**3GPP TSG RAN WG1#103-e R1-200xxxx**

**e-Meeting, October 26th – November 13th, 2020**

**Agenda Item: 7.2.2**

**Source: Moderator (Lenovo)**

**Title: Draft Feature lead summary for NR-U DL Signals and Channels**

**Document for: Discussion, Decision**

# Classification of corrections by topics and issues

This document summarizes issues raised by documents submitted to RAN1#103-e on AI 7.2.2 within the scope of DL signals and channels.

The suggested minimum set of email discussion items is DL-B6+DL-D1 and DL-G1, additionally DL-Z1/-Z2/-Z3 in a separate thread outside of the limited budget.

## Topic DL-A: Search space

List of issues, proposals, and suggestions for handling in the email discussion phase.

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| Issue | Description | Reference Tdoc |
| *DL-A1* | *Search space group/set configuration* |  |
| *DL-A2* | *Switching timer* |  |
| *DL-A3* | *Processing time for switching* |  |
| *DL-A4* | *Default SS group* |  |
| *DL-A5* | *Search space set switching behaviour* | see Z3 |
| DL-A6 | Search space BD adjustments/dropping | R1-2008041, P3 [LG]:If a UE is provided with two groups of search space sets and configured with the number of monitored PDCCH candidates (or non-overlapped CCEs) for a slot more than blind decoding capability for the UE, the UE applies search space set dropping rule per search space set group for type3-PDCCH CSS and USS sets. |
| *DL-A7* | *Number of cell groups in searchSpaceSwitchingGroupList-r16* |  |

## Topic DL-B: DCI format 2\_0, COT indication, RB set indication

List of issues, proposals, and suggestions for handling.

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| Issue | Description | Reference Tdoc |
| DL-B1 | Special states/ indications in "available RB set indication" (e.g. no RB set information available yet) | R1-2007607, P1 [Huawei]:When UE detects a DCI format 2\_0 carrying available RB set indicator indicating all RB sets are unavailable (all ‘0’) including the RB set where the detected DCI format 2\_0 locates, UE will assume the current available RB set indication is not valid and continue monitoring PDCCH candidates on these RB sets if configured. The corresponding text proposal is in TP#1 in appendix.R1-2007607, P2 [Huawei]:When UE detects a DCI format 2\_0 carrying available RB set indicator indicating all RB sets are unavailable (all ‘0’) including the RB set where the detected DCI format 2\_0 locates, UE assumes the RB set where the detected DCI format 2\_0 locates remains available until the end of the indicated channel occupancy duration. The corresponding text proposal is in TP#2 in the appendix. |
| *DL-B2* | *Switch CAT4 LBT to CAT2 LBT* |  |
| *DL-B3* | *Indication of "out of COT"* |  |
| *DL-B4* | *Reference subcarrier spacing for COT duration indication* |  |
| DL-B5 | SFI (+other fields) presence configurability in DCI format 2\_0 | R1-2008041, P4 [LG]:RB set indicator field for a serving cell in DCI format 2\_0 may not be configured only if the serving cell is configured with a single RB set or no guard band and if DCI format 2\_0 for the serving cell is configured to be monitored on the serving cell. |
| DL-B6 | COT duration indication/ determination | R1-2007607, P3 [Huawei]:In FBE, UE can obtain COT duration from SFI or COT duration indicator in DCI format 2\_0. UE can also derive COT duration acquired by gNB from the FFP configuration if neither SFI nor COT duration indicator is configured. The corresponding text proposal is in TP#2 in the appendix.R1-2008126, P1 [Samsung]:Adopt the following TP for TS 38.213.

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| ============================= Start of TP for TS 38.213 =============================11.1.1 UE procedure for determining slot format============================ Unchanged Texts Omitted =============================For operation with shared spectrum channel access, if a UE is configured by higher layers to receive a CSI-RS and the UE is provided *CO-DurationPerCell-r16*, for a set of symbols of a slot that are indicated as downlink or flexible by *tdd-UL-DL-ConfigurationCommon* or *tdd*-*UL-DL-ConfigurationDedicated*, or when *tdd-UL-DL-ConfigurationCommon* and *tdd*-*UL-DL-ConfigurationDedicated* are not provided, the UE cancels the CSI-RS reception in the set of symbols of the slot that are not within the indicated remaining channel occupancy duration. If the UE detects a DCI format 2\_0 providing a downlink or flexible slot format for the set of symbols of the slot that are not within the indicated remaining channel occupancy duration, the UE shall ignore the slot format for the set of symbols of the slot.============================ Unchanged Texts Omitted ========================================================== End of TP for TS 38.213 ============================= |

R1-2008126, P2/P3 [Samsung]:For FBE, a UE assumes gNB channel occupancy time equals to FFP as long as the UE detects any DL signals within a FFP. Adopt the following TP for TS 37.213.

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| =========================== Start of TP for TS 37.213 ===============================4.3 Channel access procedures for semi-static channel occupancyChannel assess procedures based on semi-static channel occupancy as described in this Clause, are intended for environments where the absence of other technologies is guaranteed e.g., by level of regulations, private premises policies, etc. If a gNB provides UE(s) with higher layer parameters *ChannelAccessMode-r16 ='semistatic'* by SIB1 or dedicated configuration, a periodic channel occupancy can be initiated by the gNB every within every two consecutive radio frames, starting from the even indexed radio frame at with a maximum channel occupancy time , where *period* in , is a higher layer parameter provided in *SemiStaticChannelAccessConfig* and *.*If a UE detects a DL transmission burst(s) in a Tx period, the UE assumes the channel occupancy time is within the Tx period. ============================ End of TP for TS 37.213 ============================== |

R1-2008204, P1 [Nokia]:Adopt the TP for 38.213 sub-clause 11.1.1 to reflect RAN1#102 agreements

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| TP for TS38.21311.1.1 UE procedure for determining slot format<unchanged text omitted>a location of an available RB set indicator field in DCI format 2\_0 that is - one bit, if *intraCellGuardBandDL-r16* for the serving cell indicates no intra-cell guard-bands are configured, where a value of '1' indicates that the serving cell is available for receptions, a value of '0' indicates that the serving cell is not available for receptions, by *availableRB-SetPerCell-r16*, and the serving cell remains available or unavailable for reception until the end of the indicated channel occupancy duration, if provided, otherwise, until the end ofthe 95 percent of remaining channel occupancy period provided by *semiStaticChannelAccessConfig-r16*.- a bitmap having a one-to-one mapping with the RB sets [6, TS 38.214] of the serving cell, if *intraCellGuardBandDL-r16* for the serving cell indicates intra-cell guard-bands are configured, where the bitmap includes bits and is the number of RB sets in the serving cell, a value of '1' indicates that an RB set is available for receptions, a value of '0' indicates that an RB set is not available for receptions, by *availableRB-SetPerCell-r16* and a RB set remains available or unavailable for receptions until the end of the indicated channel occupancy duration, if provided, otherwise, until the end ofthe 95 percent of remaining channel occupancy period provided by *semiStaticChannelAccessConfig-r16*.* <unchanged text omitted>
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R1-2008384, P1 [Sharp]If neither SFI-index field nor CO duration field is configured, COT for FBE (i.e. COT defined in Clause 4.3 of TS37.213) should be considered as being within “indicated channel occupancy duration” if any DL burst is detected in the COT. Adopt Text proposal #1.

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| **Text proposal #1**--------- beginning of text proposal for TS 38.213 11.1 Slot configuration**<omitted>**If a UE is provided *ChannelAccessMode-r16 ='dynamic'* and is provided *availableRB-SetsToAddModList-r16* and *availableRB-SetsToRelease-r16*, the UE expects to be provided *co-DurationsPerCell ToAddModList-r16* and *co-DurationsPerCellToReleaseList-r16* and/or *slotFormatCombToAddModList* and *slotFormatCombToReleaseList*.If neither *CO-DurationPerCell-r16* nor *slotFormatCombinationId* is provided and if *ChannelAccessMode-r16* = *semistatic* is provided, the procedures in Clause 11.1.1 apply with assuming a channel occupancy time as being indicated as the remaining channel occupancy duration if a DL transmission burst(s) is detected within the channel occupancy time.**<omitted>** |

R1-2008602, P1-2 [Qualcomm]:When COT duration is not explicitly configured for a semi-static channel access system, the UE assumes the COT ends at the beginning of the idle period in the same fixed frame period.If COT duration is explicitly configured, UE does not expect the COT duration to indicate the COT ends later than the beginning of the idle period in the same fixed frame period that the COT duration information is detected.

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| =====================38.213 11.1.1=================---------unchanged text omitted------------------* a location of a channel occupancy duration field in DCI format 2\_0, by *CO-DurationPerCell-r16*, that indicates a remaining channel occupancy duration for the serving cell starting from a first symbol of a slot where the UE detects the DCI format 2\_0 by providing a value from *CO-DurationList-r16*. The channel occupancy duration field includes bits, where is the number of values provided by *CO-DurationList-r16*. If *CO-DurationPerCell-r16* is not provided, the remaining channel occupancy duration for the serving cell is a number of slots, starting from the slot where the UE detects the DCI format 2\_0, that the SFI-index field value provides corresponding slot formats
	+ If a gNB provides UE(s) with higher layer parameters *ChannelAccessMode-r16 ='semistatic'*, and *CO-DurationPerCell-r16* is not configured, the UE assumes the COT duration end at before the start of the next periodic channel occupancy starting position [4.3 of 37.213].
	+ If a gNB provides UE(s) with higher layer parameters *ChannelAccessMode-r16 ='semistatic'*, and *CO-DurationPerCell-r16* is configured, the UE does not expect the COT duration to end later than before the start of the next periodic channel occupancy starting position [4.3 of 37.213].

---------unchanged text omitted------------------ |

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| *DL-B7* | *Channel occupancy in FBE (semi-static channel access)* | Merged with B6 |
| *DL-B8* | *Available RB sets configuration* |  |
| *DL-B9* | *UE behaviour outside COT duration* |  |
| *DL-B10* | *SFI length configuration* |  |
| *DL-B11* | *General Slot Format determination and corresponding UE behaviour* |  |

## Topic DL-C: PDSCH

List of issues, proposals, and suggestions for handling.

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| Issue | Description | Reference Tdoc |
| *DL-C1* | *PDSCH mapping on intra cell guard band* |  |
| *DL-C2* | *SPS PDSCH presence/ dropping* |  |
| *DL-C3* | *FDRA interpretation with DCI 1\_0 in CSS* |  |

## Topic DL-D: CSI-RS

List of issues, proposals, and suggestions for handling.

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| Issue | Description | Reference Tdoc |
| DL-D1 | CSI-RS transmission power, measurements, validity/ presence of periodic/semi-persistent CSI-RS | R1-2008204, P4 [Nokia]:Adopt the following clarification for TS38.213 for sub-clause 11.1.1

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| For a set of symbols of a slot indicated to a UE as flexible by *tdd-UL-DL-ConfigurationCommon* and *tdd-UL-DL-ConfigurationDedicated* if provided, or when *tdd-UL-DL-ConfigurationCommon* and *tdd-UL-DL-ConfigurationDedicated* are not provided to the UE, and if the UE detects a DCI format 2\_0 providing a format for the slot using a slot format value other than 255 - ….- if the UE is configured by higher layers to receive PDSCH or CSI-RS in the set of symbols of the slot, the UE receives the PDSCH or the CSI-RS in the set of symbols of the slot only if an SFI-index field value in DCI format 2\_0 indicates the set of symbols of the slot as downlink and, if applicable, the set of symbols is within indicated remaining channel occupancy.  |

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| *DL-D2* | *CSI-RS for tracking are confined to RB set* |  |

## Topic DL-E: DMRS for PDSCH mapping type B

List of issues, proposals, and suggestions for handling.

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| Issue | Description | Reference Tdoc |
| *DL-E1* | *Shifting of DMRS, DMRS position* |  |

## Topic DL-F: SSB transmission power

List of issues, proposals, and suggestions for handling.

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| Issue | Description | Reference Tdoc |
| *DL-F1* | *SSB transmission power for SSB-based RRM measurements* |  |

## Topic DL-G: CSI Reports

List of issues, proposals, and suggestions for handling.

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| Issue | Description | Reference Tdoc |
| DL-G1 | UE behaviour for deactivation of semi-persistent CSI-RS reporting | The following options had been discussed in RAN1 #102-e (cf. R1-2005220, R1-2007260):**Option 1**If UE cannot transmit HARQ-ACK on MAC-CE deactivation due to UL CCA failure, UE continues to be in its previous state, i.e., it should measure and report L1-RSRP until it successfully transmits HARQ-ACK **Option 1bis**If UE cannot transmit HARQ-ACK on MAC-CE deactivation due to UL CCA failure, UE continues to be in its previous state, however it is up to UE implementation whether it continues measure and report L1-RSRP or report stale L1-RSRP until it successfully transmits HARQ-ACK**Option 2**For semi-persistent CSI reporting with PUCCH, if UE cannot transmit HARQ-ACK on the MAC CE deactivation due to the UL LBT failures, UE continues the L1-RSRP measurements but delay the L1-RSRP reporting. If UE does not receive deactivation command during the delay period, UE restarts to transmit L1-RSRP reporting. **Option 3**Delay the L1-RSRP reporting when the HARQ feedback cannot be transmitted after receiving the MAC CE deactivation command. A time limit shall be defined when the L1-RSRP reporting is delayed. When exceeding the time limits, UE shall abandon the stored measurement results, where the time limit is FFS. The UE shall also abandon the measurement results when the HARQ feedback is retransmitted for the deactivation command**Option 4**For semi-persistent CSI reporting with PUCCH, if UE cannot transmit HARQ-ACK on the MAC CE deactivation due to the UL LBT failure, the UE performs deactivation at the original MAC action time.R1-2007607, O2 [Huawei]:All three options can solve the ambiguity issue between gNB and UE on the CSI-RS-based measurement and reporting. Option 1 has least standard impact from Rel-15.R1-2007979, P2 [Ericsson]:Support Option 4 and send LS reply to RAN4R1-2008204, P5 [Nokia]:To enable gNB to re-send MAC-CE in case of PUCCH decoding failure or LBT failure occurs, prolong the MAC-CE processing delay from 3ms to X ms (FFS: X) |

# Capturing earlier agreements and spec alignment

The following issues have been identified as being agreed earlier, but having not been fully or correctly captured in the specs so far. It is suggested to discuss or reflect related proposals in the TP stage of RAN1#102-e.

Note that the numbering here is not consistent with the numbering of earlier meetings.

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| Issue | Description | Reference Tdoc |
| DL-Z1 | CSI-RS measurements and averaging | R1-2008041, P1 [LG]:Adopt the following text proposal in TS 38.213 section 11.1.

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| For operation with shared spectrum channel access, if a UE is configured by higher layers to receive a CSI-RS and the UE is provided *CO-DurationPerCell-r16*, for a set of symbols of a slot that are indicated as downlink or flexible by *tdd-UL-DL-ConfigurationCommon* or *tdd*-*UL-DL-ConfigurationDedicated*, or when *tdd-UL-DL-ConfigurationCommon* and *tdd*-*UL-DL-ConfigurationDedicated* are not provided, the UE cancels the CSI-RS reception in the set of symbols of the slot that are not within the indicated remaining channel occupancy duration. If the UE detects a DCI format 2\_0 providing a downlink or flexible slot format for the set of symbols of the slot that are not within the indicated remaining channel occupancy duration, the UE shall ignore the slot format for the set of symbols of the slot. |

R1-2008041, P2 [LG]:Adopt the following text proposal in TS 38.214 section 5.2.1.4.2.

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| For operation with shared spectrum channel access, if the UE is configured with a *CSI-ReportConfig* with higher layer parameter *reportQuantity* set to 'cri-RI-PMI-CQI ', 'cri-RI-i1', 'cri-RI-i1-CQI', 'cri-RI-CQI' or 'cri-RI-LI-PMI-CQI', the UE shall derive:- the CSI parameters without averaging instances of any *nzp-CSI-RSResource* in the corresponding *nzp-CSI-RS-ResourceSet* for channel measurement or interference measurement located in different DL transmissions, where- the *nzp-CSI-RSResource* is not in the same channel occupancy durations indicated by DCI format 2\_0 if the UE is provided at least one of *SlotFormatIndicator* or *CO-DurationList-r16*; or- the set of symbols for PDSCH(s) and/or aperiodic CSI-RS(s) indicated by DCI formats, including indicating PDCCH(s), overlapped with *nzp-CSI-RSResource* is not continuous if the UE is provided *CSI-RS-ValidationWith-DCI-r16*, is not provided *CO-DurationPerCell-r16*, and is not provided *SlotFormatIndicator*- the interference measurements for computing CSI value based on periodic/semi-persistent CSI-IM measured only in OFDM symbol(s) that fulfill the same conditions under which the UE is expected to receive periodic/semi-persistent CSI-RS as described in Clause 11.1 and Clause 11.1.1 of [6, TS 38.213]. |

R1-2008204, P3 [Nokia]:Adopt the following TP for 38.214 sub-clause 5.2.1.4.2 to reflect RAN1#102 agreements

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| For operation with shared spectrum channel access, if the UE is configured with a *CSI-ReportConfig* with higher layer parameter *reportQuantity* set to 'cri-RI-PMI-CQI ', 'cri-RI-i1', 'cri-RI-i1-CQI', 'cri-RI-CQI' or 'cri-RI-LI-PMI-CQI', the UE shall derive:- the CSI parameters without averaging instances of any *nzp-CSI-RSResource* in the corresponding *nzp-CSI-RS-ResourceSet* for channel measurement that do not occur ~~located in different DL transmission bursts (defined in [16, TS 37.213])~~.- within remaining channel occupancy, or- in a time duration for which all OFDM symbols are occupied by a set of PDSCH and/or CSI-RS(s) that are scheduled/triggered to the UE including the associated PDCCH(s).- the interference measurements for computing CSI value based on periodic/semi-persistent CSI-IM measured only in OFDM symbol(s) that fulfill the same conditions under which the UE is expected to receive periodic/semi-persistent CSI-RS as described in Clause 11.1 and Clause 11.1.1 of [6, TS 38.213]. |

R1-2008664, P1 [vivo]:RAN1 adopts TP1 for section 5.2.1.4.2 of TS 38.214.

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| ----------------------------------------TP1: Start TP for Section 5.2.1.4.2 of TS 38.214 -------------------------------------For operation with shared spectrum channel access, if the UE is configured with a *CSI-ReportConfig* with higher layer parameter *reportQuantity* set to 'cri-RI-PMI-CQI ', 'cri-RI-i1', 'cri-RI-i1-CQI', 'cri-RI-CQI' or 'cri-RI-LI-PMI-CQI', the UE shall derive:- the CSI parameters without averaging instances of any periodic/semi-persistent *nzp-CSI-RSResource* in the corresponding *nzp-CSI-RS-ResourceSet* for channel measurement located in different DL transmissions ~~bursts (defined in [16, TS 37.213]).~~, where- the *nzp-CSI-RS Resource* is not in the same channel occupancy durations indicated by DCI format 2\_0 if the UE is provided at least one of *SlotFormatCombinationsPerCell* or *CO-DurationList-r16*; or- the set of symbols for PDSCH(s) and/or aperiodic CSI-RS(s) indicated by DCI formats overlapped with *nzp-CSI-RSResource* is not continuous if the UE is provided *CSI-RS-ValidationWith-DCI-r16*, is not provided *CO-DurationPerCell-r16*, and is not provided *SlotFormatCombinationsPerCell*.- the interference measurements for computing CSI value - based on periodic/semi-persistent CSI-IM measured only in OFDM symbol(s) that fulfill the same conditions under which the UE is expected to receive periodic/semi-persistent CSI-RS as described in Clause 11.1 and Clause 11.1.1 of [6, TS 38.213]; and- without averaging instances of any periodic/semi-persistent *CSI-IM-Resource* in the corresponding *CSI-IM-ResourceSet* for interference measurement located in different DL transmissions, where- the *CSI-IM-Resource* is not in the same channel occupancy durations indicated by DCI format 2\_0 if the UE is provided at least one of *SlotFormatCombinationsPerCell* or *CO-DurationList-r16*; or- the set of symbols for PDSCH(s) and/or aperiodic CSI-RS(s) indicated by DCI formats overlapped with *CSI-IM-Resource* is not continuous if the UE is provided *CSI-RS-ValidationWith-DCI-r16*, is not provided *CO-DurationPerCell-r16*, and is not provided *SlotFormatCombinationsPerCell*.----------------------------------------TP1: End TP for Section 5.2.1.4.2 of TS 38.214 -------------------------------------- |

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| DL-Z2 | Introduction of new PDSCH Mapping Type B Durations | R1-2007979, P1 [Ericsson]: Adopt TP#1 to correct 38.214 Section 5.1.6.2 to add missing procedure text related to UE assumptions on default DMRS positions for the case of PDSCH scheduled by DCI 1\_0 for the new Type B PDSCH mapping lengths {3,5,6,8,9,10,11,12,13}.

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| ----------------------------------------- Text Proposal (TP#1) for 38.214, Section 5.1.6.2 -----------------------------------\*\*\* Unchanged text omitted \*\*\*When receiving PDSCH scheduled by DCI format 1\_0 or receiving PDSCH before dedicated higher layer configuration of any of the parameters *dmrs-AdditionalPosition*, *maxLength* and *dmrs-Type,* the UE shall assume that the PDSCH is not present in any symbol carrying DM-RS except for PDSCH with allocation duration of 2 symbols with PDSCH mapping type B (described in clause 7.4.1.1.2 of [4, TS 38.211]), and a single symbol front-loaded DM-RS of configuration type 1 on DM-RS port 1000 is transmitted, and that all the remaining orthogonal antenna ports are not associated with transmission of PDSCH to another UE and in addition- For PDSCH with mapping type A and type B, the UE shall assume *dmrs-AdditionalPosition*='pos2' and up to two additional single-symbol DM-RS present in a slot according to the PDSCH duration indicated in the DCI as defined in Clause 7.4.1.1 of [4, TS 38.211], and~~- For PDSCH with allocation duration of 7 symbols for normal CP or 6 symbols for extended CP with mapping type B, the UE shall assume one additional single-symbol DM-RS present in the 5th or 6~~~~th~~ ~~symbol when the front-loaded DM-RS symbol is in the 1~~~~st~~ ~~or 2~~~~nd~~ ~~symbol respectively of the PDSCH allocation duration, otherwise the UE shall assume that the additional DM-RS symbol is not present, and~~~~- For PDSCH with allocation duration of 4 symbols with mapping type B, the UE shall assume that no additional DM-RS are present, and~~ - For PDSCH with allocation duration of 2 symbols with mapping type B, ~~the UE shall assume that no additional DM-RS are present, and~~ the UE shall assume that the PDSCH is present in the symbol carrying DM-RS.\*\*\* Unchanged text omitted \*\*\*----------------------------------------------------------- End Text Proposal ----------------------------------------------------------- |

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| DL-Z3 | Search space set switching behaviour | R1-2008204, P2 [Nokia]:Adopt TP for 38.213 sub-clause 10.4 to follow Interpretation #1 for cross-carrier scheduling

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| If a UE is not provided *SearchSpaceSwitchTrigger-r16* for a serving cell,- if the UE detects a DCI format by monitoring PDCCH according to a search space set with group index 0, the UE starts monitoring PDCCH according to search space sets with group index 1, and stops monitoring PDCCH according to search space sets with group index 0, ~~on~~for the serving cell at a first slot that is at least symbols after the last symbol of the PDCCH with the DCI format, the UE sets the timer value to the value provided by *searchSpaceSwitchingTimer-r16* if the UE detects a DCI format by monitoring PDCCH in any search space set- if the UE monitors PDCCH ~~on~~for the~~a~~ serving cell according to search space sets with group index 1, the UE starts monitoring PDCCH on the serving cell according to search space sets with group index 0, and stops monitoring PDCCH according to search space sets with group index 1, ~~on~~for the serving cell at the beginning of the first slot that is at least symbols after a slot where the timer expires or, if the UE is provided a search space set to monitor PDCCH for detecting a DCI format 2\_0, after a last symbol of a remaining channel occupancy duration for the serving cell that is indicated by DCI format 2\_0 |

R1-2008247, P1 [OPPO]:Adopt the TP to avoid the inconsistency in TS38.213 for the cell group configured cases.

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| ----------------TP1 for TS 38.213 section 11.1.1--------------------11.1.1 UE procedure for determining slot format<omit unrelated text>- a location of a search space set group switching flag field in DCI format 2\_0, by *SearchSpaceSwitchTrigger-r16*, that indicates a group from two groups of search space sets for PDCCH monitoring for scheduling on the serving cell or the set of serving cells, provided by *CellGroupsForSwitching-r16*, as described in Clause 10.4.----------------------END of the TP1------------------------------------------- |

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# List of submitted TDocs

The following TDocs have been used to compile above summary:

R1-2007607 Maintenance on DL signals and channels Huawei, HiSilicon

R1-2007979 DL Signals and Channels Ericsson

R1-2008041 Remaining issues of DL signals and channels for NR-U LG Electronics

R1-2008126 Remaining issues on DL signals and channels Samsung

R1-2008204 Remaining issues on DL signals and channels Nokia, Nokia Shanghai Bell

R1-2008247 Discussion on the remaining issues of DL signals and channels OPPO

R1-2008384 Remaining issues on DL signals/channels for NR-U Sharp

R1-2008602 TP for DL signals and channels for NR-U Qualcomm Incorporated

R1-2008664 TPs on DL signals and channels vivo