**3GPP TSG RAN Meeting #104 RP-24XXXX**

**Shanghai, China, June 17-20, 2024**

## Status Report to TSG

**Agenda item:** 9.3.1.4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **WI / SI Name** | Low-power wake-up signal and receiver for NR (LP-WUS/WUR) | | | | |
| included in this status report | Study Item:  No | Core part:  Yes | Performance part:  Yes | | Testing part:  No |
| **Acronym** | NR\_LPWUS | | | | |
| **Unique ID** | 1020094 | | | | |
| **TSG Tdoc of latest approved WI/SI description (if any)** | [RP-240801](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_103/Docs/RP-240801.zip) | | | | |
| **Target Completion Date**  **(indicate if changed)** | Study Item:  N/A | Core part: 09/2025 | Performance part: 03/2026 | Testing part: N/A | |
| **Overall Completion level** | Study Item:  n/a | Core part:  20% | Performance Part: 0% | 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** | | RAN 1 |
| **Rapporteur (primary)** | **Name** | Xueming Pan |
| **Company** | vivo |
| **Email** | [*panxueming@vivo.com*](mailto:panxueming@vivo.com) |
| **Rapporteur** | **Name** | Shinya Kumagai |
| **Company** | NTT DOCOMO |
| **Email** | [*shinya.kumagai.yw@nttdocomo.com*](mailto:shinya.kumagai.yw@nttdocomo.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?** | **Yes** |

*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:**

The WI rapporteurs suggest to increase the core part RAN4 RD (RRM&Demod) TU by 0.25 TU per meeting, starting from 2024Q3 till the completion of the core part, i.e. 2025Q3. The reason for change is due to TU under-estimation given the amount of RAN4 RRM impact according to the existing work item objectives.

## 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 RAN1

#### 2.1.1 Agreements

##### **LP-WUS and LP-SS design**

* **RAN1#116bis**

**Agreement**

For OOK-4 with M >1, support M=2 & M=4 (working assumption) for LP-WUS.

* FFS whether value of M depends on SCS
* FFS M=1 for OOK-4

**Agreement**

For evaluation purpose on LP-WUS, companies report the overlaid OFDM sequence(s), including:

* Sequence(s) generation and how sequence(s) map in time or frequency domain (including any details with multiplexing and IFFT).
* Number of candidate overlaid OFDM sequences used for information conveying
  + Including details on whether the number of candidate overlaid sequences is per OFDM symbol or per OOK symbol
* How the proposed sequence design is processed by OFDM-based LP-WUR, e.g., in time domain or in frequency domain or in both time and frequency domain.

**Agreement**

Support to specify multiple binary LP-SS sequences for the ‘ON-OFF’ pattern:

* The LP-SS sequence used in a cell is
  + Option 1: a sequence is configured
  + Option 2: a sequence is determined by predefined rule
  + FFS: Whether both options will be supported or only one will be supported
* FFS: the number of LP-SS sequences
* Note: Multiple sequences are used to differentiate LP-SS from different cells

**Agreement**

From RAN1 perspective, support X PRBs for LP-WUS and LP-SS with SCS 30kHz (blanked guard RBs are not included) for a channel bandwidth equal or larger than 5MHz

* X to be down-selected between 11 and 12 PRBs
* FFS the number of PRBs for 15kHz
* FFS if other number of PRBs needed, for LP-SS and LP-WUS with a channel bandwidth equal or less than 5MHz

FFS: Whether the above is applicable to FR2

**Agreement**

For timing error evaluation purpose, the following two options for residual frequency error are considered:

* Option 1: The maximum frequency error (Fe) of RTC/oscillator is assumed, companies report Fe value and the applied LP-WUR type.
* Option 2: The residual frequency error (Fr) after frequency error correction/clock calibration by LR or after assistance from MR is assumed, companies report Fr value, how to achieve it and the applied LP-WUR type.

**Agreement**

For frequency error evaluation purpose, the following two options for residual frequency error are considered:

* Option 1: The maximum frequency error (Fe) of oscillator is assumed, companies report Fe value and the applied LP-WUR type.
* Option 2: The residual frequency error (Fr) after frequency error correction by LR or after assistance from MR is assumed, companies report Fr value, how to achieve it and the applied LP-WUR type.

**Working Assumption**

Support the following options for LP-SS

* Option 1: OOK-1
* Option 2: OOK-4 with M=2,4, FFS:1,8,16
  + FFS whether value of M depends on SCS
* The SCS of a CP-OFDM symbol used for LP-SS generation is the same as that used for LP-WUS generation
* FFS how OOK-1 and OOK-4 are specified

**Agreement**

Regarding the LP-WUS information for idle/inactive UEs, at least consider the following：

* Option 1: A bitmap with each bit corresponding to [one or more] subgroups
* Option 2: A codepoint value corresponding to one or more subgroup(s)
* Option 3: Multiple codepoint values with each corresponding to one or more subgroup(s)
* Combination of above options are not precluded
* FFS how to carry LP-WUS information, e.g., by encoded bits (with/without CRC) and/or by OOK sequence selection for ‘ON-OFF’ pattern for OOK symbols of LP-WUS.
* FFS how to carry LP-WUS information by overlaid OFDM sequences.
  + It doesn’t preclude considering the configuration where a single candidate overlaid OFDM sequence is used
* Other options are not precluded

**Agreement**

Regarding the LP-WUS information to trigger PDCCH monitoring of RRC connected UEs, at least consider the following：

* Option 1: A bitmap with each bit corresponding to [one or more] UEs
* Option 2: A codepoint value corresponding to one or part of UE identity, e.g., C-RNTI
* Option 3: A codepoint value corresponding to [one or more] UEs
* Option 4: Multiple codepoint values with each corresponding to [one or more] UE(s)
* Option 5: Multiple bit blocks with each corresponding to [one or more] UE(s)
* Combination of above options are not precluded.
* FFS how to carry LP-WUS information, e.g, by encoded bits (with/without CRC) and/or by OOK sequence selection for ‘ON-OFF’ pattern for OOK symbols of LP-WUS.
* FFS how to carry LP-WUS information by overlaid OFDM sequences.
  + It doesn’t preclude considering the configuration where a single candidate overlaid OFDM sequence is used
* FFS details of LP-WUS information to trigger PDCCH monitoring (e.g. whether above is applicable to one or more serving cells)

**Conclusion:**

For calibration purposes, companies are encouraged to report the SNR to achieve the coverage of PUSCH for message3, at least with the following assumptions:

* Carrier frequency: 2.6 GHz
* The number of Tx chains: 1
* MIL of MSG 3: use the average one in R17 coverage, i.e.,153.51 dB for non-redcap UE
* Transmit antenna gain correction factors for WUS: up to company report
* Noise Figure: All three values +2dB, +5dB, +8dB on top of NF of MR (7dB) are to be reported, SNR for different assumptions on NF are determined separately

**Agreement**

For the purpose of further study and evaluation in RAN1, the following candidate sequences for the overlaid OFDM sequence are considered:

* Gold sequence
* M-sequence
* ZC sequence
* Chirp sequence
* Walsh sequence
* Golay sequence
* Kasami sequence
* Low density sequence
* DFT/FFT sequence
* QAM symbol-based sequence
* Combinations and optimizations of above are not precluded

Companies are encouraged to provide an assessment on performance, required complexity, and power consumption to support their preferred sequence. Companies are encouraged to provide details on their preferred sequence (e.g. references).

**Agreement**

Regarding the overlaid OFDM sequence(s) of LP-WUS, consider the following options:

* Option 1: Single overlaid sequence is on each OOK ‘ON’ symbol or OFDM symbol duration. OFDM-based LP-WUR can obtain the whole information bits by the presence of the overlaid sequence.
* Option 1-2: The overlaid OFDM sequence is pre-determined from multiple sequences. This sequence carry NO information bits of LP-WUS. OFDM-based LP-WUR can obtain the whole information bits by the OOK ON/OFF pattern.
* Option 2: One sequence is selected from multiple candidates overlaid OFDM sequences on each OOK ‘ON’ symbol or OFDM symbol duration, and OFDM-based LP-WUR obtain LP-WUS information at least by overlaid OFDM sequence(s). Consider the following two sub-options.
* Option 2-1: The overlaid OFDM sequence(s) carry part of information bits of LP-WUS. OFDM-based LP-WUR can obtain the whole information bits by OFDM sequence(s) and location of the OFDM sequence(s)/OOK symbols.
* Option 2-2: The overlaid OFDM sequence(s) carry all information bits of LP-WUS. OFDM-based LP-WUR can obtain the whole information bits by the overlaid OFDM sequence(s)
* Option 3: One sequence is selected from multiple candidates overlaid OFDM sequences on one or more OOK ‘ON’ symbols, and OFDM-based LP-WUR obtain LP-WUS information at least by overlaid OFDM sequence(s).
* Option 4: Use of modulated overlay sequence with constellation point: overlay sequence acting as a spreading sequence and constellation point carrying information for OFDM-based LP-WUR.
* Other options are not precluded.
* **RAN1#117**

**Agreement**

Support overlaid OFDM sequence based on existing NR sequence type for LP-WUS

* Down select among gold sequence, m sequence and ZC sequence
  + FFS the overlaid OFDM sequence is time or frequency domain sequence.
  + FFS how to reuse the existing sequences
  + Note: Strive to minimize the impact on OOK detection performance
* If overlaid OFDM sequence is supported for LP-SS, the same sequence type is used for both LP-SS and LP-WUS

**Agreement**

For the LP-SS sequence used in a cell,

* Option 1: the information necessary for determining the sequence is explicitly configured
* FFS: Additional support of determining the sequence by predefined rule without configuration

**Agreement**

The LP-WUS and LP-SS design assumes the residual frequency error after frequency error correction without considering impact of drift, is up to X ppm for OOK-based LP-WUR.

* FFS X which is no larger than 20ppm
* Initial frequency error assumption: up to company report

For the overlaid OFDM sequence design of LP-WUS, it is assumed that the residual frequency error for OFDM-based LP-WUR after frequency error correction without considering impact of drift is not larger than Y.

* FFS Y which is no larger than 20ppm and lower than X
* Initial frequency error assumption: up to company report

**Agreement**

For overlaid OFDM sequence(s) for LP-WUS in time or frequency domain, down-selection from the following:

* Option 1-1: overlaid sequence(s) are the sequence(s) of an OOK on symbol before DFT/LS processing
  + The length of overlaid sequence(s) depends on the number of REs used for LP-WUS and the value of M
* Option 1-2: overlaid sequence(s) are the sequence(s) of an OFDM symbol before DFT/LS processing
  + The length of overlaid sequence(s) depends on the number of REs used for LP-WUS
* Option 2: overlaid sequence(s) are the sequence(s) of an OFDM symbol before IFFT processing
  + The length of overlaid sequence(s) depends on the number of REs used for LP-WUS
* Option 3: overlaid sequence(s) are the sequence(s) of an OOK on symbol in time domain after IFFT processing
  + The length of overlaid sequence(s) depends on IFFT size and the value of M

FFS: same or different options are applied for OOK-1 and OOK-4 M>1.

**Agreement**

Update agreement in last meeting as below:

From RAN1 perspective, support X PRBs for LP-WUS and LP-SS with SCS 30kHz (blanked guard RBs are not included) for a channel bandwidth equal or larger than 5MHz

* X ~~to be down-selected between~~ = 11 ~~and 12~~ PRBs
* FFS if other number of PRBs needed, for LP-SS and LP-WUS with a channel bandwidth equal or less than 5MHz

FFS: Whether the above is applicable to FR2

**Agreement**

Further down-select the number of binary LP-SS sequences for the ‘ON-OFF’ pattern:

* 3
* 4
* 8
* 16

**Agreement**

For the binary LP-SS sequence type for the ‘ON-OFF’ pattern in a LP-SS, further down-selection from the following:

* Gold sequence
* M sequence
* Computer searched sequence
* FFS: the length of LP-SS sequence

**Agreement**

The following SNR values for LP-WUR are reported by companies to achieve coverage of PUSCH for message3 for difference noise figures for calibration purposes:

* NF of LR = NF of MR+ 8dB: the reported SNR value range is [-9.05,2.94] dB
* NF of LR = NF of MR+ 5dB: the reported SNR value range is [-6.5, 5.58] dB
* NF of LR = NF of MR+ 2dB: the reported SNR value range is [-4.04,7.95] dB
* Note 1: The above is observed based on the following assumptions used for calibration:

- Carrier frequency: 2.6 GHz

- The number of Tx chains: 1

- MIL of MSG 3: use the average one in R17 coverage, i.e.,153.51 dB for non-redcap UE

- Transmit antenna gain correction factors for WUS: up to company report

- Noise Figure: All three values +2dB, +5dB, +8dB on top of NF of MR (7dB) are to be reported, SNR for different assumptions on NF are determined separately

**Agreement**

For evaluation of LP-WUS and LP-SS design to achieve coverage of PUSCH for message3 from RAN1 perspective, at least the following SNR values should be considered:

* SNR=-3dB for NF of LR = NF of MR+ 8dB
* SNR= -0.5dB for NF of LR = NF of MR+ 5dB
* SNR=2dB for NF of LR = NF of MR+ 2dB
* Note 1: The NF of MR is assumed as 7dB

**Agreement**

For RRC idle/inactive state, down-select among the following options for at least indicating subgroup information using LP-WUS:

* Option 1: A LP-WUS indicates a bitmap with each bit corresponding to one subgroup of N subgroups for part of, one or more PO(s), e.g., N is 8~16, 24
  + Number of information bits for a LP-WUS is at least N, single LP-WUS to wake up one or more subgroups
* Option 2: A LP-WUS indicates a codepoint value corresponding to one or more subgroup(s) from N subgroups for part of, one or more POs, e.g., N is 8~256
  + Number of information bits for a LP-WUS is at least ceil (log2(X1)), where X1 is the number of codepoints indicating one or more subgroups. X1 is reported by companies, X1 could be smaller, equal to or larger than N.
* Option 3: A LP-WUS indicates multiple codepoint values with each corresponding to one or more subgroup(s) from N subgroups for part of, one or more POs, e.g., N is 8~256
  + Number of information bits for a LP-WUS is at least K\*ceil (log2(X2)), where X2 is the number of codepoints indicating one or more subgroups. X2 is reported by companies, X2 could be smaller, equal to or larger than N.
  + K is the number of multiple codepoint values in a LP-WUS where K is larger than 1
* How to satisfy FAR is reported by companies, e.g., FEC/CRC
* Note: multiple TDMed LP-WUSs can be used to support more subgroups for each option.
* Note: Y% effective paging rate per PO is reported by companies
* The followings are considered when down-select among options:
  + The number of supported UE subgroups per PO: M
  + Average network overhead to indicate the number of UE subgroups M per PO
  + False wake up rate due to subgroup-based indication, which will impact the power saving gain
  + Paging latency
  + Note: Coverage target shall be met under 1%BLER, 1% FAR (for false alarm from noise)

##### **LP-WUS operation in IDLE/INACTIVE modes**

* **RAN1#116bis**

**Agreement**

For multi-beam operation of LP-WUS, UE assumes the same LP-WUS information payload is repeated in all transmitted beams corresponding to LP-WUS

* the selection of the beam(s) for the reception of the LP-WUS is up to UE implementation

**Agreement**

Each LO consists of N \* K LP-WUS MOs, where N is the number of beams corresponding to LP-WUS, and K is the number of LP-WUS MOs for each beam.

* Option 1: K = 1
* Option 2: K can be larger than or equal to 1
  + FFS if more than 1 LP-WUS is transmitted from the same beam, whether the information in these multiple LP-WUS is always the same or can be different

**Agreement**

From RAN1 perspective, at least the following metrics can be supported for RRM serving cell measurement performed by OOK-based receiver based on LP-SS:

* LP-RSRP
  + LP-RSRP is the linear average of received power of LP-SS in OOK ON symbols.
    - FFS: How to determine the received power of LP-SS in OOK ON symbols
* LP-RSRQ
  + LP-RSRQ = LP-RSRP/LP-RSSI
  + For the definition of LP-RSSI for determination of LP-RSRQ, further consider the following options:
    - Option 1: LP-RSSI is the linear average of total received power in all LP-SS OOK symbols.
    - Option 2: LP-RSSI is the linear average of total received power in LP-SS OOK OFF symbols.
    - Option 3: LP-RSSI is the linear average of total received power in LP-SS OOK ON symbols.
* FFS: LP-SINR, ~~Power ratio of OOK-ON symbol and OOK-OFF symbol~~

Note: ~~RAN1 will send an LS to RAN2 and RAN4 on the measurement metrics that can be supported from RAN1 perspective, to facilitate RAN2/RAN4 discussions~~. The exact metrics for OOK-based receiver to be used and defined in the specifications depend on the outcome of [RAN1]/RAN2/RAN4 discussions.

**Working Assumption**

From RAN1 perspective, for the entry/exit conditions for LP-WUS monitoring in IDLE/inactive mode,

* The UE may start LP-WUS monitoring if
  + the serving cell measurement performed by the MR is above entry threshold(s), if configured by the gNB~~, and/or~~
  + FFS other conditions, and if any, whether all or one or some of the conditions need to be satisfied
* If UE starts LP-WUS monitoring, it may stop the legacy PO monitoring before UE receives LP-WUS indicating wake-up
* The UE monitors the legacy PO (and may monitor PEI) and may stop LP-WUS monitoring if
  + the serving cell measurement performed by the LR is below exit threshold(s), if configured by the gNB~~, and/or~~
  + FFS other conditions, and if any, whether all or one or some of the conditions need to be satisfied
* FFS the serving cell measurement metrics
* The entry/exit thresholds can be configured separately for different types of LR
* It is left to RAN2 discussion whether the threshold(s) are always configured by the gNB.
* Note: This may be revisited based on the RAN2/RAN4 discussion.

**Conclusion**

LP-SINR is not considered further as a metric for RRM serving cell measurement ~~for OOK-based receiver~~.

* **RAN1#117**

**Conclusion**

Regarding the “FFS: How to determine the received power of LP-SS in OOK ON symbols” for LP-RSRP, no additional work in RAN1.

**Agreement**

It is supported that UEs monitoring the same PO are divided into multiple subgroups, where LP-WUS can provide wake-up indication for each subgroup. Consider the following options:

* Option 1: UEs monitoring the same PO monitor the same LO
* Option 2: UEs corresponding to different POs monitor the same LO
* Option 3: UEs monitoring the same PO are divided into multiple sets of subgroups, with UEs within each set of subgroups monitoring the same LO.
* Combinations of the above options can be considered.

**Agreement**

For LP-SS based LP-RSRQ, LP-RSRP and LP-RSSI are measured within the same bandwidth.

**Agreement**

For LP-RSSI definition for LP-RSRQ, the following is agreed

* Option 1: LP-RSSI is the linear average of total received power in ON and OFF LP-SS OOK symbols.

Note: Above does not constrain LP-SS sequence design for OOK

**Working Assumption**

From RAN1 perspective, for the RRM measurement metrics based on SSS for OFDM-based LP-WUR, use the same definition of SS-RSRP and SS-RSRQ for LP-SSS-RSRP and LP-SSS-RSRQ, respectively.

* Above is applicable for both time-domain processing or frequency-domain processing
* Above does not imply that RAN1 will introduce LP-SSS-RSRP and LP-SSS-RSRQ in the specifications

**Agreement**

For idle/inactive mode, the maximum number of information bits (excluding CRC) in a LP-WUS is Z, where Z <= [8 or 16].

* FFS the exact value of Z

**Agreement**

For idle/inactive mode, the maximum number of subgroups per PO is X, where 8 <= X <= 256.

* FFS the exact value of X.

##### **LP-WUS operation in CONNECTED modes**

* **RAN1#116bis**

**Agreement**

Update the following agreement in RAN1#116 in red:

**Agreement**

* For RRC CONNECTED mode, from RAN1 perspective, further study following LP-WUS procedures to trigger PDCCH monitoring:
  + Case 1: PDCCH monitoring is triggered by LP-WUS with C-DRX configuration
    - Option 1-1: LP-WUS monitoring according to the LP-WUS monitoring configuration before drx-onDurationTimer to trigger the starting of the drx-onDurationTimer.
      * This option may replace DCP functionality
    - Option 1-2: LP-WUS monitoring outside at least legacy C-DRX active time according to the LP-WUS monitoring configuration to trigger PDCCH monitoring.
      * PDCCH monitoring possibly irrespective of drx-onDurationTimer
        + Option 1-2-1: PDCCH monitoring may be additionally triggered based on legacy C-DRX cycle and drx-onDurationTimer when monitoring LP-WUS

If this is adopted, it should be configured together with Option 1-1 to achieve power saving gain compared to legacy C-DRX

* + - * + Option 1-2-2: PDCCH monitoring is not triggered by legacy C-DRX cycle and drx-onDurationTimer when monitoring LP-WUS
    - Option 1-3: LP-WUS monitoring inside at least legacy C-DRX active time according to the LP-WUS monitoring configuration to trigger PDCCH monitoring.
  + ~~Case 2: PDCCH monitoring is triggered by LP-WUS without C-DRX configuration. LP-WUS can be monitored at any time according to the LP-WUS monitoring configuration~~
    - ~~FFS duty-cycled and/or continuous LP-WUS monitoring~~
* Combination of options in Case 1 ~~and combination of options in Case 1 and Case 2 are not precluded~~ should be considered.
* RAN1 does not discuss C-DRX related timers other than drx-onDurationTimer, this topic is up to RAN2
* Note: Above does not preclude to support fallback mechanism to trigger PDCCH monitoring, if any

**Agreement**

For RRC CONNECTED mode, support UE capability report for determination of minimum time gap between LP-WUS reception and MR to start PDCCH monitoring.

* FFS: exact value(s) of the minimum time gap
* FFS: support of multiple minimum time gaps
* FFS whether the reported value includes the duration for time/frequency synchronization of MR

**Agreement**

For LP-WUS monitoring in RRC CONNECTED mode, a LP-WUS is QCLed with existing NR signal/channel/CORESET for the TCI state

* FFS which existing NR signal/channel/CORESET is the QCL source of LP-WUS
* FFS exact definition of QCL relationship between LP-WUS and existing NR signal/channel/CORESET

**Agreement**

LP-WUS monitoring occasions (MOs) are configured by RRC, where UE can monitor for LP-WUS transmission in RRC CONNECTED mode.

* FFS whether to define a time window for Mos
* It is at least supported that a UE can monitor MOs with a periodicity.
  + FFS details of the periodicity, e.g. derived from DRX cycle, separately configured

**Agreement**

Study whether/how LP-WUS works when UE is configured with CA in RRC CONNECTED mode

* FFS: The cell(s) where PDCCH monitoring triggered by a LP-WUS is applicable
  + Option 1: one or more serving cells based on gNB indication/configuration
  + Option 2: all activated serving cells
  + Note: other options are not precluded

**Agreement**

For RRC CONNECTED mode, LP-WUS can be configured without following existing features.

* Rel-16 DCP
* Rel-17 PDCCH skipping
* Rel-17 SSSG switching
* Rel-18 cell DTX

Further study whether/how LP-WUS works with following existing features (PDCCH skipping, SSSG switching, cell DTX)

#### 2.1.2 Remaining Open issues

* Remaining details of an LP-WUS design commonly applicable to both IDLE/INACTIVE and CONNECTED modes
  + Remaining details of OOK (OOK-1 and/or OOK-4) based LP-WUS with overlaid OFDM sequence(s) over OOK symbol
* For IDLE/INACTIVE modes
  + Remaining details of procedure and configuration of LP-WUS indicating paging monitoring triggered by LP-WUS, including at least configuration, sub-grouping and entry/exit condition for LP-WUS monitoring
  + Remaining details of LP-SS with periodicity with Yms for LP-WUR, for synchronization and/or RRM for serving cell.
    - Remaining details of LP-SS based on OOK-1 and/or OOK-4 waveform with or without overlaid OFDM sequences.
* For CONNECTED mode, remaining details of procedures to allow UE MR PDCCH monitoring triggered by LP-WUS including activation and deactivation procedure of LP-WUS monitoring

## 2.2 RAN2

#### 2.2.1 Agreements

##### **Procedure and configuration of LP-WUS in RRC\_IDLE INACTIVE**

**RAN2#125bis**

* The LP-WUS related configuration for IDLE/INACTIVE state is provided via system information. FFS if dedicated configuration is needed.
* Working assumption: the LP-WUS configuration in SIB at least includes the following information:

- LP-SS configuration

- LP-WUS configuration

- FFS on Entry/exit condition for LP-WUS monitoring

* The PEI subgrouping method is taken as baseline for LP-WUS subgrouping, i.e. CN assigned and UE\_ID based subgrouping. FFS the maximum number of subgroups.

**RAN2#126**

* RAN2 will further discuss the details about LP-WUS monitoring entry/exit conditions based on RAN1’s existing working assumptions.
* The LP-WUS related configuration in SIB at least include the following information for IDLE/INACTIVE:

- LP-SS configuration

- LP-WUS configuration

- Entry/exit condition for LP-WUS monitoring (FFS if it always configured)

* Baseline for entry condition definition: If the serving cell quality, e.g. RSRP, RSRQ from MR, is above threshold(s) (if configured), UE may start to monitor LP-WUS, if UE monitors LP-WUS, it may stop monitoring the legacy PO. FFS if any measurement from LR is needed.
* Baseline for exit condition definition: If the serving cell measurement result based on LR is below a threshold (if configured), UE monitors PO as in legacy and it may stop monitoring the LP-WUS.
* RAN2 understand that if UE is configured with CN-based LP-WUS subgrouping, it is up to CN to assign the LP-WUS subgroup ID to the UE.
* RAN2 assume the maximum number of subgroups that can be configured for LP-WUS subgrouping is no less than 8.
* From RAN2 perspective, no new procedure is introduced for SI reception/updates.

##### **RRM measurement relaxation and offloading in RRC\_IDLE INACTIVE**

**RAN2#126**

* For serving cell measurement offloading (i.e., serving cell measurement fully offloaded to LR and no serving cell measurement via MR is required), RAN2 should focus on specifying the offloading criterion for serving cell for UEs supporting LP-WUS, and assume that RAN4 will define the measurement offloading requirements for serving cell.
* RAN2 understand that the RRM measurement of the neighboring cell can only be performed by MR. Can discuss again if RAN1 inform us otherwise.
* RAN2 will further discuss the neighbor cell measurement relaxation criteria (if the UE is using LR to measure the serving cell), e.g., considering reuse Rel-16 criteria for ‘not at cell edge’ and ‘low mobility’.

##### **Procedures for LP-WUS in RRC\_CONNECTED**

**RAN2#126**

* In RRC\_CONNECTED mode, RAN2 to further discuss the impacts of LP-WUS operation methods identified in RAN1.
* For Option 1-1 (as described in RAN1 agreement), the LP-WUS monitoring occasion locates at a configured time offset before the start of drx-onDurationTimer. The range of time offset can be determined by RAN1.
* For Option 1-1, RAN2 assumes the solutions/ operations introduced for DCP mechanism is taken as baseline.
* RAN2 assume that legacy DCP and Option 1-1 is not configured simultaneously for a UE.
* The LP-WUS related configuration for RRC CONNECTED state UE is provided via dedicated RRC message.

#### 2.2.2 Remaining Open issues

* For IDLE/INACTIVE modes
  + Remaining details of procedure and configuration of LP-WUS indicating paging monitoring triggered by LP-WUS, including at least configuration, sub-grouping and entry/exit condition for LP-WUS monitoring
  + Remaining details of RRM relaxation of UE MR for both serving and neighbor cell measurements, and UE serving cell RRM measurement offloaded from MR to LP-WUR, including the necessary conditions
* For CONNECTED mode, remaining details of procedures to allow UE MR PDCCH monitoring triggered by LP-WUS including activation and deactivation procedure of LP-WUS monitoring

## 2.3 RAN3

#### 2.3.1 Agreements

#### 2.3.2 Remaining Open issues

## 2.4 RAN4

#### 2.4.1 Agreements

##### **LP-WUS RRM**

* **RAN4#110bis**

**Issue** **2-1-1: Core requirements to be specified for LP-WUR measurement**

**Agreement:**

* + At Rel-19 LP-WUR WI, for LP-WUR measurement, RAN4 specifies measurement requirements for the following:
    - Measurement requirements for LP-WUR serving cell measurement based on LP-SS at Idle/Inactive state
    - Measurement requirements for LP-WUR serving cell measurement based on existing PSS/SSS at Idle/Inactive state
  + Other related requirements are FFS

**Issue 2-2-1: Methodology on specifying LP-WUR RRM requirements at Idle/Inactive mode**

**Agreement:**

* + The outcome of RAN1’s study in Rel-19 WI on SNR/SINR target is used as the starting point for RAN4 LP-WUR requirement study.
  + Aspects not considered in RAN1 (if any) can be further discussed in RAN4.

**Issue 2-2-3: Accuracy**

**Agreement:**

RAN4 requirement for LP-WUR RRM measurement in Idle/inactive states:

* RAN4 to discuss the simulation assumptions considering the target SNR, accuracy and number of samples.
* RAN4 will define the delay requirement in core part, and further discuss whether/how to define the accuracy requirement.
* **RAN4#111**

**Issue 1-1-2: Cases/states to be considered for RRM relaxation**

**Agreement:** Discuss the RAN4 requirements first for the following case #1, and FFS for case #2 to #5.

|  |  |  |  |
| --- | --- | --- | --- |
| **RRM measurement case index** | **MR serving cell measurement** | **MR neighboring cell measurement** | **LR measurement** |
| #1 Fully offloading case | Off | Off: FFS the condition and the details | ON |

**Issue 1-4-2: LP-SS periodicity for evaluation**

**Agreement:**

* As starting point for RAN4 simulation purpose, uses 320 ms as the LP-SS periodicity in IDLE/Inactive mode, and other values based on RAN1/2 discussion are not precluded.
  + Not consider the MR DRX configuration in the simulation.

**Issue 1-4-5: Simulation assumptions**

**Agreement:**

First start the simulation for FR1, and FFS for FR2 pending on the RF progress.

##### **LP-WUS UE RF**

* **RAN4#110bis**

Sub-topic 2-1 General for UE RF

**Issue 2-1-1: Operation bands for LP-WUR**

**Agreement:**

* Focus on FR1 licensed bands
  + FR2 is not precluded
* FFS on which licensed bands will be chosen as example bands for band specific requirements

**Issue 2-1-3: one or multi-Sets of requirements**

**Way forward:**

* + Discussions could be separated for OOK-based receiver and OFDM-based receiver. And latter stage to discuss whether a generic requirement could be defined, or not.
    - Further discuss the possibility of a dedicated set of requirements for OOK LP-WUR
    - FFS whether there is any other factors should be considered for LP-WUR requirements discussion
  + SNR and NF may be different for these two types.

**Issue 2-1-4: Performance metric for Rx requirements**

**Way forward:**

* + Agreements have been reached in issue 2-2-1.

**Issue 2-1-5: Rx antenna assumption for LP-WUR**

**Way forward:**

* + 1Rx is supported in FR1. FFS RX diversity

**Issue 2-1-6: CBW and RB number for LP-WUR**

**Way forward:**

* + This can be discussed in simulation assumption for ACS/ASCS.

**Issue 2-1-7: SCS for LP-WUR**

**Way forward:**

* + The SCS of LP-WUS is considered same as in-band NR signals

**Issue 2-1-8: sync raster for LP-WUR**

**Way forward:**

* + No sync raster is needed for LP-WUR based on RAN1 design

Sub-topic 2-2 REFSENS requirements

**Issue 2-2-1: Performance metric for REFSENS**

**Agreement:**

* Use X% missed detection rate as the starting point for performance metric for LP-WUS RF requirements
  + FFS on X values
  + FFS on whether to have false alarm rate

**Issue 2-2-2: How to specify REFSENS requirements**

**Agreement:**

* Reuse legacy approach to derive REFSENS, further discuss SNR, NF, IM
  + FFS whether to design REFSENS requirements or other requirements to ensure LP-WUR meet the coverage target
  + Side condition for REFSENS test: DL test signal will only have LP-WUS signal.

**Issue 2-2-3: How to decide SNR value (not requirement) for REFSENS**

**Way forward:**

* + After concluding WUS design in RAN1, the SNR to specify REFSENS requirements should be decided in RAN4

**Issue 2-2-4: How to decide NF value (not requirement) for REFSENS**

**Way forward:**

* + Encourage companies input on NF analysis for different LP-WUR types

**Issue 2-2-5: RF/Antenna Architecture considerations for LP-WUS receiver**

**Way forward:**

* + Detailed antenna/RF architecture can be considered in issue 2-2-4 analysis
  + FFS other RAN4 impacts than REFSENS

Sub-topic 2-3 ASCS requirements

**Issue 2-3-1: Simulation work for ASCS**

**Agreement:**

* LLS simulation for ASCS is sufficient
  + The same level PSD for LP-WUS and NR signals is assumed

**Issue 2-3-2: Detailed Methodology for simulation to evaluate ASCS value and guard RB**

**Way forward:**

* + Use SI assumption as a starting point, further confirm and align the simulation parameters in the group next meeting
    - Metric for link-level simulation should be aligned
    - Alignment required on RF impairments before starting the work.

**Issue 2-3-3: ASCS requirements value**

**Way forward:**

* + FFS ASCS requirements value

**Issue 2-3-4: Required number of guard RB**

**Way forward:**

* + FFS required number of guard RB for ASCS

**Issue 2-3-5: RF impairment considerations for ASCS**

**Way forward:**

* + RF impairments can be considered and aligned for ASCS simulation

**Issue 2-3-6: Side conditions for ASCS test**

**Way forward:**

* + LP-WUS along with required guard RBs is packed with NR legacy DL signal on both sides.

Sub-topic 2-4 ACS requirements

**Issue 2-4-1: coexistence System-level simulation to evaluate ACS**

**Agreement:**

* The same interference level as for main radio is assumed for LP-WUR
  + Guard RB number needs be evaluated by link level simulation for ACS requirements

**Issue 2-4-2: Link-level simulation to evaluate ACS**

**Way forward:**

* + Use SI assumption as a starting point, further confirm and align the simulation parameters next meeting
    - Necessary update and alignment on parameters, e.g., number of WUS RB, RF impairment, ADC bit, and performance metric is required before starting the work.

**Issue 2-4-3: ACS requirements value**

**Way forward:**

* + FFS ACS requirements value

**Issue 2-4-4: How to evaluate required guard RB for ACS case**

**Way forward:**

* + FFS required number of guard RB for ACS

**Issue 2-4-5: Detailed coexistence System-level simulation assumptions**

**Way forward:**

* + System-level simulation is not needed for ACS evaluation

Sub-topic 2-5 other UE RF requirements

**Issue 2-5-1: Any other Rx requirements should be specified**

**Agreement:**

* Apart from REFSENS, ACS, Rx requirements of IBB, OBB, intermodulation as well as spurious emissions should be specified for LP-WUR.
* Other legacy receiver requirements are not precluded

Sub-topic 2-6 Testability for UE RF requirements

**Issue 2-6-1: Test metric for LP-WUR receiver**

**Way forward:**

* + Test metric should be aligned with performance metric for Rx requirements
* **RAN4#111**

Sub-topic 1-1 General and system parameters

**Issue 1-1-1: Operation bands for LP-WUS feature**

**Agreements:**

RAN4 confirm LP-WUS is a general feature not limited to specific example band(s)

**Issue 1-1-2: FR1 example bands for requirements as phase 1**

**Agreements:**

No need to list specific example band(s)

**Issue 1-1-5: Rx diversity gain assumption for LP-WUR**

**Agreements:**

No diversity gain as baseline for FR1. More Rx could be implementation choice

**Issue 1-1-7: Channel raster for LP-WUR**

**Agreements:**

RAN4 further check whether no channel raster is needed for LP-WUR.

**Issue 1-1-9: Side condition for LP-WUR requirements**

**Agreements:**

* + FFS RAN4 should consider both idle and connected mode conditions in the side conditions for the LPWUR requirements.

**Issue 1-1-11: Metric for LP\_WUR requirements**

**Agreements:**

* + MDR is used as the metric for LP\_WUR Rx RF requirements
    - FFS MDR values.
  + FAR will be defined as demodulation requirements
    - FFS FAR values.

Sub-topic 2-1 Alignment of LLS parameters to specify ACS/ASCS requirements

**Issue 2-1-1: Center frequencies for LLS simulation**

**Agreement:**

* For ACS and ASCS simulation, select 900MHz, 2.6GHz and 3.5GHz as example frequencies for FR1.
* FFS on FR2 example band(s)

**Issue 2-1-2: Performance metric (MDR/BLER value) for LLS simulation (apply to ACS/ASCS and REFSENS)**

**Agreement:**

* For LLS simulation (apply to ACS/ASCS and REFSENS), the metric includes
  + 1% MDR/BLER as baseline and 5% MDR/BLER as optional
  + The following false alarm rate can be considered
    - 1%
    - 5%
    - Providing the information whether the false alarm rate is considered or not
* Further down-select the performance metric for the requirements and testing

**Issue 2-1-3: Waveform for LLS simulation**

**Agreement:**

* Use both OOK1 and OOK4 based on RAN1 agreements for link level simulations

**Issue 2-1-4: number of LP-WUS RBs for LLS simulation**

**Agreement:**

* Assume 11PRB for LP-WUS signal with 30kHz SCS for simulations
* FFS on RB number(s) for 15KHz SCS depending on RAN1 decision

**Issue 2-1-5: number of ADC assumption for LLS simulation**

**Agreement:**

* Number of ADC assumption for LLS simulation
  + Option 1: 8 bit
  + Option 2: 4 bit
  + Encourage companies to provide simulation results with both options for comparison

**Issue 2-1-6: Frequency error assumption for LLS simulation**

**Agreement**

* Frequency error assumption for LLS simulation
  + Up to 20ppm

**Issue 2-1-7: Phase noise model for LLS simulation**

**Agreement:**

* Not needed in LLS. Consider as RF impairment of implementation.

**Issue 2-1-8: For ASCS, the BWinterferer for ASCS evaluation**

**Agreement:**

* For ASCS evaluation, only 10MHz and 20MHz NR CBWs are assumed and the BWinterferer is
  + All RBs between WUS edge to channel edge

**Issue 2-1-10: The overall simulation parameters for LLS simulation**

**Agreement:**

* Wait for RAN1 conclusion on FR2 to decide the parameters for evaluations
* Adopt the following parameters in table below for FR1 simulation evaluations

|  |  |  |  |
| --- | --- | --- | --- |
| Attributes | Assumptions | | |
| Case name (waveform) | OOK-1 waveform | | OOK-4 waveform |
| Center frequency | 900MHz, 2.6GHz and 3.5GHz | | |
| Channel structure | Total 8/16 bits | | |
| Chip rate | M=1 | M=1/2/4 | |
| WUS duration | FFS | | |
| Coding | 1/2 rate Manchester coding | | |
| Time error | 0 | | |
| Residual Frequency error | 0/10/20 ppm | | |
| SCS | 30kHz | | |
| UE Channel BW | 20MHz (51 RB)-case 1  10MHz (24 RB)-case 2  5MHz (11 RB)-case 3 | | |
| WUS RB | * Fixed 11RB ~ 3.96MHz for 10MHz and 20MHz cases | | |
| Position within channel | * For 10/20MHz CBW, Center for ASCS, edge for ACS [assume no ASCS impact] * For 5MHz CBW, fixed center of channel | | |
| Guardband of NR channel, both wanted cell and interfer cell (ACS) | * For wanted signal: 505kHz for 5MHz, 665kHz for 10MH, 805kHz for 20Mhz * For interference cell2 5MHz: fixed 505kHz | | |
| Guard RB | * For ASCS: 0 or 1RB on each side of LP-WUS bandwidth * For ACS: 1/2/3/4 RB | | |
| Filter | * 3th/5th Order lowpass Butterworth matching fixed 3.96MHz RF bandwidth for 10MHz/20MHz case   + Other order lowpass filter is not precluded * The filter bandwidth is adapted with actual WUS RBs, for 5MHz case | | |
| ASCS | PDSCH mapped on RBs not used for LP-WUS and Guard RB;  EPRE of PDSCH /EPRE of LP-WUS = 0 dB  Same PSD with WUS signal | | |
| ACS | PDSCH mapped on interference RBs (11RB for 5MHz CBW), one side;  EPRE of PDSCH /EPRE of in-band LP-WUS = [20~33] dB  NOTE: decide the interference level depending on SNR | | |
| Wanted signal level | For ACS, REFSENS + 14 dB for LP-WUS | | |
| Sampling rate | 7.68MHz | | |
| ADC bit width | 4/8 bits ADC for ASCS/ACS  Encourage companies to provide simulation results with both options for comparison | | |
| Phase noise | Not modelled | | |
| Non-linearities | Not modelled | | |
| Power boosting | EPRE ratio: 0dB/3dB for OOK-1/OOK-4  NOTE: 3dB is optional for simulation | | |
| Channel Model | Option 1: TDL-C 300  Option 2: AWGN  Note: encourage companies to provide simulation results with both options | | |
| Performance metric | * + 1% MDR/BLER as baseline and 5% MDR/BLER as optional   + The following false alarm rate can be considered     - 1%     - 5%   Providing the information whether the false alarm rate is considered or not | | |

Sub-topic 2-2 REFSENS requirements

**Issue 2-2-3: SNR value (not requirement) for REFSENS**

**Agreement:**

* + Stick to last meeting agreements: Wait for RAN1 SNR progress

**Issue 2-2-4: NF Gap between LR and MR for REFSENS (assume MR as 9dB)**

**Agreement:**

* + RAN4 further discuss potential NF for OOK-based and OFDM-based receiver.
  + Linked to resolution of Issue 2-2-8

**Issue 2-2-6: IM value for REFSENS**

**Agreement:**

* + RAN4 further discuss potential IM value for OOK-based and OFDM-based receiver.

**Issue 2-2-8: Whether a baseline architecture is needed for LP-WUS receiver**

**Agreement:**

* + RAN4 will further discuss and decide baseline architecture(s) for OOK-based receiver and OFDM-based receiver.

Sub-topic 2-3 ASCS requirements

**Issue 2-3-1: Align the definition of ASCS requirements**

**Agreement:**

* + RAN4 can use the following ASCS definition as starting point.
    - **Adjacent SubCarrier Selectivity (ASCS) is a measure of a receiver's ability to receive an LP-WUS signal at its assigned channel frequency in the presence of adjacent subcarrier NR signal(s) at a given frequency offset (guard RB) between LP-WUS and NR. ASCS is the ratio of the receive filter attenuation on the assigned LP-WUR channel frequency to the receive filter attenuation on the adjacent NR subcarrier**

**Issue 2-3-2: ASCS requirements value**

**Agreement:**

* + RAN4 further discuss whether ASCS requirements value should be specified, or just the test parameter are specified, i.e., LP\_WUS and NR signal bandwidths and power levels, and guard RBs.

**Issue 2-3-3: Required number of guard RB for ASCS**

**Agreement:**

* + RAN4 further discuss required number of guard RB for ASCS based on LLS simulation outcome next meeting.

**Issue 2-3-4: Test case for ASCS**

**Agreement:**

* + RAN4 further discuss detailed test parameters for ASCS.

Sub-topic 2-4 ACS requirements

**Issue 2-4-1: Whether to update the ACS definition for LP-WUS**

**Agreement:**

* + RAN4 consider the following clarified ACS requirements definition for LP-WUS as starting point.
    - **Adjacent channel selectivity (ACS) is a measure of a receiver's ability to receive an ~~NR~~ LP-WUS signal at its assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the center frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).**

**Issue 2-4-2: ACS requirements value**

**Agreement:**

* + RAN4 consider the how to specify ACS requirements. FFS same as MR.
    - Decision will be made based on LLS outcome

**Issue 2-4-3: Required guard RB for ACS case**

**Agreement:**

* + RAN4 further discuss required number of guard RB for ACS based on LLS simulation outcome next meeting.

Sub-topic 3-1 General for UE RF

**Issue 3-1-1: IBB and OBB assumption**

**Agreement:**

* + RAN4 further check and discuss whether same interference level of IBB and OBB as MR is assumed for LP-WUR.
    - With assumption that Rx dynamic range for LR may not be as good as MR

**Issue 3-1-2: IBB and OBB requirements**

**Agreement:**

* + RAN4 further discuss detailed test condition for IBB and OBB, e.g., location of LP-WUS in-band, MR channel bandwidth, whether guard RBs are allocated, power level.
    - FFS IBB and OBB requirements

**Issue 3-1-4: Intermodulation requirements**

**Agreement:**

* + RAN4 further discuss detailed test condition for Intermodulation requirements, e.g., location of LP-WUS in-band, MR channel bandwidth, whether guard RBs are allocated, power level.
    - FFS Intermodulation requirements requirement

Sub-topic 3-2 spurious emissions and response requirements

**Issue 3-2-1: Spurious emissions requirements**

**Agreement:**

* + RAN4 conclude Spurious emissions requirements can be reused for LP-WUR.

**Issue 3-2-2: spurious response requirements**

**Agreement:**

* + RAN4 further discuss whether spurious response requirements is needed for LP-WUR.

Sub-topic 3-3 Other Rx requirements

**Issue 3-3-1: Maximum input level requirements**

**Agreement:**

* + RAN4 further discuss whether maximum input level requirements can be reused for LP-WUR.
    - FFS side condition

**Issue 3-3-2: Narrow band blocking requirements**

**Agreement:**

* + FFS RAN4 no need to define narrow band blocking requirements for LP-WUR.

##### **LP-WUS BS RF**

* **RAN4#110bis**

Whether RAN4 evaluation of power boosting needs to wait for RAN1 conclusion

**Way forward:**

* RAN4 can work in parallel and rely on liaison-based approach to communicate with RAN1 when necessary.

On the definition of dynamic range for LP-WUS (DL power boosting)

**Way forward:**

* Concept of LP-WUS dynamic range/power boosting is considered as starting point
  + The LP-WUS RB power dynamic range (or LP-WUS power boosting) is the difference between the average power of LP-WUS REs (which occupy certain REs within a NR transmission bandwidth configuration and the average power over all REs (from both LP-WUS and the NR carrier containing the LP-WUS REs).
* With following assumption to guide future discussion, RAN4 will revisit the above concept after BS core requirements are settled.
  + Transmission power is shared between NR OFDM signal and NR LP-WUS for the same carrier.
  + The rated carrier output power and rated total output power are not changed with LP-WUS power boosting.

On what can be considered for the future discussion on dynamic range for LP-WUS (DL power boosting)

**FFS:**

* The applicable BS types. e.g. BS type 1-C, BS type 1-H and BS type 1-O
* Power degradation of RBs other than LP-WUS signal within the carrier
* Whether BS power boosting is declaration based or not
* Others
* **RAN4#111**

1.1 Manufacture declaration on LP-WUS

**WF**

FFS on the following options for next meeting:

* Option 1: Set the LP-WUS power boosting a complete manufacture declaration feature, including whether supporting LP-WUS power boosting and the supported boosting level.
* Option 2: Minimum power boosting level in core specification together with manufacturer declaration in the conformance test specification.

1.2. Concept of LP-WUS dynamic range/power boosting

**WF**

FFS on the following options for next meeting:

* Option 1: Stick with the one in RAN4#110bis approved WF R4-2406140, which is:
  + The LP-WUS RB power dynamic range (or LP-WUS power boosting) is the difference between the average power of LP-WUS REs (which occupy certain REs within a NR transmission bandwidth configuration and the average power over all REs (from both LP-WUS and the NR carrier containing the LP-WUS REs).
* Option 2: Define EPRE ratio between LP-WUS and NR signals instead of power dynamic range.

1.3. Whether to preclude small CBW for consideration of LP-WUS power boosting

**WF**

FFS on the following options for next meeting:

* Option 1: Consider a power degradation limit, e.g., 2dB, for validating a configuration for LP-WUS representing by (EPRE ratio, channel bandwidth).
* Option 2: Only consider LP-WUS power boosting for CBWs larger than 20MHz.
* Option 3: Focus on CBWs >= 10MHz and different power boosting values can be considered for different CBW.
* Option 4: Not preclude small CBW for LP-WUS power boosting.

1.4. On applicable BS type for LP-WUS

**WF**

FFS on the following proposals for next meeting:

* Proposal 1: Not to set restriction on applicable BS types to support LP-WUS.
* Proposal 2: To decide on the applicable BS types after the applicable frequency range and bands for LP-WUS have been decided.
* Proposal 3: Consider BS type 1-C as applicable type to further discuss of LP-WUS power boosting. FFS other BS types.
* Proposal 4: Depend on power boosting level for certain BS type.
  + If power boosting is limited to 3 dB, all BS type 1-C, 1-H and 1-O can be considered.

1.5. On minimum value for LP-WUS power boosting

**WF**

FFS on the following options for next meeting:

* Option 1: Use [3dB] as starting point
  + It should be considered in conjunction with the supported CBWs.
* Option 2: To consider the power degradation of RBs other than LP-WUS signal within the carrier after the number of LP-WUS RBs have been decided in RAN1.

1.6. Whether a cap for LP-WUS power boosting should be considered

**WF**

FFS on the following options for next meeting:

* Option 1: Limit to 3dB for BS type 1-C, 1-H and 1-O.
* Option 2: FFS on the value in conjunction with the supported CBWs.
* Option 3: To consider the power degradation of RBs other than LP-WUS signal within the carrier after the number of LP-WUS RBs have been decided in RAN1.
* Option 4: Not consider to cap the LP-WUS power boosting.

1.7. Requirements other than power boosting that should be considered

**WF**

FFS on the following proposals for next meeting:

* Proposal 1: Unwanted emissions requirements of SEM and spurious emissions should be considered for transmitted signal with LP-WUS and NR in the same carrier.
* Proposal 2: FFS whether transmitted signal quality requirements should be defined for LP-WUS, at least for the EVM requirement.
* Proposal 3: Multi-band requirements at gNB side for LP-WUS.

1.8. Whether UE needs to know BS power boosting information for RRM measurement

**WF**

This issue will be discussed in RRM session. Not precluded in RF session if identified as necessary.

1.9. Whether to consider FR2 for LP-WUS

**WF**

* RAN4 focus on FR1 licensed bands for BS RF requirements.
  + FR2 is not precluded for further study.

#### 2.4.2 Remaining Open issues

* RRM：For IDLE/INACTIVE modes
  + Remaining details of procedure and configuration of LP-WUS indicating paging monitoring triggered by LP-WUS, including at least configuration, sub-grouping and entry/exit condition for LP-WUS monitoring.
  + Remaining details of LP-SS with periodicity with Yms for LP-WUR, for synchronization and/or RRM for serving cell.
  + Remaining details of requirements for further RRM relaxation of UE MR for both serving and neighbor cell measurements, and requirements for UE serving cell RRM measurement offloaded from MR to LP-WUR.
* RF：
  + UE RF requirements related issues
  + BS RF requirements related issues
* Demod：
  + Not started

## 2.5 RAN5

#### 2.5.1 Agreements

#### 2.5.2 Remaining Open issues

#### 2.5.3 Remaining Open issues with cross-WG dependencies

## 2.6 RAN6

#### 2.6.1 Agreements

#### 2.6.2 Remaining Open issues

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

NOTE: This section only needs to be filled in for WI/SIs where there is a corresponding relevant WI/SI in SA/CT.

## 3.1 SAx/CTs

#### 3.1.1 Agreements with cross-TSG impacts

#### 3.1.2 Remaining Open issues with cross-TSG impacts

NOTE: This section should also flag any critical dependencies that need TSG attention.

## 4. References

NOTE: This can be e.g. a list of all related Tdocs in the affected WGs since last TSG, references to LSs, produced TRs/TSs, the work/study item description or status reports of previous TSGs.

**RAN1#116bis**

1. R1-2401982 Discussion on LP-WUS and LP-SS Design TCL
2. R1-2401999 Signal Design of LP-WUS and LP-SS Huawei, HiSilicon
3. R1-2402046 Discussion on LP-WUS and LP-SS Design FUTUREWEI
4. R1-2402114 Discussion on LP-WUS and LP-SS design Spreadtrum Communications
5. R1-2402193 Discussion on LP-WUS design ZTE, Sanechips
6. R1-2402251 Discussion on LP-WUS and LP-SS design vivo
7. R1-2402337 Signal design for LP-WUS and LP-SS OPPO
8. R1-2402392 Design of LP-WUS and LP-SS CATT
9. R1-2402475 Discussion on LP-WUS and LP-SS design Samsung
10. R1-2402519 Discussion on LP-WUS/LPSS design China Telecom
11. R1-2402539 Discussion on LP-WUS and LP-SS Design EURECOM
12. R1-2402544 Discussion on the LP-WUS and LP-SS design Panasonic
13. R1-2402574 Discussion on LP-WUS and LP-SS design CMCC
14. R1-2402610 Discussion on LP-WUS and LP-SS design framework for Low power WUS InterDigital, Inc.
15. R1-2402617 Discussion on LP-WUS and LP-SS design Everactive
16. R1-2402675 Discussion on LP-WUS and LP-SS design Xiaomi
17. R1-2402728 Discussion on LP-WUS and LP-SS design Honor
18. R1-2402740 Discussion on LP-WUS and LP-SS design Sharp
19. R1-2402760 Discussion on LP-WUS and LP-SS design NEC
20. R1-2402890 LP-WUS and LP-SS design Apple
21. R1-2402906 LP-WUS and LP-SS design Nokia
22. R1-2402952 On LP-WUS and LP-SS designs MediaTek
23. R1-2402976 LP-WUS and LP-SS design Sony
24. R1-2403105 Discussion on LP-WUS and LP-SS design Lenovo
25. R1-2403126 Discussion on LP-WUS and LP-SS design LG Electronics
26. R1-2403203 LP-WUS and LP-SS design Qualcomm Incorporated
27. R1-2403253 Discussion on LP-WUS and LP-SS design NTT DOCOMO, INC.
28. R1-2403276 LP-WUS and LP-SS design Ericsson
29. R1-2403376 On LP-WUS and LP-SS design Nordic Semiconductor ASA
30. R1-2403554 Summary #1 of discussions on LP-WUS and LP-SS design Moderator (vivo)
31. R1-2403616 Summary #2 of discussions on LP-WUS and LP-SS design Moderator (vivo)
32. R1-2403751 Summary #3 of discussions on LP-WUS and LP-SS design Moderator (vivo)
33. R1-2401983 Discussion on LP-WUS Operation in IDLE/INACTIVE modes TCL
34. R1-2402000 Procedures and functionalities of LP-WUS in IDLE/INACTIVE mode Huawei, HiSilicon
35. R1-2402047 Discussion on LP-WUS Operation in IDLE/INACTIVE Modes FUTUREWEI
36. R1-2402115 Discussion on LP-WUS operation in IDLE/INACTIVE modes Spreadtrum Communications
37. R1-2402194 Discussion on LP-WUS operation in IDLE/INACTIVE mode ZTE, Sanechips
38. R1-2402252 Discussion on LP-WUS operation in IDLE/INACTIVE modes vivo
39. R1-2402338 Discussion on LP-WUS operation in RRC\_IDLE/INACTIVE modes OPPO
40. R1-2402393 System design and procedure of LP-WUS operation for UE in IDLE/Inactive Modes CATT
41. R1-2402476 Discussion on LP-WUS operation in IDLE/INACTIVE modes Samsung
42. R1-2402520 Discussion on LP-WUS operation in IDLE/INACTIVE modes China Telecom
43. R1-2402545 Discussion on LP-WUS operation in IDLE/INACTIVE modes Panasonic
44. R1-2402575 Discussion on LP-WUS operation in IDLE/INACTIVE modes CMCC
45. R1-2402611 Discussion on LP-WUS operation in IDLE/INACTIVE modes InterDigital, Inc.
46. R1-2402676 Discussion on LP-WUS operation in Idle/Inactive modes Xiaomi
47. R1-2402741 Discussion on LP-WUS operation in IDLE/INACTIVE modes Sharp
48. R1-2402761 Discussion on LP-WUS operation in RRC IDLE/INACTIVE mode NEC
49. R1-2402835 Discussion on LP-WUS operation in IDLE/INACTIVE mode Fujitsu
50. R1-2402891 LP-WUS operation in IDLE/INACTIVE modes Apple
51. R1-2402893 Summary #1 on LP-WUS operation in IDLE/INACTIVE mode Moderator (Apple)
52. R1-2402894 Summary #2 on LP-WUS operation in IDLE/INACTIVE mode Moderator (Apple)
53. R1-2402895 Summary #3 on LP-WUS operation in IDLE/INACTIVE mode Moderator (Apple)
54. R1-2402907 LP-WUS operation in ILDE/Inactive mode Nokia
55. R1-2402953 On LP-WUS operation in IDLE/INACTIVE modes MediaTek
56. R1-2402977 LP-WUS operation in IDLE / INACTIVE mode Sony
57. R1-2403027 Discussion on LP-WUS operation in IDLE/INACTIVE modes ETRI
58. R1-2403106 Discussion on LP-WUS operation in Idle/Inactive modes Lenovo
59. R1-2403127 Discussion on LP-WUS operation in IDLE/INACTIVE modes LG Electronics
60. R1-2403138 Views on LP-WUS operation in IDLE/INACTIVE modes KT Corp.
61. R1-2403204 LP-WUR operation in idle and inactive modes Qualcomm Incorporated
62. R1-2403254 Discussion on LP-WUS operation in IDLE/INACTIVE modes NTT DOCOMO, INC.
63. R1-2403277 LP-WUS operation in IDLE and INACTIVE modes Ericsson
64. R1-2403375 On LP-WUS operation in IDLE/Inactive Nordic Semiconductor ASA
65. R1-2402001 Procedures and functionalities of LP-WUS in CONNECTED mode Huawei, HiSilicon
66. R1-2402116 Discussion on LP-WUS operation in CONNECTED modes Spreadtrum Communications
67. R1-2402195 Discussion on LP-WUS operation in CONNECTED mode ZTE, Sanechips
68. R1-2402253 Discussion on LP-WUS operation in CONNECTED modes vivo
69. R1-2402339 Consideration on wake-up procedure in connected mode OPPO
70. R1-2402394 System design and procedure of LP-WUS operation for UE in CONNECTED Modes CATT
71. R1-2402477 Discussion on LP-WUS operation in CONNECTED modes Samsung
72. R1-2402521 Discussion on LP-WUS operation in CONNECTED modes China Telecom
73. R1-2402546 Discussion on LP-WUS operation in CONNECTED mode Panasonic
74. R1-2402576 Discussion on LP-WUS operation in CONNECTED mode CMCC
75. R1-2402588 Discussion on LP-WUS operation in CONNECTED modes Lenovo
76. R1-2402612 Discussion on RRC CONNECTED mode LP-WUS monitoring InterDigital, Inc.
77. R1-2402677 Discussion on LP-WUS operation in Connected mode Xiaomi
78. R1-2402742 Discussion on LP-WUS operation in CONNECTED modes Sharp
79. R1-2402762 Discussion on LP-WUS operation in RRC CONNECTED mode NEC
80. R1-2402892 LP-WUS operation in CONNECTED modes Apple
81. R1-2402908 LP-WUS operation in CONNECTED mode Nokia
82. R1-2402954 On LP-WUS operation in CONNECTED modes MediaTek
83. R1-2402978 LP-WUS operation in CONNECTED mode Sony
84. R1-2403028 Discussion on LP-WUS operation in CONNECTED modes ETRI
85. R1-2403037 Discussion on LP-WUS procedures in Connected mode TCL
86. R1-2403128 Discussion on LP-WUS operation in CONNECTED modes LG Electronics
87. R1-2403205 LP-WUR operation in connected mode Qualcomm Incorporated
88. R1-2403255 Discussion on LP-WUS operation in CONNECTED mode NTT DOCOMO, INC.
89. R1-2403278 LP-WUS operation in CONNECTED mode Ericsson
90. R1-2403517 FL summary #1 on LP-WUS operation in CONNECTED mode Moderator (NTT DOCOMO)
91. R1-2403713 FL summary #2 on LP-WUS operation in CONNECTED mode Moderator (NTT DOCOMO)
92. R1-2402893 Summary #1 on LP-WUS operation in IDLE/INACTIVE mode Moderator (Apple)

**RAN1#117**

1. [R1-2403864](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2403864.zip) Discussion on LP-WUS and LP-SS Design FUTUREWEI
2. [R1-2403879](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2403879.zip) Discussion on LP-WUS and LP-SS Design EURECOM
3. [R1-2403948](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2403948.zip) Signal Design of LP-WUS and LP-SS Huawei, HiSilicon
4. [R1-2404035](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404035.zip) Discussion on LP-WUS and LP-SS design Spreadtrum Communications
5. [R1-2404059](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404059.zip) Discussion on LP-WUS and LP-SS Design TCL
6. [R1-2404124](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404124.zip) Discussion on LP-WUS and LP-SS design Samsung
7. [R1-2404186](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404186.zip) Discussion on LP-WUS and LP-SS design vivo
8. [R1-2404296](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404296.zip) LP-WUS and LP-SS design Apple
9. [R1-2404312](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404312.zip) Discussion on LP-WUS and LP-SS design framework for Low power WUS InterDigital, Inc.
10. [R1-2404320](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404320.zip) Discussion on LP-WUS and LP-SS design Everactive
11. [R1-2404410](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404410.zip) Design of LP-WUS and LP-SS CATT
12. [R1-2404465](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404465.zip) Discussion on LP-WUS and LP-SS design CMCC
13. [R1-2404509](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404509.zip) LP-WUS and LP-SS design Sony
14. [R1-2404563](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404563.zip) Discussion on LP-WUS design ZTE, Sanechips
15. [R1-2404579](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404579.zip) Discussion on LP-WUS and LP-SS design HONOR
16. [R1-2404627](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404627.zip) Discussion on LP-WUS and LP-SS design Xiaomi
17. [R1-2404664](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404664.zip) Discussion on LP-WUS and LP-SS design NEC
18. [R1-2404705](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404705.zip) LP-WUS and LP-SS design Nokia
19. [R1-2404760](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404760.zip) Discussion on the LP-WUS and LP-SS design Panasonic
20. [R1-2404852](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404852.zip) Signal design for LP-WUS and LP-SS OPPO
21. [R1-2404897](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404897.zip) Discussion on LP-WUS and LP-SS design LG Electronics
22. [R1-2404942](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404942.zip) Discussion on LP-WUS and LP-SS design Lenovo
23. [R1-2404966](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404966.zip) Discussion on LP-WUS and LP-SS design Sharp
24. [R1-2405051](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405051.zip) Discussion on LP-WUS and LP-SS design NTT DOCOMO, INC.
25. [R1-2405073](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405073.zip) LP-WUS and LP-SS design MediaTek Inc.
26. [R1-2405108](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405108.zip) LP-WUS and LP-SS design Ericsson
27. [R1-2405164](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405164.zip) LP-WUS and LP-SS design Qualcomm Incorporated
28. [R1-2405254](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405254.zip) On LP-WUS and LP-SS design Nordic Semiconductor ASA
29. R1-2405499 Summary #1 of discussions on LP-WUS and LP-SS design Moderator (vivo)
30. R1-2405519 Summary #2 of discussions on LP-WUS and LP-SS design Moderator (vivo)
31. R1-2405645 Summary #4 of discussions on LP-WUS and LP-SS design Moderator (vivo)
32. R1-2405708 Summary #5 of discussions on LP-WUS and LP-SS design Moderator (vivo)
33. [R1-2403865](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2403865.zip) Discussion on LP-WUS Operation in IDLE/INACTIVE Modes FUTUREWEI
34. [R1-2403949](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2403949.zip) Procedures and functionalities of LP-WUS in IDLE/INACTIVE mode Huawei, HiSilicon
35. [R1-2404036](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404036.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes Spreadtrum Communications
36. [R1-2404125](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404125.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes Samsung
37. [R1-2404136](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404136.zip) Discussion on LP-WUS Operation in IDLE/INACTIVE state TCL
38. [R1-2404187](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404187.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes vivo
39. [R1-2404297](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404297.zip) LP-WUS operation in IDLE/INACTIVE modes Apple
40. R1-2404299 Summary #1 on LP-WUS operation in IDLE/INACTIVE mode Moderator (Apple)
41. R1-2404300 Summary #2 on LP-WUS operation in IDLE/INACTIVE mode Moderator (Apple)
42. R1-2404301 Summary #3 on LP-WUS operation in IDLE/INACTIVE mode Moderator (Apple)
43. [R1-2404313](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404313.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes InterDigital, Inc.
44. [R1-2404411](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404411.zip) System design and procedure of LP-WUS operation for UE in IDLE/Inactive Modes CATT
45. [R1-2404466](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404466.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes CMCC
46. [R1-2404510](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404510.zip) LP-WUS operation in IDLE / INACTIVE modes Sony
47. [R1-2404564](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404564.zip) Discussion on LP-WUS operation in IDLE/INACTIVE mode ZTE, Sanechips
48. [R1-2404628](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404628.zip) Discussion on LP-WUS operation in Idle/Inactive modes Xiaomi
49. [R1-2404665](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404665.zip) Discussion on LP-WUS operation in RRC IDLE/INACTIVE mode NEC
50. [R1-2404706](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404706.zip) LP-WUS operation in IDLE/Inactive mode Nokia
51. [R1-2404761](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404761.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes Panasonic
52. [R1-2404782](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404782.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes ETRI
53. [R1-2404805](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404805.zip) Discussion on LP-WUS operation in IDLE/INACTIVE mode Fujitsu
54. [R1-2404853](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404853.zip) Discussion on LP-WUS operation in RRC\_IDLE/INACTIVE modes OPPO
55. [R1-2404898](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404898.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes LG Electronics
56. [R1-2404943](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404943.zip) Discussion on LP-WUS operation in Idle/Inactive modes Lenovo
57. [R1-2404967](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404967.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes Sharp
58. [R1-2405052](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405052.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes NTT DOCOMO, INC.
59. [R1-2405074](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405074.zip) LP-WUS operation in IDLE/INACTIVE modes MediaTek Inc.
60. [R1-2405109](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405109.zip) LP-WUS operation in IDLE and INACTIVE modes Ericsson
61. [R1-2405165](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405165.zip) LP-WUR operation in idle and inactive modes Qualcomm Incorporated
62. [R1-2405180](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405180.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes KT Corp.
63. [R1-2405253](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405253.zip) On LP-WUS operation in IDLE/Inactive Nordic Semiconductor ASA
64. R1-2405681 Summary #4 on LP-WUS operation in IDLE/INACTIVE mode Moderator (Apple)
65. [R1-2403950](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2403950.zip) Procedures and functionalities of LP-WUS in CONNECTED mode Huawei, HiSilicon
66. [R1-2404001](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404001.zip) Discussion on LP-WUS procedures in Connected mode TCL
67. [R1-2404037](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404037.zip) Discussion on LP-WUS operation in CONNECTED modes Spreadtrum Communications
68. [R1-2404126](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404126.zip) Discussion on LP-WUS operation in CONNECTED modes Samsung
69. [R1-2404188](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404188.zip) Discussion on LP-WUS operation in CONNECTED modes vivo
70. [R1-2404298](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404298.zip) LP-WUS operation in CONNECTED modes Apple
71. [R1-2404314](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404314.zip) Discussion on RRC CONNECTED mode LP-WUS monitoring InterDigital, Inc.
72. [R1-2404412](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404412.zip) System design and procedure of LP-WUS operation for UE in CONNECTED Modes CATT
73. [R1-2404440](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404440.zip) Discussion on LP-WUS operation in CONNECTED modes Lenovo
74. [R1-2404467](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404467.zip) Discussion on LP-WUS operation in CONNECTED mode CMCC
75. [R1-2404511](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404511.zip) LP-WUS operation in CONNECTED mode Sony
76. [R1-2404565](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404565.zip) Discussion on LP-WUS operation in CONNECTED mode ZTE, Sanechips
77. [R1-2404629](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404629.zip) Discussion on LP-WUS operation in Connected mode Xiaomi
78. [R1-2404666](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404666.zip) Discussion on LP-WUS operation in RRC CONNECTED mode NEC
79. [R1-2404707](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404707.zip) LP-WUS operation in CONNECTED mode Nokia
80. [R1-2404762](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404762.zip) Discussion on LP-WUS operation in CONNECTED mode Panasonic
81. [R1-2404783](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404783.zip) Discussion on LP-WUS operation in CONNECTED modes ETRI
82. [R1-2404854](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404854.zip) Consideration on wake-up procedure in connected mode OPPO
83. [R1-2404899](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404899.zip) Discussion on LP-WUS operation in CONNECTED modes LG Electronics
84. [R1-2404968](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2404968.zip) Discussion on LP-WUS operation in CONNECTED modes Sharp
85. [R1-2405053](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405053.zip) Discussion on LP-WUS operation in CONNECTED mode NTT DOCOMO, INC.
86. [R1-2405075](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405075.zip) LP-WUS operation in CONNECTED modes MediaTek Inc.
87. [R1-2405110](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405110.zip) LP-WUS operation in CONNECTED mode Ericsson
88. [R1-2405166](file:///C:\Users\youns\OneDrive\Documents\3GPP\RAN1\TSGR1_117\Docs\R1-2405166.zip) LP-WUR operation in connected mode Qualcomm Incorporated
89. R1-2405471 FL summary #1 on LP-WUS operation in CONNECTED mode Moderator (NTT DOCOMO)
90. R1-2405592 FL summary #2 on LP-WUS operation in CONNECTED mode Moderator (NTT DOCOMO)
91. R1-2405659 FL summary #3 on LP-WUS operation in CONNECTED mode Moderator (NTT DOCOMO)

**RAN2#125bis**

1. [R2-2402635](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402635.zip) Work plan for Rel-19 WI on LP-WUSWUR vivo (Rapporteur) discussion Rel-19 NR\_LPWUS-Core
2. [R2-2402159](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402159.zip) Views on procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE China Telecom discussion Rel-19 NR\_LPWUS-Core
3. [R2-2402194](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402194.zip) Discussion on procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE OPPO discussion Rel-19 NR\_LPWUS-Core
4. [R2-2402320](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402320.zip) Discussion on LP-WUS/WUR for RRC IDLE/INACTIVE state KT Corp. discussion Rel-19 NR\_LPWUS
5. [R2-2402347](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402347.zip) Discussion on LP-WUS operation in IDLE/INACTIVE modes Spreadtrum Communications discussion Rel-19
6. [R2-2402446](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402446.zip) General considerations on the procedure for RRC\_IDLE\_INACTIVE Xiaomi Communications discussion
7. [R2-2402539](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402539.zip) Analysis on Procedure and Configuration of LP-WUS for IDLE/INACTIVE Modes CATT discussion Rel-19 NR\_LPWUS-Core
8. [R2-2402592](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402592.zip) Discussion on procedure of LP-WUS in RRC\_IDLE INACITVE NEC discussion Rel-19 NR\_LPWUS-Core
9. [R2-2402597](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402597.zip) Discussion on entry exit conditions for LP-WUS monitoring Sharp discussion
10. [R2-2402624](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402624.zip) Discussion on LP-WUS WUR in RRC\_IDLE INACTIVE vivo discussion Rel-19 NR\_LPWUS-Core withdrawn
11. [R2-2402690](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402690.zip) Overall procedure of LP-WUS in RRC\_IDLE/INACTIVE HONOR discussion Rel-19 NR\_LPWUS-Core
12. [R2-2402754](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402754.zip) Procedure and configuration of LP-WUS for IDLE and INACTIVE modes ZTE Corporation, Sanechips discussion
13. [R2-2402875](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402875.zip) Procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE Apple discussion Rel-19 NR\_LPWUS-Core
14. [R2-2403698](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403698.zip) Procedure and configuration of LP-WUS in RRC\_IDLE and RRC\_INACTIVE Apple discussion Rel-19 NR\_LPWUS-Core
15. [R2-2402933](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402933.zip) Procedure and Configuration of LP-WUS in RRC Idle Inactive Mode Samsung discussion Rel-19
16. [R2-2402963](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402963.zip) Discussion on procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE Huawei, HiSilicon discussion
17. [R2-2402972](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402972.zip) Procedure and configuration of LP-WUS LG Electronics Inc. discussion Rel-19 NR\_LPWUS-Core
18. [R2-2403028](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403028.zip) LP-WUS operation in IDLE INACTIVE modes CMCC discussion Rel-19 NR\_LPWUS-Core
19. [R2-2403037](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403037.zip) Low Power Receiver: First points to address Vodafone discussion
20. [R2-2403043](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403043.zip) Procedure and Configuration of LP-WUS in RRC IDLE/INACTIVE Lenovo discussion NR\_LPWUS-Core
21. [R2-2403057](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403057.zip) RAN2 aspects on LP-WUS/WUR in RRC Idle/Inactive mode Sony discussion Rel-19 NR\_LPWUS-Core
22. [R2-2403135](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403135.zip) LP-WUS based paging Qualcomm Incorporated discussion NR\_LPWUS-Core
23. [R2-2403272](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403272.zip) LP-WUS in IDLE and INACTIVE Nokia discussion Rel-19 NR\_LPWUS-Core
24. [R2-2403332](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403332.zip) Discussion on Procedure and configuration in RRC\_IDLE/INACTIVE NTT DOCOMO INC.. discussion Rel-19 NR\_LPWUS-Core
25. [R2-2403333](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403333.zip) Discussion on LP-WUS operation in RRC\_IDLE/INACTIVE modes InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core
26. [R2-2403550](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403550.zip) WUR in Idle and Inactive Ericsson discussion Rel-19 NR\_LPWUS-Core
27. [R2-2403551](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403551.zip) WUR and RRM measurements Ericsson discussion Rel-19 NR\_LPWUS-Core
28. [R2-2402201](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402201.zip) Discussion on RRM measurement in RRC IDLE and INACTIVE OPPO discussion Rel-19 NR\_LPWUS-Core
29. [R2-2402348](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402348.zip) Discussion on RRM measurement relaxation and offloading in IDLE/INACTIVE mode Spreadtrum Communications discussion Rel-19
30. [R2-2402447](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402447.zip) RRM measurement relaxation for RRC\_IDLE\_INACTIVE Xiaomi Communications discussion
31. [R2-2402477](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402477.zip) Discussion on RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core
32. [R2-2402540](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402540.zip) RRM Relaxation and Offloading in RRC\_IDLE/INACTIVE CATT discussion Rel-19 NR\_LPWUS-Core
33. [R2-2402593](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402593.zip) Discussion on RRM measurement for LP-WUS in RRC\_IDLE INACTIVE NEC discussion Rel-19 NR\_LPWUS-Core
34. [R2-2402598](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402598.zip) Discussion on serving cell RRM measurement offloading Sharp discussion
35. [R2-2402625](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402625.zip) Discussion on RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE vivo discussion Rel-19 NR\_LPWUS-Core
36. [R2-2402728](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402728.zip) RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE Lenovo discussion Rel-19
37. [R2-2402755](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402755.zip) RRM measurement relaxation for IDLEINACTIVE modes ZTE Corporation, Sanechips discussion
38. [R2-2402876](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402876.zip) RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE Apple discussion Rel-19 NR\_LPWUS-Core
39. [R2-2403699](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403699.zip) RRM measurement relaxation and offloading in RRC\_IDLE and RRC\_INACTIVE Apple discussion Rel-19 NR\_LPWUS-Core
40. [R2-2402934](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402934.zip) RRM measurement relaxation and offloading in RRC Idle Inactive Mode Samsung discussion Rel-19
41. [R2-2402973](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2402973.zip) RRM Measurement offloading to LR LG Electronics Inc. discussion Rel-19 NR\_LPWUS-Core
42. [R2-2403029](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403029.zip) Discussion on LP-WUR measurement offloading in IDLE INACTIVE modes CMCC discussion Rel-19 NR\_LPWUS-Core
43. [R2-2403058](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403058.zip) Discussion on RRMRAN2 aspects foron LP-WUS/WUR Sony discussion Rel-19 NR\_LPWUS-Core
44. [R2-2403116](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403116.zip) Discussion on RRM measurement relaxation in RRC\_IDLE/INACTIVE China Telecom discussion
45. [R2-2403136](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403136.zip) LP-WUS RRM measurement relaxation and offloading Qualcomm Incorporated discussion NR\_LPWUS-Core
46. [R2-2403273](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403273.zip) RRM measurement relaxation in RRC\_IDLE/INACTIVE Nokia discussion Rel-19 NR\_LPWUS-Core
47. [R2-2403059](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403059.zip) Considerations on LP-WUS/WUR in RRC Connected mode Sony discussion Rel-19 NR\_LPWUS-Core
48. [R2-2403334](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403334.zip) Discussion on LP-WUS operation in RRC\_CONNECTED mode InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core
49. [R2-2403696](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_125bis\Docs\R2-2403696.zip) Discussion on LP-WUS WUR in RRC\_CONNECTED vivo discussion Rel-19 NR\_LPWUS-Core Late

**RAN2#126**

1. [R2-2404295](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404295.zip) General considerations on the procedure for RRC\_IDLE\_INACTIVE Xiaomi Communications discussion
2. [R2-2404314](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404314.zip) LP-WUS procedure in RRC\_IDLE INACTIVE NEC discussion Rel-19 NR\_LPWUS-Core
3. [R2-2404376](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404376.zip) LP-WUS Operation in RRC\_IDLE/INACTIVE CATT discussion Rel-19 NR\_LPWUS-Core
4. [R2-2404418](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404418.zip) Discussion on LP-WUS WUR in RRC\_IDLE INACTIVE vivo discussion Rel-19 NR\_LPWUS-Core
5. [R2-2404459](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404459.zip) Discussion on procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE Huawei, HiSilicon discussion
6. [R2-2404460](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404460.zip) Entering/Exit conditions, relaxed serving cell measurements on the main receiver and offload of measurements to LP-WUR Vodafone discussion Rel-19
7. [R2-2404469](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404469.zip) LP-WUS in IDLE and INACTIVE Nokia discussion Rel-19 NR\_LPWUS-Core
8. [R2-2404562](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404562.zip) Discussion on LP-WUS in RRC\_IDLE/INACTIVE HONOR discussion Rel-19 NR\_LPWUS-Core
9. [R2-2404588](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404588.zip) Discussion on procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE OPPO discussion Rel-19 NR\_LPWUS-Core
10. [R2-2404674](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404674.zip) Procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE Apple discussion Rel-19 NR\_LPWUS-Core
11. [R2-2404860](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404860.zip) Procedure and configuration of LP-WUS for IDLE and INACTIVE mode ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core
12. [R2-2404906](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404906.zip) RAN2 aspects on LP-WUS/WUR in RRC Idle/Inactive mode Sony discussion Rel-19 NR\_LPWUS-Core
13. [R2-2404927](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404927.zip) Discussion on LP-WUS operation in IDLEI/NACTIVE mode Spreadtrum Communications discussion Rel-19
14. [R2-2404996](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404996.zip) WUR in Idle and Inactive Ericsson discussion Rel-19 NR\_LPWUS-Core
15. [R2-2405223](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405223.zip) LP-WUS in RRC\_IDLE and RRC\_INACTIVE LG Electronics Inc. discussion Rel-19 NR\_LPWUS-Core
16. [R2-2405308](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405308.zip) Discussion on procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE China Telecom discussion Rel-19 NR\_LPWUS-Core
17. [R2-2405325](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405325.zip) Discussion on LP-WUS operation in RRC\_IDLE/INACTIVE modes InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core
18. [R2-2405354](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405354.zip) Discussion on entry exit conditions for LP-WUS monitoring Sharp discussion
19. [R2-2405409](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405409.zip) Procedure and Configuration of LP-WUS in RRC Idle Inactive Mode Samsung discussion Rel-19
20. [R2-2405497](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405497.zip) LP-WUS operation in IDLE/INACTIVE modes CMCC discussion Rel-19 NR\_LPWUS-Core
21. [R2-2405577](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405577.zip) LP-WUS operation in IDLE/Inactive state Qualcomm Incorporated discussion NR\_LPWUS-Core
22. [R2-2405637](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405637.zip) Procedure and Configuration of LP-WUS in RRC IDLE/INACTIVE Lenovo discussion Rel-19 NR\_LPWUS-Core
23. [R2-2405638](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405638.zip) Discussion on Procedure and configuration in RRC\_IDLE-INACTIVE NTT DOCOMO INC.. discussion Rel-19 NR\_LPWUS-Core
24. [R2-2405695](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405695.zip) Discussion on LP-WUS\_WUR entry and exit conditions for RRC Idle\_Inactive mode KT Corp. discussion Rel-19 NR\_LPWUS-Core Late
25. [R2-2404301](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404301.zip) Discussion on RRM measurement relaxation for RRC\_IDLE\_INACTIVE Xiaomi Communications discussion
26. [R2-2404315](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404315.zip) LP-WUS RRM measurement relaxation NEC discussion Rel-19 NR\_LPWUS-Core
27. [R2-2404323](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404323.zip) Discussion on RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core
28. [R2-2404377](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404377.zip) RRM Relaxation and Offloading in RRC\_IDLE/INACTIVE CATT discussion Rel-19 NR\_LPWUS-Core
29. [R2-2404399](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404399.zip) Discussion on RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE China Telecom discussion
30. [R2-2404419](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404419.zip) Discussion on RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE vivo discussion Rel-19 NR\_LPWUS-Core
31. [R2-2404470](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404470.zip) RRM measurement relaxation in RRC\_IDLE/INACTIVE Nokia discussion Rel-19 NR\_LPWUS-Core
32. [R2-2404583](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404583.zip) Discussion on RRM measurement in RRC IDLE and INACTIVE OPPO discussion Rel-19 NR\_LPWUS-Core
33. [R2-2404675](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404675.zip) RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE Apple discussion Rel-19 NR\_LPWUS-Core
34. [R2-2404808](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404808.zip) RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE Lenovo discussion Rel-19
35. [R2-2404861](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404861.zip) RRM measurement relaxation for IDLE and INACTIVE mode ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core
36. [R2-2404907](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404907.zip) Discussion on RRMRAN2 aspects foron LP-WUS/WUR Sony discussion Rel-19 NR\_LPWUS-Core
37. [R2-2404928](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404928.zip) Discussion on RRM measurement relaxation and offloading in IDLE/INACTIVE mode Spreadtrum Communications discussion Rel-19
38. [R2-2404997](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404997.zip) WUR and RRM measurements Ericsson discussion Rel-19 NR\_LPWUS-Core
39. [R2-2405013](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405013.zip) Discussion on RRM measurement relaxation/offloading in IDLE/INACTIVE modes CMCC discussion Rel-19 NR\_LPWUS-Core
40. [R2-2405224](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405224.zip) RRM relaxation and RRM offloading LG Electronics Inc. discussion Rel-19 NR\_LPWUS-Core
41. [R2-2405328](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405328.zip) Discussion on RRM measurement relaxation and offloading InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core
42. [R2-2405355](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405355.zip) Discussion on serving cell RRM measurement offloading Sharp discussion
43. [R2-2405410](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405410.zip) RRM measurement relaxation and offloading in RRC Idle Inactive Mode Samsung discussion Rel-19
44. [R2-2405579](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405579.zip) LP-WUS RRM measurement relaxation and offloading Qualcomm Incorporated discussion NR\_LPWUS-Core
45. [R2-2404244](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404244.zip) Discussion on LP-WUS for RRC\_CONNECTED mode Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core
46. [R2-2404302](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404302.zip) Discussing on LP-WUS monitoring for RRC\_Connected Xiaomi Communications discussion
47. [R2-2404316](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404316.zip) LP-WUS procedure in RRC\_CONNECTED NEC discussion Rel-19 NR\_LPWUS-Core
48. [R2-2404378](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404378.zip) Analysis on LP-WUS in RRC\_CONNECTED CATT discussion Rel-19 NR\_LPWUS-Core
49. [R2-2404380](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404380.zip) LP-WUS in RRC\_CONNECTED Nokia discussion NR\_LPWUS-Core
50. [R2-2404420](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404420.zip) Discussion on LP-WUS WUR in RRC\_Connected vivo discussion Rel-19 NR\_LPWUS-Core Revised in R2-2405935
51. R2-2405935 Discussion on LP-WUS/WUR in RRC\_CONNECTED vivo discussion Rel-19 NR\_LPWUS-Core
52. [R2-2404584](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404584.zip) Discussion on LP-WUS in RRC\_CONNECTED OPPO discussion Rel-19 NR\_LPWUS-Core
53. [R2-2404676](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404676.zip) Procedures for LP-WUS in RRC\_CONNECTED Apple discussion Rel-19 NR\_LPWUS-Core
54. [R2-2404862](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404862.zip) Procedure for LP-WUS in RRC\_CONNECTED ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core
55. [R2-2404908](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404908.zip) Considerations on LP-WUS/WUR in RRC Connected mode Sony discussion Rel-19 NR\_LPWUS-Core
56. [R2-2404998](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2404998.zip) WUR in Connected Ericsson discussion Rel-19 NR\_LPWUS-Core
57. [R2-2405033](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405033.zip) Discussion on LP-WUS operation in CONNECTED mode CMCC discussion Rel-19 NR\_LPWUS-Core
58. [R2-2405309](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405309.zip) Discussion on procedures for LP-WUS in RRC\_CONNECTED China Telecom discussion Rel-19 NR\_LPWUS-Core
59. [R2-2405332](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405332.zip) Discussion on LP-WUS operation in RRC\_CONNECTED mode InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core
60. [R2-2405411](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405411.zip) Procedures for LP-WUS in RRC Connected Mode Samsung discussion Rel-19
61. [R2-2405468](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405468.zip) Discussion on LP-WUS in RRC\_CONNECTED mode LG Electronics Inc. discussion Rel-19
62. [R2-2405578](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405578.zip) LP-WUS operation in CONNECTED state Qualcomm Incorporated discussion NR\_LPWUS-Core
63. [R2-2405639](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405639.zip) LP-WUS in RRC Connected Mode Lenovo discussion Rel-19 NR\_LPWUS-Core
64. [R2-2405687](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_126\Docs\R2-2405687.zip) Discussion on LP-WUS in RRC\_CONNECTED NTT DOCOMO INC.. discussion Rel-19 NR\_LPWUS-Core

**RAN4#110bis**

1. R4-2404195 Initial views on LPWUS for NR Apple
2. R4-2404252 On receiver sensitivity and ACS/ASCS of the low power wake up radio Sony
3. R4-2404265 UE RF requirements for LP-WUS Nokia
4. R4-2404289 Required changes for BS RF requirements for low-power wake-up signal for NR Nokia
5. R4-2404367 On RRM core requirements for LP-WUR Apple
6. R4-2404421 Discussion on RRM core requirements for R19 LP-WUS/WUR CATT
7. R4-2404446 On UE RF requirements for LP-WUS/LP-WUR CATT
8. R4-2404447 On BS RF requirements for LP-WUS/LP-WUR CATT
9. R4-2404498 Work plan on RRM for LP-WUR WI vivo
10. R4-2404499 Initial consideration on RRM for LP-WUR vivo
11. R4-2404524 Discussion on BS RF requirements for LP-WUS/LP-SS. NTT DOCOMO, INC.
12. R4-2404536 Discussion on RRM requirements for LP-WUS,WUR Samsung
13. R4-2404550 Discussion on RF requirements for LP-WUS Xiaomi
14. R4-2404565 Initial discussion on RRM core requirements for LP-WUS/WUR Xiaomi
15. R4-2404589 Discussion on UE RF requirements and testability for low-power wake-up receiver Samsung
16. R4-2404590 Discussion on BS RF requirements for low-power wake-up signal Samsung
17. R4-2404655 Workplan for Rel-19 LP-WUS WI vivo
18. R4-2404656 Views on LP-WUS UE RF requirements vivo
19. R4-2404657 Views on LP-WUS BS RF requirements vivo
20. R4-2404691 (NR\_LPWUS-Core) Discussion on RRM impact of LP-WUR CMCC
21. R4-2404732 Discussion on RRM requirements for LP-WUS/WUR LG Electronics Inc.
22. R4-2404842 Topic summary for [110bis][231] NR\_LPWUS Moderator (vivo)
23. R4-2404872 General overview on WUR RF requirement testability Ericsson
24. R4-2404873 WUR RF requirement overview Ericsson
25. R4-2404874 BS RF requirement overview for LP-WUS Ericsson
26. R4-2404927 Discussion on RRM core requirements for LP-WUS/WUR OPPO
27. R4-2404980 Discussion on LP-WUS RRM requirement Ericsson
28. R4-2405119 Discussion on UE RF requirements for LP-WUS/WUR ZTE Corporation
29. R4-2405120 Discussion on BS RF requirements for LP-WUS/WUR ZTE Corporation
30. R4-2405290 Topic summary for [110bis][137] NR\_LPWUS Moderator(vivo)
31. R4-2405307 Discussion on LP-WUS BS RF requirement CMCC
32. R4-2405308 Discussion on LP-WUS UE RF requirement CMCC
33. R4-2405381 Initial discussion on UE RF requirement for LP-WUS OPPO
34. R4-2405487 Consideration on UE RF aspects for Rel-19 LP-WUS Huawei, HiSilicon
35. R4-2405488 Consideration on BS RF aspects for Rel-19 LP-WUS Huawei, HiSilicon
36. R4-2405540 Discussion on RRM core requirements for LP-WUS/WUR Nokia
37. R4-2405604 Initial views on RRM requirements for LP-WUR Huawei, HiSilicon
38. R4-2405834 Topic summary for [110bis][314] NR\_LPWUS Moderator (Huawei)
39. R4-2405937 Scope of RRM requirements for LP-WUR Qualcomm Incorporated
40. R4-2405958 Discussion on LPWUS for NR ZTE Corporation
41. R4-2405970 Discussion on the RRM requirements for LP-WUS MediaTek inc.
42. R4-2406108 Way Forward for [110bis][314] NR\_LPWUS Huawei
43. R4-2406139 Way Forward for [110bis][314] NR\_LPWUS Huawei
44. R4-2406140 Way Forward for [110bis][314] NR\_LPWUS Huawei
45. R4-2406366 Work plan on RRM for LP-WUR WI vivo
46. R4-2406367 WF for RRM requirements for LP-WUS/WUR Vivo
47. R4-2406619 WF on NR LP-WUS UE requirements Vivo

**RAN4#111**

1. R4-2407069 On Low-power Wake-up Signal and Receiver for NR Apple
2. R4-2407311 On RRM core requirements for LP-WUR Apple
3. R4-2407330 Discussion on RRM core requirements for LP-WUS/WUR Samsung
4. R4-2407377 Discussions on RRM core requirements for LP-WUS/WUR NTT DOCOMO, INC.
5. R4-2407412 On receiver sensitivity of the low-power wake-up receiver Sony
6. R4-2407440 BS RF requirements for low-power wake-up signal for NR Nokia
7. R4-2407487 Discussion on RRM core requirements for R19 LP-WUS/WUR CATT
8. R4-2407546 On system parameters for LP-WUS/LP-WUR CATT
9. R4-2407547 On BS RF requirements for LP-WUS/LP-WUR CATT
10. R4-2407649 On general aspects for Rel-19 LP-WUS Huawei, HiSilicon
11. R4-2407650 On UE RF REFSENS, ACS, ASCS requirements for Rel-19 LP-WUS Huawei, HiSilicon
12. R4-2407651 On UE RF other Rx requirements for Rel-19 LP-WUS Huawei, HiSilicon
13. R4-2407652 On UE RF testability issue for Rel-19 LP-WUS Huawei, HiSilicon
14. R4-2407653 On BS RF for Rel-19 LP-WUS Huawei, HiSilicon
15. R4-2407794 On Rx requirements of REFSENS, ASCS and ACS CATT
16. R4-2407825 Discussion on Rx requirements of REFSENS, ASCS and ACS for LP-WUS Xiaomi
17. R4-2407826 Discussion on Rx requirements of IBB, OBB, intermodulation, spurious emissions and others for LP-WUS Xiaomi
18. R4-2407844 Discussion on RRM core requirements for LP-WUS/WUR Xiaomi
19. R4-2407886 Discussion on core requirements for LP-WUS WUR OPPO
20. R4-2407894 Discussion on REFSENS for LP-WUR Samsung
21. R4-2407895 Discussion on power boosting for LP-WUS Samsung
22. R4-2407939 (NR\_LPWUS-Core) Discussion on RRM impact of LP-WUR CMCC
23. R4-2407953 (NR\_LPWUS-Core) Discussion on LP-WUS UE system parameters requirements CMCC
24. R4-2407954 (NR\_LPWUS-Core) Discussion on LP-WUS UE RF Rx requirements of REFSENS, ASCS and ACS CMCC
25. R4-2407955 (NR\_LPWUS-Core) Discussion on LP-WUS UE RF Rx requirements of IBB, OBB, intermodulation, spurious emissions and others CMCC
26. R4-2407956 (NR\_LPWUS-Core) Discussion on LP-WUS BS RF requirements CMCC
27. R4-2407966 Discussion on RRM requirements for LP-WUS/WUR LG Electronics Inc.
28. R4-2408026 Topic summary for [111][229] NR\_LPWUS Moderator (vivo)
29. R4-2408032 On LPWUR system considerations Qualcomm Incorporated
30. R4-2408040 RRM requirements for LP-WUR Qualcomm Incorporated
31. R4-2408046 Fundamental RX requirements for LP-WUR Nokia Poland
32. R4-2408047 Other RX requirements for LP-WUR Nokia Poland
33. R4-2408049 System parameters for LP-WUR Nokia Poland
34. R4-2408050 Testability aspects of LP-WUR Nokia Poland
35. R4-2408108 Discussions on LP-WUS system parameters vivo
36. R4-2408109 Discussions on LP-WUS REFSENS, ASCS and ACS vivo
37. R4-2408110 Discussions on LP-WUS IBB, OBB, intermodulation, spurious emissions vivo
38. R4-2408111 Discussions on LP-WUS Testability vivo
39. R4-2408112 Discussions on LP-WUS BS RF requirements vivo
40. R4-2408137 Discussion on RX requirements of REFSENS for LP-WUR Spreadtrum Communications
41. R4-2408316 Discussion on RRM core requirements for LP-WUS/WUR China Telecom
42. R4-2408329 Discussion on LP-WUS RRM requirement Ericsson
43. R4-2408362 Discussion on system parameters for LP-WUS/WUR ZTE Corporation, Sanechips
44. R4-2408363 Discussion on REFSENS, ASCS, ACS for LP-WUR ZTE Corporation, Sanechips
45. R4-2408364 Discussion on testability for LP-WUS UE RF requirements ZTE Corporation, Sanechips
46. R4-2408365 Discussion on BS RF requirements for LP-WUS/WUR ZTE Corporation, Sanechips
47. R4-2408624 Consideration on RRM for LP-WUR vivo
48. R4-2408673 Discussion on RRM core requirements for LP-WUS and LR Nokia
49. R4-2408824 on LPWUS other RX requirements OPPO
50. R4-2408825 on LPWUS REFSENS requirement OPPO
51. R4-2408826 on LPWUS testability issue OPPO
52. R4-2408947 Topic summary for [111][136] NR\_LPWUS\_UERF Moderator(vivo)
53. R4-2409099 BS RF requirement overview Ericsson
54. R4-2409100 On general issues for WUR Ericsson
55. R4-2409101 On system paramter for WUR Ericsson
56. R4-2409102 On WUR RF requirement testability Ericsson
57. R4-2409103 WUR RF requirement other than REFSENS Ericsson
58. R4-2409104 WUR RF requirement REFSESN ASC ASCS Ericsson
59. R4-2409295 Discussion on RRM requirements for LP-WUR Huawei, HiSilicon
60. R4-2409687 Discussion on NLP-WUS for core part ZTECorporation,Sanechips
61. R4-2409729 Discussion on the RRM requirements for LP-WUS MediaTek inc.
62. R4-2410109 Topic summary for [111][314] NR\_LPWUS Moderator (Huawei)
63. R4-2410296 WF for RRM core requirements for LP-WUS/WUR Vivo
64. R4-2410569 WF on NR LP-WUS UE RF Vivo

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