**3GPP TSG RAN meeting #92e RP-21xxxx**

**Electronic Meeting, June 14-18, 2021**

## Status Report to TSG

**Agenda item:** 9.8.8

|  |  |
| --- | --- |
| **WI / SI Name** |  |
| included in this status report | Study Item: No | Core part: Yes | Performance part:No | Testing part:No |
| **Acronym** | NR\_MBS |
| **Unique ID** | 860048 |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-201038 |
| **Target Completion Date****(indicate if changed)** | Study Item: N/A | Core part: 03/2022 | Performance part: N/A | Testing part: N/A |
| **Overall Completion level** | Study Item: N/A | Core part: 50% | Performance Part: N/A | Testing part: N/A |

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

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

**Source:**

|  |  |
| --- | --- |
| **Leading WG** | TSG RAN WG2 |
| **Rapporteur** | **Name** | Zhenzhen CAO |
| **Company** | Huawei |
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## 1 Work plan related evaluation

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

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

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

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

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

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

## 2.1 RAN1

#### 2.1.1 Agreements

RAN1#104bis-e agreements

*Mechanisms to support group scheduling for RRC\_CONNECTED UEs*

Agreement:

For group-common PDCCH of Rel-17 MBS, support at least two DCI formats.

* DCI format 1\_0 is used as the baseline for the first DCI format with CRC scrambled with G-RNTI.
* DCI format 1\_1 or 1\_2 is used as the baseline for the second DCI format with CRC scrambled with G-RNTI
	+ FFS: Which of DCI format 1\_1 or 1\_2 is used as the baseline
* FFS: Details of the reuse (or not) of DCI format 1\_0, 1\_1 or 1\_2 fields

Agreement:

The same HARQ process ID and NDI are used for PTM scheme 1 (re)transmissions and PTP retransmissions of the same TB.

Agreement:

At least support the following cases for PDSCH reception for MBS in a slot based on UE capability for RRC\_CONNECTED UEs

* Case 1: support TDM between M (M>1) TDMed unicast PDSCHs and one group-common PDSCH in a slot per CC
	+ FFS: the value(s) of M
* Case 2: support TDM among N (N>1) group-common PDSCHs in a slot per CC
	+ FFS: the value(s) of N
* Case 3: support TDM between K (K>1) TDMed unicast PDSCHs and L (L>1) TDMed group-common PDSCHs in a slot per CC
	+ FFS: the value(s) of K and L

Agreement:

If a CFR is configured for multicast in RRC-CONNECTED state and confined within a dedicated unicast BWP, further study the following options.

* Option 1: the CORESET configured in PDCCH-config for unicast in the dedicated unicast BWP can be used for multicast transmission if the CORESET is fully contained in the CFR in frequency domain, and the CORESET configured in PDCCH-config for MBS in the CFR can be used for unicast transmission.
* l  Option 2: the CORESET configured in PDCCH-config for unicast in the dedicated unicast BWP cannot be used for multicast transmission even if the CORESET is fully contained in the CFR in frequency domain, and the CORESET configured in PDCCH-config for MBS in the CFR cannot be used for unicast transmission.
* l  Option 3: the CORESET configured in PDCCH-config for unicast in the dedicated unicast BWP can be used for multicast transmission if the CORESET is fully contained in the CFR in frequency domain, but the CORESET configured in PDCCH-config for MBS in the CFR cannot be used for unicast transmission.
* l  Option 4: the CORESET configured in PDCCH-config for unicast in the dedicated unicast BWP cannot be used for multicast transmission even if the CORESET is fully contained in the CFR in frequency domain, but the CORESET configured in PDCCH-config for MBS in the CFR can be used for unicast transmission.

Agreement:

One CFR is supported per dedicated unicast BWP for multicast of RRC-CONNECTED UEs.

* FFS: Whether more than one CFR is supported per dedicated unicast BWP
* FFS: Whether multicast can be supported or not in a dedicated unicast BWP when no CFR is configured for that BWP

Agreement:

The retransmission scheme for a given SPS group-common PDSCH can be either PTM scheme 1 or PTP.

* FFS: Whether PTM scheme 1 retransmission and PTP retransmission can be used simultaneously for different UEs in the same MBS group

Agreement:

Define G-CS-RNTI at least for SPS group-common PDSCH and activation/deactivation of SPS group-common PDSCH, different from CS-RNTI for unicast SPS PDSCH.

* G-CS-RNTI is used for PTM scheme 1 based dynamic retransmission of SPS group-common PDSCH
* FFS: Whether CS-RNTI can be used for PTP retransmission of SPS group-common PDSCH.
* FFS: Number of G-CS-RNTI.

Conclusion:

The maximum number of HARQ processes per cell, currently supported for unicast, is kept unchanged for UE to support multicast reception.

* How to allocate HARQ processes between unicast and multicast is up to gNB.

Agreement:

Send an LS to RAN2 regarding at least the following questions:

* Whether RAN1 should take into account the case of UE supporting multiple G-RNTIs?

Agreement:

Include the following in the LS to RAN2:

* Whether RAN1 should consider the case of UE supporting multiple G-CS-RNTIs?
* The agreements related to SPS will also be included in the LS for information

Agreement:

For CSS of group-common PDCCH of PTM scheme 1 for multicast in RRC\_CONNECTED state, down-select from the following alternatives (to be decided in RAN1#105):

* Alt 1: support Type-3 CSS
	+ The monitoring priority of Type-3 CSS for group-common PDCCH is the same as existing Rel-15/16 CSS, regardless of which DCI format of group-common PDCCH is configured in Type-3 CSS
* Alt 2: support a new Type-x CSS
	+ The monitoring priority of new Type-x CSS is determined based on the search space set indexes of the new Type-x CSS set and USS sets, regardless of which DCI format of group-common PDCCH is configured in the new Type-x CSS.
* Alt 3: support both Alt 1 and Alt 2

Agreement:

The down-selection of Option 2A and Option 2B for CFR for multicast of RRC-CONNECTED UEs will be made before the end of RAN1#105-e.

Conclusion:

It is based on gNB implementation to schedule unicast on the frequency resources covered by CFR configured for multicast.

Agreement:

For RRC\_CONNECTED UE supporting MBS, support up to 8 configured SPS configurations in a BWP of a serving cell for unicast and MBS in total.

* It is up to gNB implementation to configure the SPS configuration indexes for unicast and MBS, respectively.

Agreement:

Confirm the working assumption:

For activation/deactivation of SPS group-common PDSCH for MBS in RRC\_CONNECTED state,

* At least group-common PDCCH is supported
	+ FFS: Whether and how to address the missed activation and deactivation
* FFS: Whether UE-specific PDCCH is supported for activation/deactivation

*Mechanisms to improve reliability for RRC\_CONNECTED UEs*

Agreement:

Support NACK-only based HARQ-ACK feedback for RRC\_CONNECTED UEs receiving multicast.

Agreement:

Two priority indexes are introduced for multicast, with

* Index 0 meaning low priority and index 1 meaning high priority.
* Priority index can be included in DCI formats scheduling the group-common PDSCH.
	+ FFS details for DCI formats.
* FFS: the priority comparison between multicast and unicast with the same priority index.

Agreement:

For a separate *PUCCH-ConfigurationList* for multicast that is optionally configured, at least for ACK/NACK based HARQ-ACK feedback,

* The separate *PUCCH-ConfigurationList* for multicastconfigurationcan be a list which includes up to 2 *PUCCH-Config* configurations corresponding low priority codebook and high priority codebook, respectively.
* FFS other configurations

Agreement:

For Type-2 HARQ-ACK codebook concatenation to be multiplexed in the same PUCCH resource,

* The first Type-2 HARQ-ACK sub-codebook for unicast precedes the second Type-2 HARQ-ACK sub-codebook for multicast.
* FFS: The number of Type-2 HARQ-ACK sub-codebooks for multicast.
* Note: The case of SPS PDSCH will be discussed separately.

Agreement:

For multiplexing the ACK/NACK-based HARQ-ACK feedback for multicast and unicast, determining the PUCCH resources for transmission is based on the PRI indicated in the “last DCI”, where the “last DCI” refers to, down-select the following alternatives:

* Alt.1: the last DCI for unicast;
* Alt.2: the last DCI across unicast and multicast;

RAN1#105-e agreements

*Mechanisms to support group scheduling for RRC\_CONNECTED UEs*

Agreement:

For CSS of group-common PDCCH of PTM scheme 1 for multicast in RRC\_CONNECTED state, Alt 2 is supported:

* Alt 2: support a Type-x CSS
	+ The monitoring priority of Type-x CSS is determined based on the search space set indexes of the Type-x CSS set and USS sets, regardless of which DCI format of group-common PDCCH is configured in the Type-x CSS.
* FFS: Whether the Type-x CSS is a Type-3 CSS

Agreement:

For PTP retransmission of SPS group-common PDSCH, CS-RNTI is used for CRC scrambling of PDCCH with the NDI bit set to 1.

Agreement:

As a baseline, reuse existing fields in DCI format 1\_0 with CRC scrambled by C-RNTI for the fields of first DCI format with CRC scrambled with G-RNTI.

* FFS: how to determine the bitlength of FDRA field.
* FFS: Whether ‘Identifier for DCI formats’, ‘TPC command for scheduled PUCCH’ are needed.
* FFS: How to perform DCI size alignment
* FFS: Whether to include new DCI fields
* Note: All of the fields may not be reused and the size of the fields may not be the same

Working assumption:

Option 2B for CFR associated with UE active BWP other than initial BWP is supported at least for multicast of RRC-CONNECTED UEs.

* FFS: CFR associated with initial BWP
* FFS: CFR larger than initial BWP

Agreement:

For multicast of RRC\_CONNECTED UEs, further study

* How the LBRM (Limited buffer rate-matching) for GC-PDSCH TBS is determined.
* how the xOverhead for GC-PDSCH TBS determination is configured.
* whether MAC-CE over GC-PDSCH is needed for activation/deactivation of semi-persistent ZP CSI-RS resource set if the semi-persistent ZP CSI-RS resource set is configured in PDSCH-Config in CFR.

Agreement:

Confirm the working assumption:

Keep the “3+1” DCI size budget defined in Rel-15 for Rel-17 MBS.

* FFS: Whether the G-RNTI is counted as “C-RNTI” or as “other RNTI” when considering the “3+1” DCI size budget rule for group-common PDCCH.

Agreement:

For Rel-17 MBS UE, the UE maximum number of TDMed PDSCH receptions capability in a slot per CC is kept as for Rel-15/Rel-16, i.e., {2/4/7} based on UE FG5-11/5-11a/5-11b.

* Note:   Group-common PDSCH(s) are counted as unicast PDSCH(s).

Agreement:

For reliability of the group-common PDCCH activation of SPS group-common PDSCH, support at least one of the following alternatives.

* Alt 1: retransmit the activation command via group-common PDCCH.
* Alt 2: retransmit the activation command via UE-specific PDCCH.
* Alt 3: retransmit the activation command via MAC-CE.
* FFS other details.
* Note: Down-selection can take into account the HARQ-ACK feedback scheme for SPS activation

Working assumption:

The maximum number of CORESETs per BWP is not increased for support of MBS, and the number of CORESETs configured within the CFR is left to gNB implementation.

Agreement:

As a baseline, reuse existing fields in DCI format 1\_1 for the fields of the second DCI format with CRC scrambled with G-RNTI.

* FFS: whether ‘Identifier for DCI formats’, ‘TPC command for scheduled PUCCH’, ‘Carrier indicator’ and ‘Bandwidth part indicator’ are needed.
* FFS: How to perform DCI size alignment
* FFS: Whether to include new DCI fields for the second DCI format
* Note: All of the fields may not be reused and the size of the fields may not be the same

Agreement:

For HARQ process management, further study whether/how to differentiate the HARQ process ID used for PTP (re)transmission for unicast and PTP retransmission for multicast.

*Mechanisms to improve reliability for RRC\_CONNECTED UEs*

Agreement:

The signaling for URLLC feature can be reused to configure separate codebooks for unicast and multicast, respectively, at least for the case of different priorities, at least for Type-2 HARQ codebook

* FFS: The case for the same priority.
* FFS: The case of Type-1 HARQ codebook
* FFS: Whether this applies to separate PUCCH transmissions only

Agreement:

Support PUCCH format 0 and format 1 for NACK-only based HARQ-ACK feedback for multicast.

Agreement:

Support NACK-only based HARQ-ACK feedback at least for multicast SPS PDSCH without PDCCH scheduling.

* FFS for SPS activation/deactivation.

Agreement:

The priority of multicast is the same as the priority of unicast for the same priority index of HARQ-ACK at least for ACK/NACK based feedback.

Agreement:

NR supports at least the following cases for UE supporting multicast:

* UE supports two non-overlapping slot-based PUCCHs for ACK/NACK based HARQ-ACK feedback for multicast with different priorities in a slot subject to UE capability.
* UE supports two non-overlapping slot-based PUCCHs for ACK/NACK based HARQ-ACK feedback for multicast and unicast with different priorities, respectively, in a slot subject to UE capability.

Agreement:

For Type-1 HARQ-ACK codebook construction for FDM-ed unicast and multicast with the same priority from the same TRP, support

* Opt 4: HARQ-ACK bits for all the PDSCH occasions over all the slots for all serving cells for unicast, precede, HARQ-ACK bits for all the PDSCH occasions over all the slots for all serving cells for multicast. (This is similar to the joint Type-1 codebook for mTRP).
* FFS: If UE reports the capability of supporting the FDM-ed unicast and multicast in the same slot, UE can be indicated semi-statically to generate Type-1 HARQ-ACK codebook as FDM-ed manner (i.e., Opt 4).
	+ Otherwise, UE does not expect unicast and multicast are to be scheduled in FDM-ed.

Conclusion:

PUCCH resource for NACK-only can be shared by UEs transmitting the NACK-only based HARQ-ACK feedback.

Agreement:

For ACK/NACK based HARQ-ACK feedback for multicast, the multiplexing/prioritizing rule between the HARQ-ACK for multicast and SR/CSI can reuse Rel-16 multiplexing/ prioritizing rule between the HARQ-ACK for unicast and SR/CSI.

Agreement:

For support of ACK/NACK based HARQ-ACK feedback for SPS multicast,

* the HARQ-ACK codebook index corresponding the HARQ-ACK codebook for SPS PDSCH is included in the configuration for SPS multicast.
	+ UE determines a priority index from the HARQ-ACK codebook index
* UE can be optionally configured a separate SPS-PUCCH-AN-List for all SPS multicast configurations. Otherwise, a common SPS-PUCCH-AN-List applies to all SPS unicast and SPS multicast configurations.

Agreement:

For TDM-ed unicast and multicast, for Type-1 HARQ-ACK codebook construction for ACK/NACK-based unicast and multicast to be multiplexed in the same PUCCH resource, determining PDSCH reception candidate occasions is based on down-selecting one of the two alternatives as follows:

* Alt 1:
	+ for slot timing values $K\_{1}$ in the intersection of $K\_{1}$ set for unicast (termed set *A*) and $K\_{1}$ set for multicast (termed set *B*), based on union of the PDSCH TDRA sets,
	+ for slot timing values $K\_{1}$ in set A but not in set B, based on PDSCH TDRA set for unicast, and
	+ for slot timing values $K\_{1}$ in set B but not in set A, based on PDSCH TDRA set for multicast.
* Alt 2: for slot timing values $K\_{1}$ in the union of $K\_{1}$ set for unicast and $K\_{1}$ set for multicast, based on the union of the PDSCH TDRA sets.
* Companies are encouraged to continue discussion of pros and cons for each alternative for further down-selection in the next meeting.

Working assumption:

For enabling/disabling ACK/NACK-based HARQ-ACK feedback for RRC\_CONNECTED UE receiving multicast via dynamic group-common PDSCH:

* RRC signaling configures the enabling/ disabling function of group-common DCI indicating the enabling /disabling ACK/NACK based HARQ-ACK feedback.
	+ If RRC signaling configures the function of group-common DCI based indication, group-common DCI indicates (explicitly or implicitly) whether ACK/NACK based HARQ-ACK feedback is enabled/disabled
	+ Otherwise, enabling/disabling ACK/NACK based HARQ-ACK feedback is configured by RRC signaling.
	+ FFS details on RRC signaling and group-common DCI indicating.
* FFS whether/how this option is extended to apply to NACK-only based feedback and multiple G-RNTI cases.
* FFS the relation to the HARQ-ACK codebook types and HARQ-ACK codebook construction.
* FFS the relation to the enabling/disabling ACK/NACK based HARQ-ACK feedback for retransmission.
* FFS whether/how to allow UE not to react to the DCI signaling, but instead follow UE-specific RRC configuration for HARQ feedback.
* FFS whether/how to apply it to SPS group-common PDSCH.

*Basic functions for broadcast/multicast for RRC\_IDLE/RRC\_INACTIVE UEs*

Agreement:

For RRC\_IDLE/RRC\_INACTIVE UEs, for broadcast reception, both searchSpace#0 and common search space other than searchSpace#0 can be configured for GC-PDCCH scheduling MCCH.

Agreement:

For RRC\_IDLE/RRC\_INACTIVE UEs, for broadcast reception, DCI format 1\_0 is used as baseline for GC-PDCCH of MCCH and MTCH.

* FFS details of FDRA.

Agreement:

For RRC\_IDLE/RRC\_INACTIVE UEs, for broadcast reception, RAN1 confirms the following assumptions made by RAN2

* RAN2 assumes, in case searchSpace#0 is configured for MCCH (if allowed, pending RAN1 decision), the mapping between PDCCH occasions and SSBs is the same as for SIB1.
* RAN2 assumes that if common search space other than searchSpace#0 is configured for MCCH (if allowed, pending RAN1 decision), the PDCCH monitoring occasions for MCCH message which are not overlapping with UL symbols are sequentially numbered from one in the MCCH transmission window and mapped to SSBs using the similar rule as defined for OSI in TS 38.331.

Agreement:

For broadcast reception, RRC\_IDLE/RRC\_INACTIVE UEs support the same CSS type for MCCH and MTCH.

* FFS support of different CSS types for MCCH and MTCH channels for broadcast reception.

Agreement:

For RRC\_IDLE/RRC\_INACTIVE UEs, for broadcast reception, study the following alternatives for MCCH change notification indication due to session start:

* Alt 1: Define a dedicated RNTI to scramble the CRC of a DCI indicating a MCCH change notification;
* Alt 2: Use of a field in a DCI format scheduling a MCCH without a dedicated RNTI for MCCH change notification;

Other solutions are not precluded and it is also not precluded whether to support both Alt1 and Alt2.

Conclusion:

It is up to RAN2 to decide the specific contents of the MCCH change notification, e.g, whether notification only informs about session start, whether or not notification also informs about session modification/stop or whether or not the notification informs about any other information.

Agreement:

For broadcast reception, RRC\_IDLE/RRC\_INACTIVE UEs can use a configured/defined CFR with the same size as the initial BWP, where the initial BWP has the same frequency resources as CORESET0 (i.e., Case A), to receive GC-PDCCH/PDSCH carrying MCCH.

* Note: GC-PDCCH/PDSCH transmission within a narrower portion of the Initial BWP (where the initial BWP has the same frequency resources as CORESET0) is possible by implementation via appropriate scheduling.

Agreement:

For broadcast reception, RRC\_IDLE/RRC\_INACTIVE UEs can use a configured/defined CFR with the same size as the initial BWP, where the initial BWP has the same frequency resources as CORESET0 (i.e., Case A), to receive GC-PDCCH/PDSCH carrying MTCH.

* Note: GC-PDCCH/PDSCH transmission within a narrower portion of the Initial BWP (where the initial BWP has the same frequency resources as CORESET0) is possible by implementation via appropriate scheduling.

Agreement:

For RRC\_IDLE/RRC\_INACTIVE UEs, the CORESET index can be the same for GC-PDCCH of MCCH and MTCH.

Agreement:

For RRC\_IDLE/RRC\_INACTIVE UEs, for broadcast reception, the same beam can be used for group-common PDCCH and the corresponding scheduled group-common PDSCH for carrying MCCH or MTCH.

* UE may assume that DMRS ports of the group-common PDCCH/PDSCH for MCCH is QCL’d with SSB.
* UE may assume that DMRS ports of the group-common PDCCH/PDSCH for MTCH is QCL’d with SSB.
* FFS: group-common PDCCH/PDSCH for MTCH is QCL’d with periodic TRS if configured

Agreement:

For Rel-17, for broadcast reception, RRC\_IDLE/RRC\_INACTIVE UEs do not exceed the maximum number of CORESETs mandatorily (in the minimum capability) supported for Rel-15/Rel-16 UEs, i.e., 2 CORESETs.

* If the CFR has the same frequency range as the initial BWP, where the initial BWP has the same frequency resources as CORESET0 or where the initial BWP has the frequency resources configured by SIB1, RRC\_IDLE/RRC\_INACTIVE UEs can be configured with the following options:
	+ CORESET#0 (default option if CFR is the initial BWP and CORESET is not configured); or
	+ CORESET configured by *commonControlResourceSet;* or
	+ CORESET#0 and CORESET configured by *commonControlResourceSet*.

#### 2.1.2 Remaining Open issues

* Group scheduling mechanism for MBS in RRC\_CONNECTED state, including enhancements to enable simultaneous operation with unicast reception
* Reliability improvement mechanisms for MBS in RRC\_CONNECTED state
* Required changes for MBS in RRC\_IDLE/ RRC\_INACTIVE states

## 2.2 RAN2

#### 2.2.1 Agreements

RAN2#113bis-e agreements

*Stage-2 and Multicast activation*

* RAN2 will prioritize Active Multicast support in RRC Connected mode in Rel-17. If time permits Multicast support for RRC Inactive can be considered later (once connected mode Multicast solution, and Broadcast solution has become more mature).
* There is Support to have group notification for multicast for MBS supporting nodes (e.g. paging)
* Support group notification for multicast for MBS supporting nodes
* For delivery mode 1 UE is not expected to monitor Group notification channel in RRC\_CONNECTED
* It is FFS whether RAN2 needs to handle PRACH capacity issues due to group notifications
* Use same group notification identity for both RRC\_IDLE and RRC\_INACTIVE states
* For non-supporting nodes, using MBS session ID will not work as it would impact non-MBS nodes. Unicast paging would work.
* For supporting nodes, using MBS session ID is feasible.

*Reliability*

* For a given UE, if the MRB’s QoS requirements are not met via PTM, switching to PTP with RLC-AM shall be supported.
* Dynamic PTM/PTP switch is supported for a split MRB bearer (type) with a common (single) PDCP entity.
* As a baseline, no new UE based signalling is introduced to support gNB switch decision (e.g. PDCP SR for high reliability is still TBD)
* Assuming a split-MRB (as agreed during the online session) configured with a PTM leg and PTP leg, the usage of the PTP leg cannot be deactivated (i.e. the UE needs to always monitor C-RNTI) after the necessary split-MRB configuration.
* Assuming a split-MRB (as agreed during the online session) configured with a PTM leg and PTP leg, it is FFS whether the usage of the PTM leg of the split-MRB may be subject to activation or deactivation and the details of such.

*Idle and Inactive UEs*

* The MCCH transmission window is defined by MCCH repetition period, MCCH window duration and radio frame/slot offset.
* New RNTI is defined for scheduling MCCH.
* The concept of MCCH transmission window, similar to the one used for LTE SC-PTM, is used for NR MCCH scheduling. The exact parameters to define the window are FFS (discussed in the following proposals).
* Common search space is needed for MCCH scheduling. RAN2 should request RAN1 to discuss the details of CSS for MCCH.
* R2 assumes PDCCH occasions for MCCH search space are associated with SSBs in a pre-defined manner so that the UE can receive MCCH scheduling on PDCCH occasions according to its detected SSB.
* R2 assumes, In case searchSpace#0 is configured for MCCH (if allowed, pending RAN1 decision), the mapping between PDCCH occasions and SSBs is the same as for SIB1.
* R2 assumes that If common search space other than searchSpace#0 is configured for MCCH (if allowed, pending RAN1 decision), the PDCCH monitoring occasions for MCCH message which are not overlapping with UL symbols are sequentially numbered from one in the MCCH transmission window and mapped to SSBs using the similar rule as defined for OSI in TS 38.331.
* Request RAN1 to discuss the details of the configuration of the bandwidth for MCCH reception.
* The modification period is defined for NR MCCH and NR MCCH contents are only allowed to be modified at each modification period boundary.
* The updated MCCH message should be sent in the same MCCH modification period where the change notification is sent.
* UE in RRC IDLE/INACTIVE should be able to monitor/read both MCCH channel and SI/Paging without BWP switch. It is up to RAN1 to decide how this is ensured.
* It is up to RAN1 to to decide about the RNTI and DCI format used for MCCH change notifications.
* FFS whether to support multiple MCCH, e.g. to support different service types.
* RAN2 will discuss and down-select from the following two options for the UE to get aware of session stop/modification:

Reading MCCH once per each MCCH modification period when receiving an ongoing broadcast session

DCI used for MCCH notification indicates the change of an ongoing broadcast session

RAN2#114-e agreements

*Stage-2 and Multicast activation*

* Use PCCH for Multicast activation notification (also for MBS supporting nodes).
* Confirm that we convey the MBS session ID in the notification.
* Use of paging in all (legacy) PO with PRNTI is the baseline assumption (can still discuss other variants)

*Reliability*

* RLC-AM is not supported for PTM (for MBS R17 WI).

*Group scheduling and others*

* One-to-one mapping between G-RNTI and MBS session is supported in NR MBS. Other mappings FFS
* One-to-one mapping between G-CS-RNTI and MBS session is supported in NR MBS. Other mappings FFS.
* A UE can support multiple G-RNTIs/G-CS-RNTIs, It is FFS whether this depends on UE capability. Inform RAN1 of this agreement.
* Multiple MBS QoS flows corresponding to the same MBS session can be mapped to one or more than one MBS radio bearers.
* MCCH is mapped to the DL-SCH for NR MBS delivery mode 2.
* MTCH is specified for PTM transmission of NR MBS.
* MTCH is mapped to the DL-SCH.
* DTCH is reused for PTP transmission of NR MBS.
* FFS if there is a need to have specific LCID spaces for the used channels.
* Multiplexing/de-multiplexing of different logical channels associated with the same G-RNTI is supported for NR MBS.
* FFS if Multiplexing/de-multiplexing of different logical channels associated with the same G-CS-RNTI is supported for NR MBS.
* Multiplexing/de-multiplexing of different logical channels associated with the C-RNTI is supported for NR MBS.
* For NR MBS delivery mode 2, LTE SC-PTM DRX scheme is used as baseline.
* FFS whether For PTM transmission of NR MBS, DRX scheme is independent of DRX for unicast transmission, e.g. supported on a per G-RNTI basis
* FFS whether For PTP transmission, DRX operation for unicast transmission is reused.

*Idle and Inactive UEs*

* MBS specific SIB is defined to carry MCCH configuration.
* MCCH contents should include information about broadcast sessions such as G-RNTI, MBS session ID as well as scheduling information for MTCH (e.g. search space, DRX). L1 parameters that need to be included in MCCH are pending further RAN1 progress and input.
* Postpone the discussion on whether dedicated MCCH configuration is required until RAN1 makes progress on BWP/CFR for MCCH.
* Indication of an MCCH change due to modification of an ongoing session’s configuration (including session stop) is provided with an explicit notification from the network (provided that RAN1 confirms a separate bit for this purpose can be accommodated in the MCCH change notification DCI, in addition to a bit for session start notification). FFS on whether this notification can be reused for modification of other information carried by MCCH, if any.
* FFS whether the possibility of UE missing an MCCH change notification needs to be addressed or can be left to UE implementation.
* At least in case RAN1 decides to utilize RNTI other than MCCH-RNTI for MCCH change notification, MCCH change notification is sent in the first MCCH monitoring occasion of each MCCH repetition period.
* We support single MCCH (in this release)

#### 2.2.2 Remaining Open issues

* Remaining issues for multicast, including but not limited to:
	+ Details of group paging for multicast activation;
	+ Dynamic switch remaining issues (e.g. activation/deactivation of the PTM leg);
	+ Use cases of PDCP status reporting and retransmission;
	+ Remaining issues for mobility support, including mobility between MBS-supporting gNBs, as well as between MBS-supporting and non-MBS-supporting gNBs.
* Remaining issues for broadcast, including but not limited to:
	+ Service continuity (including MBS Interest Indication, prioritization of cell reselection, and etc.)
	+ MCCH content;
	+ Remaining issues for MCCH change notification.
* RAN2 aspects of group scheduling, including but not limited to:
	+ DRX;
	+ SPS;
	+ BWP

## 2.3 RAN3

#### 2.3.1 Agreements

RAN3#112-e agreements

*General*

* Work plan noted.
* Baseline CR endorsed.

*Session Management*

* For gNBs not supporting MBS, group paging using MBS session ID is not supported, only legacy per-UE paging is applicable.
* Introduce a new class 2 procedure for multicast MBS Group Paging. Name and content FFS.
* 5GC enables both options, multicast and unicast NG-U/N3 transport for NR MBS, but RAN decides, i.e. the RAN either provides for unicast transport the DL TEID or requests the 5GC to provide IP multicast address; St3 details are FFS.
* A supporting gNB indicates in PDU Session Resource SMF containers for associated PDU Sessions that it support MBS (i.e., effectively the functional support of MBS Session related information). FFS whether this is needed in all containers.
* Acknowledge that MBS related information within the associated PDU Session Resource Context may not include associated QoS flow information if interworking with non-supporting RAN nodes is not required; stage3 details are FFS.
* In case of 5GC individual MBS traffic delivery, if a PDU Session is associated with more than one MBS Session, if applicable, MBS traffic for all MBS Sessions is delivered (concurrently) via the one NG-U/N3 tunnel established for the associated PDU session.

*Dynamic Change Between PTP and PTM for UEs in RRC\_CONNECTED State*

* WA: For the RAN2 agreed split MRB bearer with a common PDCP: the decision of using PTP (RLC leg) or PTM (RLC leg) is made by the gNB-DU. Applicability of current flow control is FFS.

*Bearer Management over F1/E1*

* WA: Standard shall enable a one to one mapping between an MRB and a shared F1-U tunnel.
* WA: F1-U multicast transport is not supported.
* Use non-UE associated F1/E1 procedures to set up the MBS context and shared F1-U tunnel(s) for a broadcast session (MBS context is used in analogy to UE context).
* For broadcast, an MBS context ID may be associated to one or more MRB IDs, to be included in the non-UE-associated F1AP procedure (procedure and IEs are FFS).
* Flow control should be enabled for an MRB established for a broadcast MBS session.
* WA: For broadcast session, agree to introduce the following gNB-CU-CP triggered F1AP procedures: MBS Context Setup, MBS Context Modification, MBS Context Release. Message name, scope, association with other F1AP procedures and potential alignment with multicast F1AP procedures are FFS.
* WA: For broadcast session, agree to introduce the following gNB-CU-CP triggered E1AP procedures: MBS Bearer Setup, MBS Bearer Modification, MBS Bearer Release. Message name, scope, association with other E1AP procedures and potential alignment with multicast E1AP procedures are FFS.

*Service Area*

* A list of cell IDs and/or tracking area IDs may be included in the NGAP MBS session source related signaling to indicate MBS service area information for local multicast session and local broadcast session.
* Area session ID may be included in the NGAP MBS session resource related signaling to indicate MBS service area information for local dependent multicast session(s) (FFS for local dependent broadcast session).
* Discuss whether MBS service area identity (SAI) can be used as MBS service area information.

*Mobility Between MBS Supporting Nodes*

* No agreement achieved.

*Mobility Between MBS Supporting and non-MBS Supporting Nodes*

* One TP agreed in R3-212908
* WA: Standards shall provide means whereby the SMF knows when receiving a Path Switch Request when a target NG-RAN node does not support MBS and means for SMF to then switch from shared delivery to individual delivery.
* WA: MBS support Indicator is included in Path Switch Request Transfer sent by an MBS supporting node to indicate support.
* MBS traffic delivery resources will be set up at target side using the information provided in the associated PDU session resource context in HO Request (for both Xn and NG mobility)
* Standards support data forwarding to minimize data loss during handover from MBS-supporting nodes to non-MBS supporting nodes.
* If data forwarding is used from MBS-supporting nodes to non-MBS supporting nodes, the source NG-RAN node should include in forwarded packets the unicast (flow) QFI mapped from the received MBS (flow) QFI.

*Others:*

* Support service continuity for broadcast service.
	+ Support of MBMS interesting indication (RAN2 has agreed)
		- FFS: the cell lists to be transferred over the NG interface include the cells in both the current and the neighbor gNBs.
	+ Support of MBMS frequency layer prioritization
		- Pending to RAN2 progress
		- FFS for SAI/ group ID
	+ Neighbor cell broadcasting status for ongoing services,
		- Pending to RAN2 progress
* No need to exchange target/neighbor cell MTCH configuration of a Broadcast Service via Xn interface.
* Relationship between the state of MBS session and UEs:
	+ There is no need to discuss the relationship between the state of the MBS session and that of per UE in RAN3 at this stage.
* Exchange of per cell MBS configuration
	+ There is no need to transfer the per cell MBS configuration over Xn, F1 and/or E1 interfaces for coordination.

#### 2.3.2 Remaining Open issues

* Session management over NG.
* MBS Bearer management over F1 and E1.
* Mobility with Service Continuity for UEs in RRC\_CONNECTED State.

## 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#104bis-e contributions:

1. R1-2102899 Updated NR MBS work plan CMCC
2. R1-2102318 Resource configuration and group scheduling for RRC\_CONNECTED UEs Huawei, HiSilicon
3. R1-2102414 Group scheduling for NR Multicast and Broadcast Services OPPO
4. R1-2102469 Discussion on MBS group scheduling for RRC\_CONNECTED UEs Spreadtrum Communications
5. R1-2102501 Discussion on Mechanisms to Support Group Scheduling for RRC\_CONNECTED UEs ZTE
6. R1-2102542 Discussion on mechanisms to support group scheduling for RRC\_CONNECTED UEs vivo
7. R1-2102609 Discussion on group scheduling mechanism for RRC\_CONNECTED UEs in MBS CATT
8. R1-2102655 Group Scheduling Mechanisms to Support 5G Multicast / Broadcast Services for RRC\_CONNECTED Ues Nokia, Nokia Shanghai Bell
9. R1-2102702 Discussion on NR MBS group scheduling for RRC\_CONNECTED UEs MediaTek Inc.
10. R1-2102782 Discussion on aspects for group scheduling FUTUREWEI
11. R1-2102844 Discussion on common frequency resource configuration for MBS ETRI
12. R1-2102900 Discussion on group scheduling mechanisms CMCC
13. R1-2103050 NR-MBS Group Scheduling for RRC\_CONNECTED UEs Intel Corporation
14. R1-2103124 Discussion on group scheduling mechanism for RRC\_CONNECTED UEs Apple
15. R1-2103186 Views on group scheduling for Multicast RRC\_CONNECTED UEs Qualcomm Incorporated
16. R1-2103260 On mechanisms to support group scheduling for RRC\_CONNECTED UEs Samsung
17. R1-2103316 Considerations on MBS group scheduling for RRC\_CONNECTED UEs Sony
18. R1-2103357 Support of group scheduling for RRC\_CONNECTED UEs LG Electronics
19. R1-2103362 Further discussion on group scheduling for RRC\_CONNECTED UEs Chengdu TD Tech, TD Tech
20. R1-2103419 Discussion on group scheduling mechanism for RRC\_CONNECTED UEs Convida Wireless
21. R1-2103546 Discussion on group scheduling mechanism for NR MBS Lenovo, Motorola Mobility
22. R1-2103594 Discussion on group scheduling mechanism for RRC\_CONNECTED Ues NTT DOCOMO, INC.
23. R1-2103658 Discussion on mechanisms to support group scheduling for RRC\_CONNECTED UEs ASUSTeK
24. R1-2103738 Mechanisms to support MBS group scheduling for RRC\_CONNECTED UEs Ericsson
25. R1-2102909 Summary#1 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
26. R1-2103831 Summary#2 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
27. R1-2103877 Summary#3 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
28. R1-2103901 Summary#4 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
29. R1-2103923 Summary#5 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
30. R1-2103961 Summary#6 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
31. R1-2104013 Summary#7 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
32. R1-2104044 Summary#8 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
33. R1-2104045 LS on G-RNTI and G-CS-RNTI for MBS RAN1, CMCC
34. R1-2104080 Summary#9 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
35. R1-2104097 Summary#10 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
36. R1-2102319 Mechanisms to improve reliability for RRC\_CONNECTED UEs Huawei, HiSilicon
37. R1-2102415 UL feedback for RRC-CONNECTED UEs in MBS OPPO
38. R1-2102470 Mechanisms to improve reliability for RRC\_CONNECTED UEs Spreadtrum Communications
39. R1-2102502 Discussion on Mechanisms to Improve Reliability for RRC\_CONNECTED UEs ZTE
40. R1-2102543 Discussion on mechanisms to improve reliability for RRC\_CONNECTED UEs vivo
41. R1-2102552 Discussion on MBS reliability for RRC\_CONNECTED UEs Google Inc.
42. R1-2102610 Discussion on reliability improvement mechanism for RRC\_CONNECTED UEs in MBS CATT, CBN
43. R1-2102656 Reliability Improvements for RRC\_CONNECTED UEs Nokia, Nokia Shanghai Bell
44. R1-2102703 Discussion on mechanisms to improve reliability for RRC\_CONNECTED Ues MediaTek Inc.
45. R1-2102783 Discussion on improving reliability for RRC\_CONNECTED UEs FUTUREWEI
46. R1-2102845 Discussion on HARQ-ACK feedback method for MBS ETRI
47. R1-2102875 Reliability improvement for RRC\_CONNECTED UEs in MBS Potevio Company Limited
48. R1-2102901 Discussion on reliability improvement CMCC
49. R1-2103051 Mechanisms to Improve Reliability of NR-MBS for RRC\_CONNECTED UEs Intel Corporation
50. R1-2103125 Discussion on MBS reliability improvement for RRC\_CONNECTED UEs Apple
51. R1-2103187 Views on UE feedback for Multicast RRC\_CONNECTED UEs Qualcomm Incorporated
52. R1-2103261 On mechanisms to improve reliability for RRC\_CONNECTED UEs Samsung
53. R1-2103358 Mechanisms to improve reliability of Broadcast/Multicast service LG Electronics
54. R1-2103363 Further discussion on reliability for RRC\_CONNECTED UEs Chengdu TD TECH, TD Tech
55. R1-2103420 Discussion on reliability enhancement for RRC\_CONNECTED UEs Convida Wireless
56. R1-2103547 Discussion on reliability improvement for RRC-CONNECTED UEs Lenovo, Motorola Mobility
57. R1-2103595 Discussion on HARQ-ACK feedback for multicast for RRC\_CONNECTED Ues NTT DOCOMO, INC.
58. R1-2103739 Discussion on reliability mechanisms for NR MBS Ericsson
59. R1-2103834 FL summary#1 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
60. R1-2103900 FL summary#2 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
61. R1-2103929 FL summary#3 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
62. R1-2104031 FL summary#4 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
63. R1-2104098 FL summary#5 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)

RAN1#105-e contributions:

1. [R1-2104195](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104195.zip) Group Scheduling Aspects for Connected UEs FUTUREWEI
2. [R1-2104248](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104248.zip) Resource configuration and group scheduling for RRC\_CONNECTED UEs Huawei, HiSilicon, CBN
3. [R1-2104336](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104336.zip) Discussion on Mechanisms to Support Group Scheduling for RRC\_CONNECTED UEs ZTE
4. [R1-2104387](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104387.zip) Discussion on mechanisms to support group scheduling for RRC\_CONNECTED UEs vivo
5. [R1-2104442](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104442.zip) Discussion on MBS group scheduling for RRC\_CONNECTED UEs Spreadtrum Communications
6. [R1-2104491](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104491.zip) Discussion on group scheduling mechanism for RRC\_CONNECTED UEs in MBS CATT
7. [R1-2104550](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104550.zip) Group Scheduling Mechanisms to Support 5G Multicast / Broadcast Services for RRC\_CONNECTED Ues Nokia, Nokia Shanghai Bell
8. [R1-2104632](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104632.zip) Discussion on group scheduling mechanisms CMCC
9. [R1-2104695](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104695.zip) Views on group scheduling for Multicast RRC\_CONNECTED UEs Qualcomm Incorporated
10. [R1-2104759](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104759.zip) Group scheduling for NR Multicast and Broadcast Services OPPO
11. [R1-2104865](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104865.zip) On group scheduling mechanism for NR MBS Lenovo, Motorola Mobility
12. [R1-2104928](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104928.zip) NR-MBS Group Scheduling for RRC\_CONNECTED UEs Intel Corporation
13. [R1-2105069](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105069.zip) Discussion on Group Scheduling and Simultaneous MBS and Unicast Reception TCL Communication Ltd.
14. [R1-2105128](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105128.zip) Discussion on group scheduling mechanism for RRC\_CONNECTED UEs Apple
15. [R1-2105179](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105179.zip) Considerations on MBS group scheduling for RRC\_CONNECTED UEs Sony
16. [R1-2105336](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105336.zip) Support of group scheduling for RRC\_CONNECTED Ues Samsung
17. [R1-2105381](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105381.zip) Discussion on NR MBS group scheduling for RRC\_CONNECTED UEs MediaTek Inc.
18. [R1-2105437](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105437.zip) Support of group scheduling for RRC\_CONNECTED UEs LG Electronics
19. [R1-2105600](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105600.zip) Discussion on group scheduling mechanism for RRC\_CONNECTED UEs Convida Wireless
20. [R1-2105647](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105647.zip) Discussion on common frequency resource for multicast of RRC\_CONNECTED UEs ETRI
21. [R1-2105670](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105670.zip) Discussion on group scheduling mechanism for RRC\_CONNECTED UEs Google Inc.
22. [R1-2105720](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105720.zip) Discussion on group scheduling mechanism for RRC\_CONNECTED UEs NTT DOCOMO, INC.
23. [R1-2105838](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105838.zip) Discussion on group scheduling for RRC\_CONNECTED UEs CHENGDU TD TECH LTD.
24. [R1-2105844](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105844.zip) Discussion on mechanisms to support group scheduling for RRC\_CONNECTED UEs ASUSTeK
25. [R1-2105914](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105914.zip) Mechanisms to support MBS group scheduling for RRC\_CONNECTED Ues Ericsson
26. [R1-2105973](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105973.zip) Summary#1 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
27. [R1-2106039](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105973.zip) Summary#2 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
28. [R1-2106093](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106093.zip) Summary#3 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
29. [R1-2106126](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106169.zip) Summary#4 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
30. [R1-2106169](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106169.zip) Summary#5 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
31. [R1-2106197](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106169.zip) Summary#6 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
32. [R1-2106304](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106169.zip) Summary#7 on mechanisms to support group scheduling for RRC\_CONNECTED UEs for NR MBS Moderator (CMCC)
33. [R1-2104196](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104196.zip) Further Discussions on Reliability for RRC\_CONNECTED UEs FUTUREWEI
34. [R1-2104249](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104249.zip) Mechanisms to improve reliability for RRC\_CONNECTED UEs Huawei, HiSilicon
35. [R1-2104337](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104337.zip) Discussion on Mechanisms to Improve Reliability for RRC\_CONNECTED UEs ZTE
36. [R1-2104388](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104388.zip) Discussion on mechanisms to improve reliability for RRC\_CONNECTED UEs vivo
37. [R1-2104443](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104443.zip) Mechanisms to improve MBS reliability for RRC\_CONNECTED UEs Spreadtrum Communications
38. [R1-2104492](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104492.zip) Discussion on reliability improvement mechanism for RRC\_CONNECTED UEs in MBS CATT, CBN
39. [R1-2104551](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104551.zip) Reliability Improvements for RRC\_CONNECTED UEs Nokia, Nokia Shanghai Bell
40. [R1-2104633](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104633.zip) Discussion on reliability improvement CMCC
41. [R1-2104696](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104696.zip) Views on UE feedback for Multicast RRC\_CONNECTED UEs Qualcomm Incorporated
42. [R1-2104760](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104760.zip) UL feedback for RRC-CONNECTED UEs in MBS OPPO
43. [R1-2104866](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104866.zip) On reliability improvement for RRC-CONNECTED UEs Lenovo, Motorola Mobility
44. [R1-2104929](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104929.zip) Mechanisms to Improve Reliability of NR-MBS for RRC\_CONNECTED UEs Intel Corporation
45. [R1-2105129](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105129.zip) Discussion on MBS reliability improvement for RRC\_CONNECTED UEs Apple
46. [R1-2105337](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105337.zip) On mechanisms to improve reliability for RRC\_CONNECTED UEs Samsung
47. [R1-2105382](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105382.zip) Discussion on mechanisms to improve reliability for RRC\_CONNECTED UEs MediaTek Inc.
48. [R1-2105438](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105438.zip) Mechanisms to improve reliability of Broadcast/Multicast service LG Electronics
49. [R1-2105601](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105601.zip) Discussion on reliability enhancement for RRC\_CONNECTED UEs Convida Wireless
50. [R1-2105648](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105648.zip) Discussion on HARQ-ACK feedback for multicast of RRC\_CONNECTED UEs ETRI
51. [R1-2105721](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105721.zip) Discussion on HARQ-ACK feedback for multicast for RRC\_CONNECTED UEs NTT DOCOMO, INC.
52. [R1-2105843](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105843.zip) Discussion on reliability for RRC\_CONNECTED UEs CHENGDU TD TECH LTD.
53. [R1-2105915](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105915.zip) Mechanisms to improve reliability for RRC\_CONNECTED Ues Ericsson
54. [R1-2106012](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106012.zip) FL summary#1 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
55. [R1-2106064](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106064.zip) FL summary#2 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
56. [R1-2106113](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106113.zip) FL summary#3 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
57. R1-2106198 FL summary#4 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
58. [R1-2106324](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106324.zip) FL summary#5 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
59. [R1-2106330](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106330.zip) FL summary#6 on improving reliability for MBS for RRC\_CONNECTED UEs Moderator (Huawei)
60. [R1-2104197](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104197.zip) MBS Support for RRC IDLE/INACTIVE UEs FUTUREWEI
61. [R1-2104250](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104250.zip) Discussion on UE receiving broadcast in RRC IDLE/INACTIVE state Huawei, HiSilicon, CBN
62. [R1-2104338](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104338.zip) Discussion on basic Functions for Broadcast or Multicast for RRC\_IDLE or RRC\_INACTIVE UEs ZTE
63. [R1-2104389](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104389.zip) Discussion on basic functions for broadcast/multicast for RRC\_IDLE/RRC\_INACTIVE UEs vivo
64. [R1-2104444](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104444.zip) Basic Functions for Broadcast or Multicast for RRC\_IDLE or RRC\_INACTIVE UEs Spreadtrum Communications
65. [R1-2104493](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104493.zip) Discussion on basic functions for MBS for RRC\_IDLEINACTIVE UEs CATT, CBN
66. [R1-2104552](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104552.zip) Basic Functions for Broadcast / Multicast for RRC\_IDLE / RRC\_INACTIVE Ues Nokia, Nokia Shanghai Bell
67. [R1-2104634](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104634.zip) Discussion on NR MBS in RRC\_IDLE/ RRC\_INACTIVE states CMCC
68. [R1-2104697](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104697.zip) Views on group scheduling for Multicast RRC\_IDLE/INACTIVE UEs Qualcomm Incorporated
69. [R1-2104761](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104761.zip) Discussion on support for IDLE and INACTIVE state Ues OPPO
70. [R1-2104867](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104867.zip) Basic functions for broadcast/multicast in idle/inactive states Lenovo, Motorola Mobility
71. [R1-2104930](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104930.zip) NR-MBS for RRC\_IDLE/INACTIVE UEs Intel Corporation
72. [R1-2105130](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105130.zip) Discussion on MBS for RRC\_IDLE/RRC\_INACTIVE UEs Apple
73. [R1-2105180](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105180.zip) Considerations on MBS functions for RRC\_IDLE/RRC\_INACTIVE UEs Sony
74. [R1-2105338](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105338.zip) On basic functions for broadcast/multicast for RRC\_IDLE/RRC\_INACTIVE UEs Samsung
75. [R1-2105383](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105383.zip) Discussion on broadcast or multicast for RRC\_IDLE or INACTIVE UEs MediaTek Inc.
76. [R1-2105439](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105439.zip) Basic function for broadcast/multicast LG Electronics
77. [R1-2105602](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105602.zip) Discussion on MBS for RRC\_IDLE/RRC\_INACTIVE UEs Convida Wireless
78. [R1-2105673](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105673.zip) Discussion on MBS for RRC\_IDLE/INACTIVE UE Google Inc.
79. [R1-2105722](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105722.zip) Discussion on basic functions for broadcast/multicast for RRC\_IDLE/RRC\_INACTIVE UEs NTT DOCOMO, INC.
80. [R1-2105849](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105849.zip) Basic functions for MBS for RRC\_IDLE/RRC\_INACTIVE UEs CHENGDU TD TECH LTD.
81. [R1-2105916](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105916.zip) Support for NR multicast reception in RRC Inactive/Idle Ericsson
82. R1-2105993 Feature Lead summary #1 on RAN basic functions for broadcast/multicast for UEs in RRC\_IDLE/RRC\_INACTIVE states Moderator (BBC)
83. [R1-2105994](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105994.zip) Feature lead summary #2 on RAN basic functions for broadcast/multicast for UEs in RRC\_IDLE/ RRC\_INACTIVE states Moderator (BBC)
84. [R1-2105995](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105995.zip) Feature lead summary #3 on RAN basic functions for broadcast/multicast for UEs in RRC\_IDLE/ RRC\_INACTIVE states Moderator (BBC)
85. [R1-2106217](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106217.zip) Feature lead summary #4 on RAN basic functions for broadcast/multicast for UEs in RRC\_IDLE/ RRC\_INACTIVE states Moderator (BBC)
86. [R1-2106218](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2106218.zip) Feature lead summary #5 on RAN basic functions for broadcast/multicast for UEs in RRC\_IDLE/ RRC\_INACTIVE states Moderator (BBC)
87. [R1-2104339](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104339.zip) Consideration on performance enhancement for RRC\_IDLE/INACTIVE UEs ZTE
88. [R1-2104390](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104390.zip) Other issues for Rel-17 MBS vivo
89. [R1-2104494](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104494.zip) Discussion on other issues in Rel-17 MBS CATT
90. [R1-2104762](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2104762.zip) PUCCH resource allocation for NACK-only based HARQ-ACK feedback in MBMS OPPO
91. [R1-2105440](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105440.zip) Other aspects for MBS LG Electronics
92. [R1-2105526](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105526.zip) Impact from MCCH and MTCH on broadcast reception Huawei, HiSilicon
93. [R1-2105855](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105855.zip) MBS related network planning for two delivery modes CHENGDU TD TECH LTD.
94. [R1-2105917](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_105%5CDocs%5CR1-2105917.zip) Assumptions for performance evaluations of NR-MBS Ericsson

RAN2#113bis-e contributions:

1. R2-2102635 Reply LS on 5MBS progress and issues to address (R3-211296; contact: Huawei) RAN3
2. R2-2102666 Reply LS on 5MBS progress and issues to address (S2-2102077; contact: Huawei) SA2
3. R2-2102670 Reply LS on 5MBS progress and issues to address (S3-211313; contact: Huawei) SA3
4. R2-2102716 Discussion on Multicast in Idle and Inactive Mode CATT, CBN
5. R2-2102717 Reliability Improvement for PTM Transmission CATT
6. R2-2102718 Dynamic PTM/PTP Switch CATT
7. R2-2102719 Discussion on Group Scheduling CATT
8. R2-2102720 Further Discussion on Delivery Mode 2 CATT, CBN
9. R2-2102765 Discussion on deactivation of MBS reception Shanghai Jiao Tong University
10. R2-2102766 Consideration on Group Scheduling for NR MBS Shanghai Jiao Tong University
11. R2-2102767 Discussion on dynamic PTM and PTP switching Shanghai Jiao Tong University
12. R2-2102782 MBS UP architecture MediaTek Inc.
13. R2-2102783 Dynamic Switch for NR MBS MediaTek Inc.
14. R2-2102784 RAN2 aspects of Group Scheduling for NR MBS MediaTek Inc.
15. R2-2102785 L1 HARQ operation for PTM transmission MediaTek Inc.
16. R2-2102838 Discussion on SA2 LS and multicast session activation Intel Corporation
17. R2-2102839 MBS MAC Layer and Group Scheduling Aspects Intel Corporation
18. R2-2102893 Discussion on beam sweeping transmission for delivery mode 2 OPPO
19. R2-2102894 Discussion on MBS interesting indication and service continuity for delivery mode 2 OPPO
20. R2-2102895 Discussion on group based scheduling for MBS OPPO
21. R2-2102896 RRC state control for MBS reception OPPO
22. R2-2102934 On Group Scheduling and Multiplexing Aspects Samsung
23. R2-2102937 On MBS DRX, Data-Inactivity & BWP aspects Samsung
24. R2-2102938 NR MBS operation in Idle/Inactive mode Samsung
25. R2-2102945 MBS Reliability Nokia, Nokia Shanghai Bell
26. R2-2102946 Miscellaneous Aspects of MBS Provisioning Nokia, Nokia Shanghai Bell
27. R2-2103118 Considerations on the SA2 questions about session activation vivo
28. R2-2103119 Dynamic PTM PTP switch for RRC Connected UE vivo
29. R2-2103120 Updated summary for MBS Group Scheduling vivo
30. R2-2103121 Group Scheduling for MBS vivo
31. R2-2103122 MBS in Idle and Inactive Mode vivo
32. R2-2103152 Configuration and scheduling in MBS delivery mode 2 Futurewei
33. R2-2103163 PTP\_PTM dynamic switch NEC
34. R2-2103167 Discussion on Beam Sweeping Configuration for Flexible MBS Control Plane Scheduling TCL Communication Ltd.
35. R2-2103178 NR MBS control signalling aspects for UEs in different RRC states Qualcomm Inc
36. R2-2103179 NR Multicast group paging aspects Qualcomm Inc
37. R2-2103180 NR Multicast and Broadcast Radio Bearer Architecture aspects Qualcomm Inc
38. R2-2103188 NR Multicast PTM bearer RLC AM mode operation Qualcomm Inc, FirstNet,UIC, Kyocera, AT&T
39. R2-2103200 Split MRB Protocol Architecture and Logical Channel Aggregation Futurewei
40. R2-2103201 ARQ of PTM with Logical Channel Aggregation Futurewei
41. R2-2103202 Service Continuity during Dynamic PTM/PTP Switch with Logical Channel Aggregation Futurewei
42. R2-2103254 Discussion on MBS session activation/deactivation and UAC Spreadtrum Communications
43. R2-2103255 Discussion on dynamic PTM PTP switching Spreadtrum Communications
44. R2-2103256 Discussion issues on delivery mode2 Spreadtrum Communications
45. R2-2103267 HARQ modelling for supporting retransmission in MBS Asia Pacific Telecom co. Ltd, FGI
46. R2-2103277 MBS Idle Nokia, Nokia Shanghai Bell
47. R2-2103278 MBS session activation and group paging Nokia, Nokia Shanghai Bell
48. R2-2103358 Dynamic PTM PTP switching LG Electronics Inc.
49. R2-2103359 MBS configuration for RRC\_CONNECTED LG Electronics Inc.
50. R2-2103360 MBS in IDLEINACTIVE LG Electronics Inc.
51. R2-2103372 Further consideration of control plane aspects for NR MBS Kyocera
52. R2-2103373 Consideration of dynamic PTM - PTP switching with service continuity for NR MBS Kyocera
53. R2-2103374 Consideration of possible solutions for L2 reliability in NR MBS Kyocera
54. R2-2103413 Issues on MBS reliability Lenovo, Motorola Mobility
55. R2-2103414 MBS dynamic switch between PTP and PTM with service continuity Lenovo, Motorola Mobility
56. R2-2103415 Discussion on MBS delivery modes Lenovo, Motorola Mobility
57. R2-2103416 MBS Group Scheduling Aspects Lenovo, Motorola Mobility
58. R2-2103450 UE stay in RRC\_CONNECTED when no MBS data ongoing ASUSTeK
59. R2-2103471 draft LS about deployment scenarios of NR Broadcast ZTE, Sanechips
60. R2-2103472 NR Broadcast deployment scenarios ZTE, Sanechips
61. R2-2103473 Consideration on MBS reliability guarantee ZTE, Sanechips
62. R2-2103474 Mode switching signaling of NR MBS ZTE, Sanechips
63. R2-2103475 Discussion on Group scheduling for NR MBS ZTE, Sanechips
64. R2-2103476 Idle and Inactive mode UEs support of NR MBS ZTE, Sanechips
65. R2-2103507 Discussion on two delivery modes for NR MBS CHENGDU TD TECH LTD.
66. R2-2103508 Further discussion on reliability for RRC\_CONNECTED state CHENGDU TD TECH LTD.
67. R2-2103512 Procedure for dynamic PTM/PTP switch CHENGDU TD TECH LTD.
68. R2-2103513 Further discussion on delivery mode 2 for NR MBS CHENGDU TD TECH LTD.
69. R2-2103515 Architecture aspects for NR MBS Ericsson
70. R2-2103516 Reliability and Dynamic Switch for MBS Ericsson
71. R2-2103517 Aspects of Group Scheduling Ericsson
72. R2-2103518 Email discussion report [Post113-e][054]PTP/PTM dynamic switch and MRB type change Ericsson (Rapporteur)
73. R2-2103523 Updated NR MBS workplan Huawei, CMCC, HiSilicon
74. R2-2103524 PTP/PTM dynamic switch and MRB initialization Huawei, CBN, HiSilicon
75. R2-2103525 RAN2 aspects of group scheduling Huawei, CBN, HiSilicon
76. R2-2103543 MRB and DRB configuration Sony Europe B.V.
77. R2-2103649 Discussion on MRB Samsung
78. R2-2103650 Layer-2 for MBS Samsung
79. R2-2103670 Considerations on measurements for NR MBS in idle/inactive Lenovo, Motorola Mobility
80. R2-2103679 Way forward on UP architecture for MBS InterDigital Inc., ZTE, Sanechips, MediaTek Inc., Huawei, HiSilicon, Ericsson, LG Electronics Inc., Samsung Telecommunications, Fujitsu, Sharp, CATT, CBN, Spreadtrum Communications, Xiaomi Communications, Asia Pacific Telecom co. Ltd., OPPO, Lenovo, Motor
81. R2-2103680 PTM/PTP mode switching InterDigital
82. R2-2103703 Discussion on group scheduling for MBS CMCC
83. R2-2103704 Discussion on delivery mode 2 remaining issues CMCC
84. R2-2103705 Discussion on delivery mode 2 transmission CMCC
85. R2-2103706 LS on delivery mode 2 transmission CMCC
86. R2-2103728 Discussion on SA2 Reply LS on 5G MBS CMCC
87. R2-2103729 Draft reply LS on Group Paging CMCC
88. R2-2103775 Multicast in Idle and Inactive Ericsson, MediaTek, FirstNet, CBN
89. R2-2103776 Open issues for UEs in idle or inactive mode Ericsson
90. R2-2103871 Consideration on the MBS transmission reliability Apple
91. R2-2103872 MBS PTP/PTM switching Apple
92. R2-2103873 MBS reception in CONNECTED state Apple
93. R2-2103874 MBS reception in IDLE/INACTIVE state Apple
94. R2-2103905 Discussion on group notification for multicast session activation Huawei, HiSilicon
95. R2-2103906 Reply LS on 5MBS progress and issues to address Huawei, HiSilicon
96. R2-2103907 Multicast session reception in RRC INACTIVE Huawei, HiSilicon
97. R2-2103908 Service continuity aspects of delivery mode 2 Huawei, HiSilicon, CBN
98. R2-2103909 Report of e-mail discussion: [Post113-e][053][MBS17] MCCH scheduling and MCCH change notification (Huawei) Huawei, HiSilicon
99. R2-2103946 On NR multicast and broadcast for RRC\_IDLE/RRC\_INACTIVE UEs Convida Wireless
100. R2-2103947 NR MBS Configuration Information Convida Wireless
101. R2-2103949 PTM Reliability Considerations Convida Wireless
102. R2-2103963 Way forward on UP architecture for MBS InterDigital Inc., ZTE, Sanechips, MediaTek Inc., Huawei, HiSilicon, Ericsson, LG Electronics Inc., Samsung Telecommunications, Fujitsu, Sharp, CATT, CBN, Spreadtrum Communications, Xiaomi Communications, Asia Pacific Telecom co. Ltd., OPPO, Lenovo, Motor
103. R2-2104088 Support of PDCP status reporting for PTM-PTP switching SHARP Corporation
104. R2-2104089 L2 architecture for delivery mode 2 SHARP Corporation
105. R2-2104118 Dynamic switch between PTM and PTP for service continuity Intel Corporation
106. R2-2104119 MBS support for delivery mode 2 Intel Corporation
107. R2-2104150 Comparison of L2 Reliability Solutions for MRB with dynamic PTM/PTP Switch Futurewei, Qualcomm Inc, Intel
108. R2-2104161 Discussion on reliability improvement and UL feedback in NR multicast LG Electronics Inc.
109. R2-2104162 Discussion on RAN2 aspects of group scheduling LG Electronics Inc.
110. R2-2104207 Support of dynamic switch between PTP and PTM SHARP Corporation
111. R2-2104226 Clarification on the PDCP-anchored MRB Xiaomi Communications
112. R2-2104227 MBS impacts on PDCP Xiaomi Communications
113. R2-2104228 Discussion on group scheduling Xiaomi Communications
114. R2-2104229 Remaining issues of MCCH and MCCH change notification Xiaomi Communications
115. R2-2104230 Service continuity for delivery mode 2 Xiaomi Communications
116. R2-2104284 Performance improvement for delivery mode 2 CHENGDU TD TECH LTD.
117. R2-2104494 Updated summary for MBS Group Scheduling vivo
118. R2-2104501 Summary of A.I. 8.1.2.1 Reliability LG Electronics Inc.
119. R2-2104509 Report of e-mail discussion: [Post113-e][053][MBS17] MCCH scheduling and MCCH change notification (Huawei) Huawei, HiSilicon
120. R2-2104577 [AT113bis-e][031][MBS17] MBS session activation (Nokia) Rapporteur(Nokia)
121. R2-2104588 Email discussion report for [Post113-e][054][MBS17] PTP/PTM dynamic switch and MRB type change Ericsson
122. R2-2104629 Report of offline discussion: [AT113bis-e][032][MBS17] MCCH scheduling and Change notification (Huawei) Huawei, HiSilicon
123. R2-2104630 [DRAFT] LS on broadcast session delivery and MCCH design Huawei
124. R2-2104639 LS on broadcast session delivery and MCCH design RAN2
125. R2-2104646 Reply LS on 5MBS progress and issues to address RAN2
126. R2-2104655 Reply LS on 5MBS progress and issues to address RAN2

RAN2#114-e contributions:

1. R2-2104710 LS on G-RNTI and G-CS-RNTI for MBS (R1-2104045; contact: CMCC) RAN1
2. R2-2104754 Reliability Improvement for PTM Transmission CATT
3. R2-2104755 Open Issues on Mobility with Service Continuity CATT, CBN
4. R2-2104756 Discussion on Group Scheduling CATT
5. R2-2104757 Further Discussion on delivery mode 2 CATT, CBN
6. R2-2104758 Discussion on Multicast Session Activation CATT, CBN
7. R2-2104820 draft LS about deployment scenarios of NR Broadcast ZTE, Sanechips
8. R2-2104821 NR Broadcast deployment scenarios ZTE, Sanechips
9. R2-2104822 Consideration on MBS reliability guarantee ZTE, Sanechips
10. R2-2104823 Lossless handover support for NR MBS ZTE, Sanechips
11. R2-2104824 Discussion on Group scheduling for NR MBS ZTE, Sanechips
12. R2-2104825 Idle and Inactive mode UEs support of NR MBS ZTE, Sanechips
13. R2-2104875 Group notification and RACH congestion Intel Corporation
14. R2-2104876 MBS MAC layer and Group scheduling aspects Intel Corporation
15. R2-2104936 Discussion on beam sweeping transmission for delivery mode 2 OPPO
16. R2-2104937 Discussion on MBS interesting indication and service continuity for delivery mode 2 OPPO
17. R2-2104938 Discussion on group based scheduling for MBS OPPO
18. R2-2104939 Service continuity for MBS OPPO
19. R2-2104940 Group notification and unicast paging for MBS activation OPPO
20. R2-2104947 MCCH based Group Notification MediaTek Inc.
21. R2-2104948 Reliability Mechanism for MBS MediaTek Inc.
22. R2-2104949 Mobility and Service continuity for NR Multicast MediaTek Inc.
23. R2-2104950 RAN2 aspects of Group Scheduling for NR MBS MediaTek Inc.
24. R2-2104951 L1 HARQ operation for PTM transmission MediaTek Inc.
25. R2-2104969 Discussion on HARQ process for MBS data reception Asia Pacific Telecom, FGI
26. R2-2104984 On NR MBS operation in Idle/Inactive mode Samsung
27. R2-2104993 Considerations on Multiplexing & Scheduling Aspects Samsung
28. R2-2104995 Considerations on Mobility and Service Continuity Samsung
29. R2-2105007 MCCH Configuration and messaging in MBS delivery mode 2 Futurewei
30. R2-2105008 Discussion on the remaining issues with MBS group notification Futurewei
31. R2-2105009 Handling MBS during UE mobility Futurewei
32. R2-2105013 NR MBS control signalling aspects for UEs in different RRC states Qualcomm Inc
33. R2-2105015 NR Multicast and Broadcast Radio Bearer Architecture aspects Qualcomm Inc
34. R2-2105018 NR Multicast group paging aspects Qualcomm Inc
35. R2-2105019 NR Multicast Broadcast mobility enhancements with service continuity Qualcomm Inc
36. R2-2105020 NR Multicast PTM bearer RLC AM mode operation Qualcomm Inc, FirstNet,UIC, Kyocera, AT&T
37. R2-2105028 ARQ of PTM with Logical Channel Aggregation Futurewei
38. R2-2105096 Discussion on the MBS transmission reliabilty Apple
39. R2-2105097 Mobility with MBS service continuity Apple
40. R2-2105098 MBS reception in CONNECTED state Apple
41. R2-2105099 Access Control for the MBS Service Reception Apple
42. R2-2105265 MBS Reliability Nokia, Nokia Shanghai Bell
43. R2-2105266 Miscellaneous Aspects of MBS Provisioning Nokia, Nokia Shanghai Bell
44. R2-2105284 Consideration on Group Notification vivo
45. R2-2105285 PTP PTM switch and service continuity vivo
46. R2-2105286 Service Continuity for Connected UE vivo
47. R2-2105287 Group Scheduling for MBS vivo
48. R2-2105288 Open Issues for Delivery mode 2 vivo
49. R2-2105310 Dynamic PTM and PTP switching Shanghai Jiao Tong University
50. R2-2105311 Group Scheduling for NR MBS Shanghai Jiao Tong University
51. R2-2105313 Deactivation of MBS reception Shanghai Jiao Tong University
52. R2-2105365 Discussion on two delivery modes for NR MBS CHENGDU TD TECH LTD.
53. R2-2105366 Performance improvement for delivery mode 2 TD TECH LTD.
54. R2-2105370 Discussion on reliability for RRC\_CONNECTED state CHENGDU TD TECH LTD.
55. R2-2105373 UE stay in RRC\_CONNECTED when no MBS data ongoing ASUSTeK
56. R2-2105386 Discussion on mobility with service continuity for NR MBS CHENGDU TD TECH LTD.
57. R2-2105387 Discussion on delivery mode 2 for NR MBS CHENGDU TD TECH LTD.
58. R2-2105439 Discussion on Multicast Control Channel Scheduling Configurations for Delivery Mode 2 TCL Communication Ltd.
59. R2-2105511 Control plane aspects for delivery mode 2 in NR MBS Kyocera
60. R2-2105512 Consideration of dynamic PTM - PTP switching with service continuity for NR MBS Kyocera
61. R2-2105513 Group notification for Delivery mode 1 in NR MBS Kyocera
62. R2-2105514 Consideration of possible solutions for L2 reliability in NR MBS Kyocera
63. R2-2105550 Discussion on MBS session activation/reactivation Spreadtrum Communications
64. R2-2105551 Discussion on service continuity during mobility Spreadtrum Communications
65. R2-2105552 Discussion issues on delivery mode2 Spreadtrum Communications
66. R2-2105572 RAN2 aspects of group scheduling TCL Communication Ltd.
67. R2-2105573 Dynamic PTM PTP Switch TCL Communication Ltd.
68. R2-2105577 Support of group notification Huawei, CBN, HiSilicon
69. R2-2105578 MBS support for delivery mode 2 Huawei, CBN, HiSilicon
70. R2-2105579 Service continuity during inter-cell mobility Huawei, CBN, HiSilicon
71. R2-2105596 PTP\_PTM dynamic switch NEC
72. R2-2105653 Open issues broadcast Ericsson
73. R2-2105654 Open issues group scheduling Ericsson
74. R2-2105655 Open issues multicast Ericsson
75. R2-2105668 MCCH design details Nokia, Nokia Shanghai Bell
76. R2-2105669 MBS group notification Nokia, Nokia Shanghai Bell
77. R2-2105680 MRB and DRB configuration Sony
78. R2-2105681 MBS BWP UE capability and MBS resources Sony
79. R2-2105726 Discussion on MBS support on MRDC Xiaomi Communications
80. R2-2105727 MBS impacts on PDCP Xiaomi Communications
81. R2-2105728 Service continuity for delivery mode 2 Xiaomi Communications
82. R2-2105729 Remaining issues of MCCH and MCCH change notification Xiaomi Communications
83. R2-2105730 Discussion on the MBS paging for delivery mode 1 Xiaomi Communications
84. R2-2105756 Architecture aspects for NR MBS Ericsson
85. R2-2105757 Reliability for MBS Ericsson
86. R2-2105764 Discussion on MRB Architecture Samsung
87. R2-2105765 SDAP/PDCP/RLC Aspects for MBS Samsung
88. R2-2105795 Way forward on UP architecture for MBS InterDigital Inc., ZTE, Sanechips, MediaTek Inc., Huawei, HiSilicon, Ericsson, LG Electronics Inc., Samsung Telecommunications, Fujitsu, Sharp, CATT, CBN, Spreadtrum Communications, Xiaomi Communications, Asia Pacific Telecom co. Ltd., OPPO, Lenovo, Motor
89. R2-2105796 PTM/PTP mode switching InterDigital
90. R2-2105832 Issues on MBS reliability Lenovo, Motorola Mobility
91. R2-2105833 Connected Mode Mobility with Service Continuity Lenovo, Motorola Mobility
92. R2-2105834 MBS Group Scheduling Aspects Lenovo, Motorola Mobility
93. R2-2105835 Discussion on Idle and Inactive mode UEs Lenovo, Motorola Mobility
94. R2-2105914 MBS support for RRC\_IDLE/INACTIVE Intel Corporation
95. R2-2106008 L2 ARQ of PTM Transmission with Dynamic PTM/PTP Switch Futurewei, Qualcomm Inc., Intel, UIC, Kyocera
96. R2-2106009 Protocol Architecture of MRB with Dynamic PTM/PTP Switch Futurewei
97. R2-2106112 On RLC mode for PTM transmission SHARP Corporation
98. R2-2106113 Support of PDCP status reporting for PTM-PTP switching SHARP Corporation
99. R2-2106114 L2 architecture for delivery mode 2 SHARP Corporation
100. R2-2106205 Activation/Deactivation of PTM Sharp
101. R2-2106238 Discussion on MBS L2 Structure cmcc
102. R2-2106239 Discussion on MBS UP remaining issues cmcc
103. R2-2106240 Discussion on Mobility with Service Continuity cmcc
104. R2-2106241 Discussion on group scheduling for MBS cmcc
105. R2-2106242 Discussion on delivery mode 2 remaining issues cmcc
106. R2-2106248 38.300 Running CR for MBS in NR CMCC
107. R2-2106282 Multicast and Broadcast transport channels Huawei, CBN, HiSilicon
108. R2-2106283 RAN2 aspects of group scheduling Huawei, CBN, HiSilicon
109. R2-2106334 MBS L2 architecture for PTP-PTM switching Intel Corporation
110. R2-2106335 MBS service continuity in mobility Intel Corporation
111. R2-2106345 Group notification for multicast session LG Electronics Inc.
112. R2-2106350 MBS in IDLE/INACTIVE LG Electronics Inc.
113. R2-2106352 MBS Mobility with Service Continuity Nokia, Nokia Shanghai Bell
114. R2-2106356 Activation and Deactivation of PTM/PTP leg Convida Wireless
115. R2-2106357 On NR multicast and broadcast for RRC\_IDLE/RRC\_INACTIVE UEs Convida Wireless
116. R2-2106361 NR MBS Configuration Information Convida Wireless
117. R2-2106365 PTM Reliability Considerations Convida Wireless
118. R2-2106417 Discussion on overall architecture of MBS traffic delivery LG Electronics Deutschland
119. R2-2106419 [Pre114-e][001][MBS] Summary 8.1.2.1 MBS Connected mode Reliability (LGE) LG Electronics Inc.
120. R2-2106422 Discussion on RAN2 aspects of group scheduling and DRX LG Electronics Deutschland
121. R2-2106423 Discussion on MBS Reliability LG Electronics Deutschland
122. R2-2106483 [Pre114-e][002][MBS] Summary on MBS scheduling vivo
123. R2-2106687 Reply LS on G-RNTI and G-CS-RNTI for MBS RAN2
124. R2-2106730 Report of offline discussion: [AT114-e][039][MBS] MCCH and MCCH change notification (Huawei) Huawei, HiSilicon

RAN3#112-e contributions:

1. R3-211426 Reply LS on 5MBS progress and issues to address RAN2
2. R3-211453 Reply LS on 5MBS progress and issues to address SA2
3. R3-211471 Introduction of MBS(BL CR for 38.463) CATT
4. R3-211472 Introduction of NR MBS Lenovo, Motorola Mobility
5. R3-211478 MBS BL CR for TS38.410 ZTE
6. R3-211479 Introduction of NR MBS Huawei, CMCC
7. R3-211481 Introduction of NR MBS Samsung
8. R3-211482 BL CR for NR MBS for 38.413 Qualcomm Incorporated
9. R3-211484 Introduction of NR MBS LG Electronics
10. R3-211485 Introduction of NR Multicast and Broadcast Services Ericsson
11. R3-211515 Reply LS on 5MBS progress and issues to address RAN2
12. R3-211542 MBS session management and TP to 38.410 38.413 BL CR ZTE
13. R3-211543 TP to 38.414 MBS BL CR on IP multicast ZTE
14. R3-211544 Mode switching for NR MBS ZTE
15. R3-211545 MBS bearer management over F1 and E1 and TPs to 38.470 38.473 38.460 38.463 BL CR ZTE
16. R3-211546 MBS service area ZTE
17. R3-211547 Discussion on lossless Mobility in NR MBS ZTE
18. R3-211548 Discussion on MBS mobility procedure ZTE
19. R3-211549 Discussion on UE mobility between an MBS-supporting gNB and a non-MBS-supporting gNB ZTE
20. R3-211550 Discussion on Broadcast service continuity in NR MBS ZTE
21. R3-211656 (TP for 38.300 & 38.410) Stage 2 for Multicast and Broadcast Nokia, Nokia Shanghai Bell
22. R3-211657 (TP for 38.413) Setup of MBS Context and UE MBS Context Nokia, Nokia Shanghai Bell
23. R3-211658 (TP for 38.413) Management of User Plane Shared Delivery Tunnel Nokia, Nokia Shanghai Bell
24. R3-211659 (TP for 38.300 & 38.401 & 38.470) Stage 2 for PTP-PTM Switching Nokia, Nokia Shanghai Bell
25. R3-211660 (TP for 38.401) MBS F1, E1 Bearer Management Nokia, Nokia Shanghai Bell
26. R3-211661 (TP for 38.415) Seamless Mobility between two MBS Supporting Nodes Nokia, Nokia Shanghai Bell
27. R3-211662 (TP for 38.300) MBS Stage 2 for Mobility Management Nokia, Nokia Shanghai Bell
28. R3-211663 Realization of Data Forwarding to minimize packet loss Nokia, Nokia Shanghai Bell
29. R3-211751 NR Multicast Session Management Procedure Qualcomm Incorporated
30. R3-211752 Data forwarding in multicast handover Qualcomm Incorporated
31. R3-211753 MBS Session Context Transfer for mobility and SFN Qualcomm Incorporated
32. R3-211866 Discussion on dynamic change between PTM and PTP CATT
33. R3-211867 Discussion on multicast context establishment during Xn-based handover CATT
34. R3-211868 Possible solutions on PDCP sync while keeping MRB mapping flexible CATT
35. R3-211869 Draft LS on aligning MRB PDCP Count among multiple gNBs CATT
36. R3-211870 TP on TS 38.300 on aligning MRB PDCP Count among multiple gNBs CATT
37. R3-211872 MBS reception of Idle and In-active UEs CATT
38. R3-211873 Further Consideration on MBS context management over F1 and E1 CATT
39. R3-211874 TP for 38.463 on MBS Bearer Management for broadcast at E1 interface CATT
40. R3-211875 TP for 38.473 on MBS Context Management for Broadcast at F1 interface CATT
41. R3-211876 TP for 38.413 on session management for broadcast service CATT,CBN, Huawei
42. R3-211877 Discussion on MBS session management for multicast CATT
43. R3-211971 TP for MBS BLCR for 38.413-Session management for MBS over NG Samsung
44. R3-211972 Coordinated assignment of PDCP SN Samsung
45. R3-211973 Data forwarding for mobility between MBS supporting nodes Samsung
46. R3-211974 TP for TS38.473 BL: Introduction of NR MBS Samsung
47. R3-211975 TP for TS38.463 BL: Dynamic Change Between PTP and PTM Samsung
48. R3-212092 Discussion on the current status in SA2 and RAN2 Ericsson
49. R3-212093 [DRAFT] Reply LS on on 5MBS progress and issues to address Ericsson
50. R3-212101 [TP for BL CR for 38.300 and TS 38.410] Session Management over NG and its application on Xn Ericsson
51. R3-212102 [TP for BL CR for 38.413 and TS 38.423] on MBS Session Management Ericsson
52. R3-212103 On PTP and PTM Switch Ericsson
53. R3-212104 [TP for BL CR for 38.473 and TS 38.463] On F1 and E1 protocol aspects for NR MBS Ericsson
54. R3-212105 On Support of mobility between gNBs supporting MBS Ericsson
55. R3-212106 [TP for BL CR TS 38.300] HO between supporting gNBs Ericsson
56. R3-212107 [TP for BL CR TS 38.401 and TS 38.463] HO between supporting gNBs Ericsson
57. R3-212108 On support of mobility between MBS supporting and non-MBS supporting gNBs Ericsson
58. R3-212181 Multicast Session Management over NG Lenovo, Motorola Mobility
59. R3-212182 (TP for BL CR 38.401) Dynamic switch between PTP and PTM Lenovo, Motorola Mobility
60. R3-212183 Bearer Management over F1/E1 for Multicast Session Lenovo, Motorola Mobility
61. R3-212184 User Plane Protocol Aspects of F1-U for NR MBS Lenovo, Motorola Mobility
62. R3-212185 MBS Service Area Management Lenovo, Motorola Mobility
63. R3-212186 Enhancements to support loss-less handover for NR multicast Lenovo, Motorola Mobility
64. R3-212187 Mobility between MBS Supporting and non-Supporting nodes Lenovo, Motorola Mobility
65. R3-212385 Discussion on a group notification towards NG-RAN supporting MBS LG Electronics
66. R3-212386 Issues on dynamic change between PTP and PTM LG Electronics
67. R3-212388 Handling on Mobility between MBS Supporting Nodes LG Electronics
68. R3-212421 Updated Rel-17 NR MBS work plan Huawei, CMCC
69. R3-212422 Discussion about LSs on 5MBS progress and issues to address Huawei
70. R3-212423 [DRAFT] Reply LS on 5MBS progress and issues to address Huawei
71. R3-212424 (TP to TS 38.410 BL CRs) Multicast Session Management Huawei, CBN
72. R3-212425 (TP to TS 38.413 BL CRs) Multicast Session Management Huawei, CBN
73. R3-212426 (TP to TS 38.401 BL CR) Decision on PTP and PTM Huawei, CBN
74. R3-212427 (TP to TS 38.300 BL CR) Mobility between MBS supporting nodes Huawei, CBN, CMCC
75. R3-212428 (TP to TS 38.401 BL CR) Mobility between MBS Supporting Nodes Huawei, CBN
76. R3-212429 (TP to TS38.300 BL CR) Consideration on DL PDCP Synchronization Huawei, CBN, China Unicom, CMCC
77. R3-212430 (TP to TS38.300 BL CR) Data forwarding between MBS supporting nodes Huawei, CBN, China Unicom, China Telecom
78. R3-212431 (TP to TS38.300 BL CR) Mobility between MBS supporting and non-supporting nodes Huawei, CBN, China Telecom, China Unicom
79. R3-212436 (TP to TS 38.401 BL CR) Bearer management over F1 and E1 Huawei, CBN
80. R3-212437 (TP to TS 38.470 and 38.460 BL CRs) Bearer management over F1 and E1 interfaces Huawei, CBN
81. R3-212438 (TP to TS 38.415 BL CR) Support of NR MBS data transmission Huawei, CBN, China Telecom, China Unicom
82. R3-212439 (TP to TS 38.300 BL CR) Service reception continuity for broadcast service Huawei, CBN
83. R3-212479 Introduction of MBS CMCC
84. R3-212480 Discussion on SA2 reply LS on 5MBS progress and issues to address CMCC
85. R3-212481 [Draft]Reply LS to SA2 on 5MBS Progress and Issues to address CMCC
86. R3-212482 MBS Session management over NG CMCC
87. R3-212483 (TP to TS 38.410 ) MBS session management over NG CMCC
88. R3-212484 (TP to TS 38.300 ) MBS session management over NG CMCC, Huawei
89. R3-212485 Discussion on dynamic change between PTP and PTM CMCC
90. R3-212486 Discussion on MBS Bearer Management CMCC
91. R3-212487 Discussion on Mobility with Service Continuity CMCC
92. R3-212488 Discussion on Mobility from non-MBS-supporting node to MBS-supporting node CMCC
93. R3-212489 Discussion on Mobility from MBS-supporting node to non-MBS-supporting node CMCC
94. R3-212593 Effect of NR MBS related network planning on NG-RAN architecture Chengdu TD Tech, TD Tech
95. R3-212702 CB: # 97\_MBS\_General - Summary of email discussion Huawei - moderator
96. R3-212704 CB: # 100\_MBS\_NGsessMgmt - Summary of email discussion Ericsson - moderator
97. R3-212705 CB: # 101\_MBS\_PTP-PTMdynChg - Summary of email discussion Huawei - moderator
98. R3-212707 CB: # 43\_MBS\_ServiceArea - Summary of email discussion Lenovo - Moderator
99. R3-212708 CB: # 103\_MBS\_MobilitySupporting - Summary of email discussion Qualcomm - moderator
100. R3-212709 CB: # 104\_MBS\_MobilityNonSupporting - Summary of email discussion Nokia - moderator
101. R3-212710 CB: # 99\_MBS\_Others - Summary of email discussion Huawei - moderator
102. R3-212713 CB: # 50\_eNBarchEvo\_AP - Summary of email discussion Huawei - moderator
103. R3-212791 CB: # 102\_MBS\_F1-E1bearerMgmt - Summary of email discussion CATT - moderator
104. R3-212908 (TP for 38.300) Mobility with non-MBS supporting NG-RAN nodes Nokia, Nokia Shanghai Bell
105. R3-212982 Introduction of NR MBS Nokia, Nokia Shanghai Bell

 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