**3GPP TSG RAN WG1 #123 R1-250XXXX**

**Dallas, USA, Nov 17th – 21st, 2025**

**Source: Chair**

**Title:** **Draft Agenda**

**Document for: Decision**

**Meeting registration: The deadline is Monday, Nov 10th, 08:00 UTC**

**Tdoc request: The deadline is Friday, Nov 7th, 15:00 UTC**

**Tdoc submission: The deadline is Friday, Nov 7th, 23:59 UTC**

# Opening of the meeting (Day 1: 9:00 am)

## Call for IPR

*I draw your attention to your obligations under the 3GPP Partner Organizations' IPR policies. Every Individual Member organization is obliged to declare to the Partner Organization or Organizations of which it is a member any IPR owned by the Individual Member or any other organization which is or is likely to become essential to the work of 3GPP.*

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| The attention of the delegates to this meeting was drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of Essential IPRs they become aware of.The delegates were asked to take note that they were thereby invited:* to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.
* to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Statement and the Licensing declaration forms (<http://www.etsi.org/WebSite/document/Legal/IPRForms.doc>).
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## Competition Law Statement

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| The attention of the delegates to this meeting was drawn to the fact that 3GPP activities are subject to antitrust and competition laws and that compliance with said laws is therefore required of any participant of this WG meeting including the Chair and Vice Chairs. In case of question, please contact your legal counsel. The present meeting will be conducted with strict impartiality and in the interests of 3GPP. Furthermore, delegates were reminded that timely submission of work items/contributions in advance of WG meetings is important to allow for full and fair consideration of such matters. |

## Network Usage Conditions

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| **Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.****Users shall not engage in non-work related activities that consume excessive bandwidth** or cause significant degradation of the performance of the network.Since the **network is a shared resource**, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting chairman should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.1. Don’t place your WiFi device in ad-hoc mode
2. Don’t set up a personal hotspot in the meeting room
3. Do try 802.11a if your WiFi device supports it
4. Don’t manually allocate an IP address
5. Don’t be a bandwidth hog by streaming video, playing online games, or downloading huge files
6. Don’t use packet probing software which clogs the local network (e.g., packet sniffers, port scanners)
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## Consensus Principles Reminder

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| **Decision PCG54/10**: PCG approved to incorporate the following text to the agendas of each and every TSG and Working Group on “Consensus principles reminder”:The attention of the delegates to the meeting is drawn to the fact that 3GPP endeavours to reach consensus on all decisions and therefore depends on a cooperative spirit of the Individual Members. In particular, Individual Members are encouraged to seek a consensus-based solution and only to sustain objections as a very last resort, and where absolutely necessary and well justified. The leadership will conduct the present meeting in a manner whereby informal methods of reaching consensus are encouraged, whilst ensuring that well justified concerns are taken into account. |

## Streamlined Standards

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| **Endorsement RAN#107:** RAN endorsed the following working principle for 6G (in RP-250766):*3GPP to create lean and streamlined standards for 6G, e.g., by dimensioning an appropriate set of functionalities, minimizing the adoption of multiple options for the same functionality, avoiding excessive configurations, etc. Any exception to the above shall be well justified.* |

## Check-in for Registered Delegates

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| The attention of the delegates to this meeting was drawn to the fact that it is not permitted to check in other delegates on their behalf. In the event of technical difficulties preventing check-in, delegates should present themselves in person to the Secretary. |

# Approval of Agenda

# Highlights from RAN plenary

# Approval of Minutes from previous meetings

# Incoming Liaison Statements

# Pre-Rel-19 E-UTRA Maintenance

***Only essential corrections*** *– a rejected draft CR will be marked in red*

***For maintenance on RAN1 specifications, individual draft CRs are to be submitted. Final endorsed CR will be sourced by “Moderator (company name)” and other co-sourcing companies (if any).***

# Pre-Rel-19 NR Maintenance

***Only essential corrections*** *– a rejected draft CR will be marked in red*

***For maintenance on RAN1 specifications, individual draft CRs are to be submitted. For more efficient review, please use/fill the release and WI code fields when requesting tdoc numbers for draft CRs. Final endorsed CR will be sourced by “Moderator (company name)” and other co-sourcing companies (if any).***

# Maintenance on Rel-19 NR and E-UTRA

***The maximum number of contributions per company/organization/university is limited to 1 per agenda item unless stated otherwise.***

***For Rel-19 maintenance, only essential corrections will be considered. Only text proposals are to be submitted (no individual draft CRs, please!).***

* ***For each text proposal, companies are to provide relevant information (e.g. reason for change, summary of change, consequences if not approved) in a clear and concise manner***
* ***Editors to prepare final CRs***

## Maintenance on Artificial Intelligence (AI)/Machine Learning (ML) for NR Air Interface

*Note: Maximum one contribution per company/organization/university. For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *Specification support for beam management*
* *Specification support for positioning accuracy enhancements*
* *Specification support for CSI prediction*

## Maintenance on NR MIMO Phase 5

*Note: Maximum one contribution per company/organization/university.  For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *Enhancements for UE-initiated/event-driven beam management*
* *CSI enhancements*
* *Support for 3-antenna-port codebook-based transmissions*
* *Enhancement for asymmetric DL sTRP/UL mTRP scenarios.*

## Maintenance on Evolution of NR duplex operation: Sub-band full duplex (SBFD)

*Note: Maximum one contribution per company/organization/university. For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *SBFD TX/RX/measurement procedures*
* *SBFD random access operation*
* *CLI handling*

## Maintenance on Solutions for Ambient IoT (Internet of Things) in NR

*Note: Maximum one contribution per company/organization/university.*

## Maintenance on Enhancements of network energy savings for NR

*Note: Maximum one contribution per company/organization/university. For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *On-demand SSB SCell operation*
* *On-demand SIB1 for idle/inactive mode UEs*
* *Adaptation of common signal/channel transmissions*

## Maintenance on Low-power wake-up signal and receiver for NR (LP-WUS/WUR)

*Note: Maximum one contribution per company/organization/university. For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *LP-WUS and LP-SS design*
* *LP-WUS operation in IDLE/INACTIVE modes*
* *LP-WUS operation in CONNECTED modes*

## Maintenance on Non-Terrestrial Networks (NTN) for NR Phase 3, Internet of Things (IoT) Phase 3, and IoT-NTN TDD mode

### Maintenance for Rel-19 NR NTN

*Note: Maximum one contribution per company/organization/university for R\_NTN\_Ph3, potential RAN1 impact from NR\_NTN\_Ku\_bands and NR\_IoT\_NTN\_req\_test\_enh.*

*Note: For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *NR\_NTN\_Ph3*
* *RAN1 impact from NR\_NTN\_Ku\_bands and NR\_IoT\_NTN\_req\_test\_enh*

### Maintenance for Rel-19 IoT NTN

*Note: Maximum one contribution per company/organization/university for IoT\_NTN\_Ph3 and IoT\_NTN\_TDD*

*Note: For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *IoT\_NTN\_Ph3*
* *IoT\_NTN\_TDD*

## Maintenance on others

*Note: Maximum one contribution per company/organization/university, including MCE Phase 3, LB-CA, 7-24GHz for NR, ISAC, Mobility Phase 4, XR Phase 3, LTE-based 5G broadcast Phase 2 and endorsed R19 TEI proposals.*

***Note: For more efficient review, please use/fill the WI code field when requesting tdoc numbers according to the proposals for individual items, if any. Maximum one contribution per WI code.***

# Rel-19 UE Features

***The maximum number of contributions per company/organization/university is limited to 1 per agenda item unless stated otherwise.***

## UE features Batch A

*Note: Maximum one contribution per company/organization/university for NTN\_Ph3, IoT\_NTN\_Ph3, IoT\_NTN\_TDD, and TEI19 with**[Common\_PDCCH\_rep\_TN])*

*Note: For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *NTN\_Ph3*
* *IoT\_NTN\_Ph3*
* *IoT\_NTN\_TDD*
* *TEI19 with [Common\_PDCCH\_rep\_TN])*

## UE features Batch B

*Note: Maximum one contribution per company/organization/university for NR\_duplex\_evo, NR\_LPWUS, XR phase 3, NR\_MC\_enh2, and NR\_LBCA*

*Note: For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *UE f NR\_duplex\_evo*
* *NR\_LPWUS*
* *XR phase 3*
* *NR\_MC\_enh2*
* *NR\_LBCA*

## UE features Batch C

*Note: Maximum one contribution per company/organization/university for NR\_AIML\_air,**NR\_MIMO\_Ph5, Netw\_Energy\_NR\_enh, NR\_Mob\_Ph4, and TEI19 with other than [Common\_PDCCH\_rep\_TN]*

*Note:For efficient review, please use the following sections in your contribution corresponding to the maintenance issues, if any:*

* *NR\_AIML\_air*
* *NR\_MIMO\_Ph5*
* *Netw\_Energy\_NR\_enh*
* *NR\_Mob\_Ph4*
* *TEI19 with other than [Common\_PDCCH\_rep\_TN]*

# Release 20 NR

***The maximum number of contributions per company/organization/university is limited to 1 per agenda item unless stated otherwise.***

## Artificial Intelligence (AI)/Machine Learning (ML) for NR air interface enhancements

*Please refer to RP-252445 for detailed scope of the WI.*

### CSI spatial/frequency compression without temporal aspects (“Case 0”)

#### Inference related aspects

*Including target CSI type, measurement and report configuration, CQI RI determination, payload determination, quantization configuration codebook, UCI mapping, CSI processing criteria and timeline, priority rules for CSI reports.*

#### Other aspects

*Including NW and UE data collection for training, performance monitoring, as well as model pairing related issues.*

### Inter-vendor training collaboration for two-sided AI/ML models

*Including specification of standardized dataset format/content plus dataset exchange (“Direction A, sub-option 4-1”), as well as RAN4-triggered issues.*

## NR MIMO Phase 6

*Please refer to RP-252936 for detailed scope of the WI.*

### Improvement of SRS capacity and coverage

*Including a) Multiple frequency-domain starting positions for SRS repetition, and b) Cross-slot SRS between one U slot and one adjacent S slot.*

### Enhancing DL CSI acquisition

*Including a) Early SRS/CSI/CSI-RS triggering, and b) CSI-RS density reduction for 48, 64, and 128 CSI-RS ports.*

## Study of Enhancements for solutions for Ambient IoT (Internet of Things) in NR outdoor for active devices

*Please refer to* [*RP-252964*](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_107/Docs/RP-250796.zip) *for detailed scope of the SI.*

### Evaluations

*Including necessary evaluation assumptions of deployment scenarios for coverage and coexistence, evaluations of achievable cell edge data rate and link budget, as well as applicability and necessity of Device 2b and Device C to given scenarios.*

### Study of air interface for Device 2b/C

*Please refer to the first paragraph of objective 1 for the given conditions. Including study necessary and feasible changes to the Rel-19 air interface for Device 2b/C.*

### R2D signals, channels, waveform and procedures

*Including necessary and feasible change to R2D waveform and modulation, line coding, FEC, CRC and repetitions, bandwidth, timing and Sync signals, L1 control/scheduling, and multiplexing*

### D2R signals, channels, waveform and procedures

*Including necessary and feasible change to D2R waveform and modulation, FEC, CRC and repetition, bandwidth, timing and Sync signals, multiplexing/multiple access, and scheduling.*

### Other procedures

*Including necessary and feasible change to other procedures such as for initial frequency acquisition and broadcast information acquisition, random access, DO-A, and power control.*

## Coverage Enhancement Phase 3

*Please refer to* [*RP-252824*](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_107/Docs/RP-250796.zip) *for detailed scope of the WI.*

### Coverage enhancement

*Including PRACH coverage enhancements, PUSCH repetition scheduled by DCI 0\_0 with C-RNTI and Extending pi/2-BPSK to more MCS entries.*

## Study on Integrated Sensing And Communication (ISAC) for NR

*Please refer to* [*RP-252819*](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_105/Docs/RP-242348.zip) *for detailed scope of the SI.*

### Evaluation assumptions and performance evaluation

*Including study of metrics, measurements, and relevant measurement quantization for UAV use case.*

## Non-Terrestrial Networks (NTN) for NR Phase 4

*Please refer to* [*RP-251933*](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_106/Docs/RP-243300.zip) *for detailed scope of the SI for NR-NTN Phase 4.*

### NR-NTN GNSS resilience

## Non-Terrestrial Networks (NTN) for Internet of Things (IoT) Phase 4

*Please refer to RP-251867 for detailed RAN1 scope of the WI (Placeholder only, will start from RAN1#124)*

### Semi-persistent scheduling for DL/UL data transmission for voice packets

# Rel-20 Study of 6GR

***Please refer to RP-252912 for the scope of the SI. The maximum number of contributions per company/organization/university is limited to 1 per agenda item unless stated otherwise.***

***Note: Additional more guidance/information, please refer to R1-25xxxxx (Highlights from RAN#109)***

## [Overview of 6G](#_Toc450829434)R air interface

***High level design proposals/principles/target, including scalable 6GR design (e.g., what design is scalable, what design is unscalable), support of minimum spectrum allocation, coverage, MRSS, synchronization signal structure and periodicity, operation of bandwidth/band adaptation, spectrum utilization and aggregation framework, harmonization of TN and NTN, and others (if any).***

***Note: To avoid distributing proposals of a same topic to different sub-agendas, please organize the proposals according to above highlights.***

## [Evaluation assumptions for 6G](#_Toc450829434)R air interface

*Discussions on models, scenarios, parameters, and methodology, metrics/criteria, as well as traffic model that can be commonly used for evaluating technology proposals.*

## Waveform and frame structure for 6GR air interface

### [Waveform](#_Toc450829436)

*Including proposals for improving spectrum efficiency, power efficiency, coexistence and coverage, etc.*

### Frame structure

*Including* [*numerology and frame structure*](#_Toc450829438) *(for all duplex types).*

## [Channel coding and modulation for 6GR interface](#_Toc450829439)

*Including metrics/criteria that can be used for evaluating technology proposals and for down selecting proposals*

### [Channel coding](#_Toc450829440)

### [Modulation](#_Toc450829441), joint channel coding and modulation

## Energy efficiency

*Including evaluation assumptions, proposals for Evaluations, NW power saving, UE power saving, and joint mechanisms taking both NW and UE into account for power saving, targeting to categorize proposals by RAN1#123. From RAN1#124, proposals will be distributed to respective related agenda.*

## [AI/ML](#_Toc450829439) in 6GR interface

*Collecting AI/ML use cases in all potential components in physical layer design, targeting to select some use cases by RAN1#123. From RAN1#124, selected use cases will be distributed to respective related agenda.*

## Initial access

*Placeholder only and to be broken down. No contributions before RAN1#124. Including synchronization signal and raster, broadcast signals/channel and physical random access channel, etc.*

## MIMO operation

*Placeholder only and to be broken down. No contributions before RAN1#124.*

## Physical layer control, data scheduling and HARQ operation

*Placeholder only and to be broken down. No contributions before RAN1#124.*

## Duplexing

*Placeholder only and to be broken down or adapted based on the discussion in AI 11.1. No contributions before RAN1#124.*

## 6GR spectrum utilization and aggregation

*Placeholder only and to be broken down. No contributions before RAN1#124.*

## NTN

*Placeholder only and to be broken down or adapted based on the discussion in AI 11.1. No contributions before RAN1#124.*

## Other physical layer signals, channels and procedures

*Placeholder only and to be broken down and adapted. No contributions before RAN1#124.*

## Sensing

*Including PHY functions and procedures for sensing technology (e.g., waveform. reference signals, measurement feedback, etc…), aspects of integration with communication services.*

*Placeholder only and to be broken down. No contributions before RAN1#124b.*

# Closing of the meeting (Day 5, 16:00 pm at the latest)