (Huawei) other

R3-253566 Aligning SA3 Text to RAN3 Agreements (Ericsson LM) discussion

R3-253575 Security verification related to NR Femtos (LG Electronics) other

R3-253576 (TP to TS 38.300) Support of security verification in NR Femto (LG Electronics) other

R3-253413 Discussion on 5G femto (NTT DOCOMO INC.) discussion

R3-253450 Stage 2 Rapporteur Corrections for NR Femto (Ericsson) Other

R3-253364 On remaining issues for NR Femto (China Telecom) discussion

R3-253225 Completion of other open points of NR Femto (Nokia ) discussion

R3-253226 [TP for BL CR NR Femto TS 38.413] Completion of other open points of NR Femto (Nokia ) other

R3-253346 (TP for Femto BL CR for TS 38.300/38.413) Discussion on remaining issues for NR Femto (Huawei) Other

R3-253304 Discussion on remain issue of NR Femto (CATT) discussion

R3-253305 TP for BLCRs to 38.300, 38.410 for NR Femto (CATT) other

R3-253322 Discussion on remaining issues for NR Femto (Lenovo) discussion

R3-253323 (TP to BL CR 38.300) Function split for NR Femto (Lenovo) other

R3-253637 Discussion on the left issues for NR Femto (Samsung) discussion

R3-253638 (TP to BLCR for TS 38.300) Functional split for NR Femto (Samsung) other

R3-253741 (TP to TS 38.300) Discussion on IP version selection at Femto GW (ZTE Corporation) other

 16.02.2024 minor adaptations for RAN #103

 10.11.2023 minor adaptations for RAN #102

 02.08.2023 minor adaptations for RAN #101

 26.04.2023 minor adaptations for RAN #100

 01.02.2023 minor adaptations for RAN #99

 27.10.2022 minor adaptations for RAN #98e

 01.08.2022 minor adaptations for RAN #97e

 21.05.2022 minor adaptations for RAN #96

 10.01.2022 minor adaptations for RAN #95e

 04.10.2021 minor adaptations for RAN #94e

 08.08.2021 minor adaptations for RAN #93e

 17.05.2021 minor adaptations for RAN #92e

 28.01.2021 minor adaptations for RAN #91e

 09.11.2020 minor adaptations for RAN #90e

 31.08.2020 minor adaptations for RAN #89e

 20.04.2020 minor adaptations for RAN #88e

 18.02.2020 minor adaptations for RAN #87e

 14.11.2019 minor adaptations for RAN #86

 18.08.2019 minor adaptations for RAN #85

 12.05.2019 minor adaptations for RAN #84

 27.02.2019 minor adaptations for RAN #83

 21.11.2018 completion levels with colours added (for RAN #82)

v04.81 31.07.2018 simplification of template and addition of cross-TSG aspects (for RAN #81)

v04.80 21.05.2018 minor adaptations for RAN #80

v04.79 26.02.2018 minor adaptations for RAN #79

v04.78 18.11.2017 minor adaptations for RAN #78

v04.77 06.08.2017 minor adaptations for RAN #77

v04.76 15.05.2017 minor adaptations for RAN #76

v04.75 31.01.2017 minor adaptations for RAN #75

v04.74 28.10.2016 minor adaptations for RAN #74

v04.73 01.09.2016 adaptations for RAN #73 (time units in extra Excel table, RAN6 reporting included)

v04.72 26.05.2016 adaptations for RAN #72 (introduction of NR & GERAN TUs)

v04.71 10.02.2016 minor adaptations for RAN #71

v04.70 30.10.2015 minor adaptations for RAN #70

v04.69 12.08.2015 minor adaptations for RAN #69

v04.68 21.05.2015 minor adaptations for RAN #68

v04.67 01.02.2015 minor adaptations for RAN #67

v04.66 16.11.2014 minor adaptations for RAN #66

v04.65 16.08.2014 minor adaptations for RAN #65

v04.64 22.05.2014 minor adaptations for RAN #64

v04.63 24.01.2014 restructuring for RAN #63 to cover Core & Perf. in one doc file

v03.62 11.11.2013 section 1.2.3 adapted for RAN #62

v03 11.08.2013 section 1.2.3 added on time budget

v02 07.05.2010 history added, some spelling corrections

v01 13.11.2009 First version of the template