**3GPP TSG RAN WG1 #110bis-e R1-2210281**

e-Meeting, October 10th – 19th, 2022

Source: NTT DOCOMO, INC.

Title: Session Notes for R17 UE Features 1

Agenda Item: 8.16.1

**Document for:** **Discussion and Decision**

***8.16 Rel-17 UE features***

**8.16.1 UE features topics 1**

*For discussions on Rel-17 UE features for eIIoT & URLLC, RedCap, UE power saving, coverage enhancement, NB-IoT & eMTC, sidelink, MBS, 5G terrestrial broadcast, UL TX switching, SDT.*

[110bis-e-R17-UE-features-01] Email discussion on Rel-17 UE features topics 1 by October 19 – Hiroki (NTT DOCOMO)

* eIIoT & URLLC, RedCap, UE power saving, coverage enhancement, NB-IoT & eMTC, sidelink, MBS, 5G terrestrial broadcast, UL TX switching, SDT

R1-2210275 Summary#1 on UE features for enhanced IIoT and URLLC Moderator (NTT DOCOMO, INC.)

**Updated Proposal 2-1-1:**

The prerequisite FG for FG 25-3a is 25-3.

**Updated Proposal 2-1-2:**

The prerequisite FG for FG 25-3b is 25-3.

**Updated Proposal 2-2:**

For component 5 description of FG 25-6, “type 3 or” is kept and the bracket is removed.

**Proposal 2-4:**

* Add the following components to FG 25-12:
  + Component 2: Sensing to initiate a semi-static CO or transmit after a gap greater than 16us from any transmission burst within a UE-initiated CO
  + Component 3: Determination of COT initiator assumption based on rules for configured UL
  + Component 4: Validating COT initiator assumption indicated in UL scheduling DCI

**Updated Proposal 2-5:**

The prerequisite FG for FG 25-16 is 11-4.

**Updated Proposal 2-6:**

* The prerequisite FG for FG 25-18 is FG 6-6.

**Updated Proposal 2-7:**

* Add a new FG for support of PRS as spatial relation RS of SRS
  + The prerequisite FG is 25-19a
  + The type is per FS and applicable to FR2 only

R1-2210276 Summary#1 on UE features for NR coverage enhancement Moderator (NTT DOCOMO, INC.)

**Updated Proposal 2-1-2:**

Remove “after the events that violate power consistency and phase continuity” for the description of “Feature group” in FG 30-4g

**Updated Proposal 2-1-3:**

* Apply either one of following alternatives for the description of “Components” in FG 30-4g
  + Alt.1-1: Add “triggered by DCI or MAC CE” after “event(s)” and a note “Note: Events which are triggered by DCI or MAC CE, but regarded as semi-static events, e.g. frequency hopping, UL beam switching for multi-TRP operation, or other if defined, are excluded”
  + Alt.1-2: Add “triggered by DCI or MAC CE” after “event(s)” and a note “Note: Events which are triggered by DCI or MAC CE, but do not require UE capability to support of consistency/continuity for the event that are given in 38.214 subclause 6.1.7 are excluded from this feature”
  + Alt.1-3: Add “triggered by DCI or MAC-CE that violate power consistency and phase continuity, except events which are triggered by DCI or MAC CE but regarded as semi-static events, e.g. frequency hopping, UL beam switching for multi-TRP operation, or other if defined” after “event(s)”
  + Alt.1-4: Add “triggered by DCI or MAC-CE that violate power consistency and phase continuity, except events which are triggered by DCI or MAC CE but do not require UE capability to support of consistency/continuity for the event that are given in 38.214 subclause 6.1.7” after “event(s)”

**Updated Proposal 2-2-3:**

* Apply either one of following alternatives for the type of FGs 30-4a/b/c/d/g/h
  + Alt.1: Per band
  + Alt.2: Per band and per BC

**Updated Proposal 2-2-4:**

* Apply either one of following alternatives for the type of FGs 30-4e/f
  + Alt.1: different granularity from FGs 30-4a/b/c/d
    - Alt1-1: Per UE
    - Alt1-2: Per band
  + Alt.2: same granularity with FGs 30-4a/b/c/d

R1-2210277 Summary#1 on UE features for NR MBS Moderator (NTT DOCOMO, INC.)

**High priority proposal 2-1-1:**

* Components of FG 33-1 are revised as
  + Component 1: Support of group-common PDCCH/PDSCH for broadcast with CRC scrambled by MCCH-RNTI.
  + Component 2: Support of group-common PDCCH/PDSCH for broadcast with CRC scrambled by G-RNTI(s) for MTCH.
  + Component 6: Support of inter-slot TDM between unicast PDSCH and MCCH group-common PDSCH or MTCH group-common PDSCH, or between MCCH group-common PDSCH and MTCH group-common PDSCH, or among unicast PDSCH and MCCH group-common PDSCH and MTCH group-common PDSCH in different slots
  + Add a component “Only one G-RNTI is supported for broadcast reception”
  + Add a component “Support of FDMed MCCH and PBCH”
  + Add a component “Support of up to 64QAM for FR1/FR2”

**Updated proposal 2-3-1:**

* Components of FG 33-2 are revised as
  + Component 1: Support of group-common PDCCH/PDSCH for multicast with CRC scrambled by G-RNTI for PCell.
  + Component 5: Support of inter-slot TDM between ~~unicast PDSCH and~~ group-common PDSCH for multicast and other PDSCHs in different slots.

**High priority proposal 2-6-1:**

No additional component is added for FG 33-2i, i.e., FFS can be removed

**High priority proposal 2-7-1:**

Prerequisite FG for FG 33-2j is FG 33-2

**High priority proposal 2-8-3:**

The feature group name of FG 33-3-2 is revised as “FDM-ed unicast PDSCH and one group-common PDSCH for multicast”

**High priority proposal 2-9-2:**

Prerequisite FG for FG 33-3-3 is revised as “33-1 and/or 33-2”

**Updated proposal 2-9-3:**

* The reporting type of FG 33-3-3 is per FSPC

**High priority proposal 2-10-1:**

* Components of FG 33-3-3a are revised as “Support of FDM-ed Type-1 and Type-2 HARQ-ACK codebooks for multiplexing HARQ-ACK for unicast and HARQ-ACK for multicast on PUCCH or PUSCH”
* Components of FG 33-3-3b are revised as “Support of Mode 2 TDM-ed Type-1 and Type-2 HARQ-ACK codebook for multiplexing HARQ-ACK for unicast and HARQ-ACK for multicast on PUCCH or PUSCH”

**High priority proposal 2-13-1:**

Remove the bracket in components of FG 33-4, i.e., “Support of shared PUCCH resource configurations with unicast” is included in FG 33-4

**Updated proposal 2-15-1:**

The prerequisite FGs for FG 33-4-1 are FG 33-4 and 33-2f

**High priority proposal 2-15-2:**

Components of FG 33-4-1 are revised as “Support of DCI-based enabling/disabling NACK-only based HARQ-ACK feedback configured per G-RNTI by RRC signaling via DCI format 4\_2”

**High priority proposal 2-16-1:**

Feature group name of FG 33-5-1 is revised as “SPS group-common PDSCH for multicast for PCell”

**High priority proposal 2-16-2:**

* Introduce FGs for support of semi-persistent scheduling for multicast on SCell. [5]

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 33. NR\_MBS | 33-5-3 | SPS group-common PDSCH for multicast for Scell | 1. Support one SPS group-common PDSCH configuration for multicast for Scell.  2. Support {2, 4, 8} times semi-static slot-level repetition for SPS group-common PDSCH for Scell. | 33-5-1 | Yes | Per FSPC | N/A | N/A |  |  | Optional with capability signalling |
| 33. NR\_MBS | 33-5-4 | SPS group-common PDSCH for multicast for SCell | 1. Support up to 8 SPS group-common PDSCH configuration per CFR for multicast for Scell.  2. Support M>=1 activated SPS group-common PDSCH configurations per CFR for multicast for Scell.  3. The total number of SPS configurations for both multicast and unicast is no larger than 8 [per cell], and activated SPS group-common PDSCH configurations is no larger than M.  4. The total number of SPS configurations for both multicast and unicast in a cell group is no larger than 32. | 33-5-2 | Yes | Per FSPC | [No] | [No] |  | Candidate value set for M is {1, 2, …, 8} | Optional with capability signalling |

**High priority proposal 2-18-1:**

Components of FG 33-5-1b are revised as “Support of DCI-based enabling/disabling ACK/NACK based HARQ-ACK feedback configured per G-CS-RNTI for multicast by RRC signaling via DCI format 4\_2”.

**High priority proposal 2-18-2:**

Add FG 33-5-1i as a prerequisite FG for FG 33-5-1b

**High priority proposal 2-19-1:**

Remove the bracket in Components of FG 33-5-1d

**High priority proposal 2-19-2:**

Components of FG 33-5-1d are revised as “Support of PTP retransmission associated with CS-RNTI for SPS multicast on the cell same as multicast initial transmission”

**High priority proposal 2-22-1:**

Components of FG 33-5-1g are revised as “Support of DCI-based enabling/disabling NACK-only based HARQ-ACK feedback configured per G-CS-RNTI for multicast by RRC signaling via DCI format 4\_2”

**High priority proposal 2-22-2:**

Add FG 33-2f as a prerequisite FG for FG 33-5-1g

**High priority proposal 2-23-2:**

Prerequisite FG for FG 33-5-1i is FG 33-5-1

R1-2210278 Summary#1 on UE features for SL enh and RedCap Moderator (NTT DOCOMO, INC.)

[R1-2208461](file:///C:\3GPP%20work\RAN1\Docs\R1-2208461.zip) Remaining issues for UE features set 1 topics Huawei, HiSilicon

[R1-2208530](file:///C:\3GPP%20work\RAN1\Docs\R1-2208530.zip) Discussion on UE features for topics 1 ZTE

[R1-2208538](file:///C:\3GPP%20work\RAN1\Docs\R1-2208538.zip) UE features for R17 NR MBS Spreadtrum Communications

[R1-2208622](file:///C:\3GPP%20work\RAN1\Docs\R1-2208622.zip) Remaining issues on UE features for MBS, Coeverage enhancement and URLLC vivo

[R1-2208767](file:///C:\3GPP%20work\RAN1\Docs\R1-2208767.zip) Remaining issues on UE features for Rel-17 NR coverage enhancements China Telecom

[R1-2208868](file:///C:\3GPP%20work\RAN1\Docs\R1-2208868.zip) Discussion on UE features (Topic-1) OPPO

[R1-2209038](file:///C:\3GPP%20work\RAN1\Docs\R1-2209038.zip) Discussion on UE features for NR coverage enhancement Intel Corporation

[R1-2209319](file:///C:\3GPP%20work\RAN1\Docs\R1-2209319.zip) Maintenance on Rel.17 UE features for NR coverage enhancement CMCC

[R1-2209528](file:///C:\3GPP%20work\RAN1\Docs\R1-2209528.zip) Views on UE feature Topic 1 MediaTek Inc.

[R1-2209670](file:///C:\3GPP%20work\RAN1\Docs\R1-2209670.zip) Rel-17 UE features topics set #1 Ericsson

[R1-2209709](file:///C:\3GPP%20work\RAN1\Docs\R1-2209709.zip) UE features for Coverage Enhacement Samsung

[R1-2209886](file:///C:\3GPP%20work\RAN1\Docs\R1-2209886.zip) Discussion on remaining issues regarding Rel-17 RAN1 UE features topics 1 NTT DOCOMO, INC.

[R1-2209963](file:///C:\3GPP%20work\RAN1\Docs\R1-2209963.zip) Discussion on Rel-17 UE features topic 1 Qualcomm Incorporated

[R1-2210098](file:///C:\3GPP%20work\RAN1\Docs\R1-2210098.zip) Remaining issues for UE features topics 1 Nokia, Nokia Shanghai Bell