**3GPP TSG RAN WG1 #116bis R1-2403680**

**Changsha, China, April 15th – 19th, 2024**

**Source: Moderator (Fujitsu)**

**Title: FL summary 3 of Maintenance on Further NR Mobility Enhancements**

**Agenda Item: 8.4**

**Document for: Information**

# Introduction

This contribution is a Feature Lead (FL) summary for the CRs for mobility enhancements under A.I. 8.4.

# Plan for GTW/Online discussion





##### [Proposals for Monday Online]

**FL proposal 1-3v1**

For the power allocation prioritization issue which has already captured in clause 21 of TS38.213,

* TP in R1-2402061 and R1-2403074 are agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, ZTE, CATT, Huawei
	+ No: Samsung, vivo, Lenovo (the description in clause 21 of TS38.213 is sufficient)

## TP from ZTE (R1-2402061) for TS38.213

## 7.5 Prioritizations for transmission power reductions

For single cell operation with two uplink carriers or for operation with carrier aggregation or for operation with a candidate cell configured by *LTM-Config*, if a total UE transmit power for PUSCH or PUCCH or PRACH or SRS transmissions on serving cells or on a candidate cell, if any, in a frequency range in a respective transmission occasion would exceed , where is the linear value of in transmission occasion as defined in [8-1, TS 38.101-1] for FR1 and [8-2, TS 38.101-2] for FR2, the UE allocates power to PUSCH/PUCCH/PRACH/SRS transmissions according to the following priority order (in descending order) so that the total UE transmit power for transmissions on serving cells or on a candidate cell, if any, in the frequency range is smaller than or equal to for that frequency range in every symbol of transmission occasion . If the UE transmits SRS on multiple SRS resources according the *XYZ* [6, TS 38.214], the UE allocates power so that all REs of the SRS transmission have same power.

For the purpose of power allocation in this clause, if a UE is provided *uci-MuxWithDiffPrio* and the UE multiplexes HARQ-ACK information in a PUSCH, a priority index of the PUSCH is the larger of (a) the priority index of the PUSCH according to clause 9 and (b) the larger priority index of the HARQ-ACK information. When determining a total transmit power for serving cells or a candidate cell, if any, as described in Clause 21 in a frequency range in a symbol of transmission occasion , the UE does not include power for transmissions starting after the symbol of transmission occasion . The total UE transmit power in a symbol of a slot is defined as the sum of the linear values of UE transmit powers for PUSCH, PUCCH, PRACH, and SRS in the symbol of the slot.

**FL proposal 1-5v1**

For the timing assumption between source and target cells described in the RAN4 LS R1-2401955,

* TP in R1-2402225 is agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, Spreadtrum, CATT, Lenovo, ASUSTek
	+ No: Samsung, ZTE, Huawei (terminology “Handover” includes LTM)

#### 6.3.3.2 Mapping to physical resources

For ~~handover~~ RRC-triggered handover and LTM cell switch purposes to a target cell in paired or unpaired spectrum where the target cell uses , the UE may assume the absolute value of the time difference between radio frame in the current cell and radio frame in the target cell is less than if the association pattern period in clause 8.1 of [5, TS 38.213] is not equal to 10 ms.

For inter frequency ~~handover~~ RRC-triggered handover and LTM cell switch purposes where the source cell is either in paired or unpaired spectrum and the target cell is in unpaired spectrum and uses , the UE may assume the absolute value of the time difference between radio frame in the current cell and radio frame in the target cell is less than

**FL proposal 1-7v1**

For the TCI state applied for CORESET 0,

* TP in R1-2402987 is agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, Samsung, vivo, CATT, Lenovo
		- Huawei: How about RACH-based LTM?
	+ No: ZTE (rule defined in clause 21 of TS38.213 is sufficient)

TP for TS38.213 in R1-240298

10.1 UE procedure for determining physical downlink control channel assignment

- else, the UE assumes that a DM-RS antenna port for PDCCH receptions in the CORESET is quasi co-located with

- the one or more DL RS configured by a TCI state, where the TCI state is indicated by a MAC CE activation command for the CORESET, if any, or

- the one or more DL RS configured by a candidate TCI state, where the candidate TCI state is indicated by an LTM cell switch command that triggers a RACH-less and RACH-based LTM cell switch, if any, or

- a SS/PBCH block the UE identified during a most recent random access procedure not initiated by a PDCCH order that triggers a contention-free random access procedure, if no MAC CE activation command indicating a TCI state for the CORESET is received after the most recent random access procedure, or a SS/PBCH block the UE identified during a most recent configured grant PUSCH transmission as described in clause 19.

**FL proposal 1-8v1**

For the TCI state applied after LTM cell switch,

* TP in R1-2402989 is agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, vivo, CATT, Lenovo, Huawei
	+ No: Samsung, ZTE (rule defined n clause 21 of TS38.213 is sufficient)

TP for TR38.214 in R1-2402989

5.1.5 Antenna ports quasi co-location

After a UE receives an initial higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* and before application of an indicated TCI state from the configured TCI states:

- The UE assumes that DM-RS of PDSCH and DM-RS of PDCCH and the CSI-RS applying the indicated TCI state are quasi co-located with the reference signal(s) in the *CandidateTCI-State* indicated in the LTM cell switch command [10, 38.321] if applicable, otherwise

- The UE assumes that DM-RS of PDSCH and DM-RS of PDCCH and the CSI-RS applying the indicated TCI state are quasi co-located with the SS/PBCH block the UE identified during the initial access procedure.

After a UE receives an initial higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or *ul-TCI-StateList* with more than one *TCI-UL-State* and before application of an indicated TCI state from the configured TCI states:

- The UE determines the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, from the *CandidateTCI-State* or *CandidateTCI-UL-State* indicated in the LTM cell switch command [10, 38.321] if applicable, otherwise

- The UE assumes that the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, is the same as that for a PUSCH transmission scheduled by a RAR UL grant or a MsgA PUSCH transmission during the initial access procedure.

<unchanged parts omitted>

**FL proposal 1-9v1**

For the PRACH collision handling for LTM,

* TP in R1-2403073 is agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, vivo, CATT, Lenovo, Huawei
	+ No:
		- Samsung, (If Msg1/Msg3/MsgA is UE initiated, UE’s own implementation can avoid overlap. If in response to network trigger, this can be avoided by network.)
		- ASUS (reflected in MAC spec)

TP for TS38.213 in R1-2403073

# 21 L1/L2-triggered mobility procedures

A UE can be provided configurations, by *EarlyUlSyncConfig*, for PRACH transmission parameters for each of the candidate cells. The UE can be triggered a PRACH transmission on a candidate cell by a PDCCH order that the UE receives on a serving cell and includes an indication of the candidate cell for the PRACH transmission [4, TS 38.212]. If the serving cell and the candidate cell operate in a same frequency range and the UE would have transmissions that overlap in time, or when a gap between a first or last symbol of a PRACH transmission to the candidate cell is less than 𝑁 symbols from a last or first symbol, respectively, of an UL transmission to the serving cell, where is defined in Clause 8.1, the UE

- drops the transmissions on the serving cell when the UE does not support transmissions that overlap in time or are separated by less than the gap on the serving cell and the candidate cell and the UL transmission to the serving cell is other than a RACH Msg 1, Msg A, or Msg 3 transmission.

- prioritizes power allocation to the PRACH transmission on the candidate cell in clause 7.5 when the UE supports transmissions that overlap in time or are separated by less than the gap, and a total UE transmit power in the frequency range would exceed

**FL proposal 1-10v1**

For the UL/SUL indicator in DCI format 1\_0 for LTM,

* TP in R1-2403331 is agreed in principle with the following change, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, Samsung, vivo, ZTE, CATT, Lenovo, ASUS
		- Huawei: Need to clarify if-otherwise relationship:

7.3.1.2.1 Format 1\_0

If the CRC of the DCI format 1\_0 is scrambled by C-RNTI and the "Frequency domain resource assignment" field are of all ones, the DCI format 1\_0 is for random access procedure initiated by a PDCCH order, with all remaining fields set as follows:

- Random Access Preamble index - 6 bits according to *ra-PreambleIndex* in Clause 5.1.2 of [8, TS38.321]

- UL/SUL indicator - 1 bit.

* If the Cell indicator field is absent or the Cell indicator field indicates serving cell, if the value of the "Random Access Preamble index" is not all zeros and if the UE is configured with *supplementaryUplink* in *ServingCellConfig* in the cell, this field indicates which UL carrier in the cell to transmit the PRACH according to Table 7.3.1.1.1-1;
* If the Cell indicator field indicates a candidate cell, if the value of the "Random Access Preamble index" is not all zeros and if the UE is configured with *ltm-EarlyUL-SyncConfigSUL* in *LTM-Candidate* for the candidate cell, this field indicates which UL carrier in the candidate cell to transmit the PRACH according to Table 7.3.1.1.1-1;
* Otherwise, this field is reserved

##### [Proposals for Wednesday Online]

**FL proposal 1-4v2**

* Agree the following TP to 38.213

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TP for 38.213 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

8.1 Random access preamble

Physical random access procedure for a UE is triggered upon request of a PRACH transmission by higher layers or by a PDCCH order or LTM Cell Switch Command MAC CE in clause 6.1.3.75 [11, TS 38.321] for a cell. A configuration by higher layers for a PRACH transmission includes the following:

- A configuration for PRACH transmission on the cell [4, TS 38.211].

- A preamble index, a preamble SCS, , a corresponding RA-RNTI when applicable [11, TS 38.321], and a PRACH resource for the cell.

- A number of preamble repetitions for the PRACH transmission if the UE would transmit the PRACH with repetitions.

~~A configuration by LTM Cell Switch Command MAC CE for a PRACH transmission includes the following:~~

~~- A Random Access Preamble index.~~

~~- A SS/PBCH index.~~

~~- A PRACH Mask index.~~

<Unchanged part is omitted>

For a PRACH transmission by a UE triggered by a PDCCH order or an LTM cell switch command MAC CE, the PRACH mask index field, if the value of the random access preamble index field is not zero, indicates the PRACH occasion for the PRACH transmission where the PRACH occasions are associated with the SS/PBCH block index indicated by the SS/PBCH block index field of the PDCCH order or the LTM cell switch command MAC CE and, if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212] or [11, TS 38.321]. If the UE is provided by *cellSpecificKoffset*, the PRACH occasion is after slot where is the slot of the UL BWP for the PRACH transmission that overlaps with the end of the PDCCH order ~~or the LTM cell switch command MAC CE (Note:Huawei thinks this description is for NTN, which is not suitable for LTM. Can we postpone?)~~ reception assuming , and is the SCS configuration for the PRACH transmission. If the PDCCH reception for the PDCCH order includes two PDCCH candidates from two linked search space sets based on *searchSpaceLinkingId*, as described in clause 10.1, the last symbol of the PDCCH reception is the last symbol of the PDCCH candidate that ends later. The PDCCH reception includes the two PDCCH candidates also when the UE is not required to monitor one of the two PDCCH candidates as described in clauses 10 (except clause 10.4), 11.1, 11.1.1 and 17.2.

<Unchanged part is omitted>

If a random access procedure is initiated by a PDCCH order ~~or an LTM cell switch command MAC CE~~, the UE, if requested by higher layers, transmits a PRACH in the selected PRACH occasion, as described in [11, TS 38.321], for which a time between the last symbol of the PDCCH order ~~or the LTM cell switch command MAC CE (Note: Huawei wants to discuss more. Can we postpone?)~~ reception and the first symbol of the PRACH transmission is larger than or equal to msec, where

- is a time duration of symbols corresponding to a PUSCH preparation time for UE processing capability 1 [6, TS 38.214] assuming corresponds to the smallest SCS configuration between the SCS configuration of the PDCCH order ~~or the PUSCH carrying the LTM cell switch command MAC CE~~ and the SCS configuration of the corresponding PRACH transmission

- if the active UL BWP does not change, or if a cell indicator field in the PDCCH order indicates a non-serving cell [5, TS 38.212], and is defined in [10, TS 38.133] otherwise

- msec for FR1 and msec for FR2

- is a switching gap duration as defined in [6, TS 38.214]

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

~~21 L1/L2-triggered mobility procedures~~

~~<Unchanged part is omitted>~~

~~A UE can be provided configurations, by~~ *~~EarlyUlSyncConfig~~*~~, for PRACH transmission parameters for each of the candidate cells. The UE can be triggered a PRACH transmission on a candidate cell by a PDCCH order that the UE receives on a serving cell and includes an indication of the candidate cell for the PRACH transmission [4, TS 38.212]. If the serving cell and the candidate cell operate in a same frequency range and the UE would have transmissions that overlap in time, or when a gap between a first or last symbol of a PRACH transmission to the candidate cell is less than 𝑁 symbols from a last or first symbol, respectively, of an UL transmission to the serving cell, where is defined in Clause 8.1, the UE~~

~~- drops the transmissions on the serving cell when the UE does not support transmissions that overlap in time or are separated by less than the gap on the serving cell and the candidate cell~~

~~- prioritizes power allocation to the PRACH transmission on the candidate cell in clause 7.5 when the UE supports transmissions that overlap in time or are separated by less than the gap, and a total UE transmit power in the frequency range would exceed~~

~~The UE transmits the PRACH on the candidate cell as described in Clause 8.1 with a power determined as described in Clause 7.4.~~

~~The UE can be triggered a PRACH transmission on a target cell by LTM Cell Switch Command MAC CE including an index of candidate target configuration, in clause 6.1.3.75 [11, TS 38.321], that is received on a serving cell.~~

~~<Unchanged part is omitted>~~

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**FL proposal 2-2v2**

* Agree the following TP for 38.213

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**7.4 Physical random access channel**

A UE determines a transmission power for a physical random access channel (PRACH), , on active UL BWP of carrier of cell based on DL RS for cell in transmission occasion as

 [dBm],

where

- is the UE configured maximum output power defined in [8-1, TS 38.101-1], [8-2, TS 38.101-2] and [8-3, TS 38.101-3] for carrier of cell within transmission occasion ,

- is the PRACH target reception power *PREAMBLE\_RECEIVED\_TARGET\_POWER* provided by higher layers [11, TS 38.321] for the active UL BWP of carrier of cell , and

- is a pathloss for the active UL BWP of carrier based on the DL RS associated with the PRACH transmission on the active DL BWP of cell and calculated by the UE in dB as *referenceSignalPower* – higher layer filtered RSRP in dBm, where RSRP is defined in [7, TS 38.215] and the higher layer filter configuration is defined in [12, TS 38.331]. If the active DL BWP is the initial DL BWP and for SS/PBCH block and CORESET multiplexing pattern 2 or 3 as described in clause 13, or for a candidate cell configured with higher layer parameter *EarlyUl-SyncConfig*, or for a cell with *physCellId* different from the *physCellId* of the serving cell (Note: Huawei wants to confirm if this sentence is for MIMO(multi-TA) or LTM.), the UE determines based on the SS/PBCH block associated with the PRACH transmission.

If a PRACH transmission from a UE is not in response to a detection of a PDCCH order by the UE, or is in response to a detection of a PDCCH order by the UE that triggers a contention based random access procedure, or is associated with a link recovery procedure where a corresponding index is associated with a SS/PBCH block, as described in clause 6, *referenceSignalPower* is provided by *ss-PBCH-BlockPower*.

If a PRACH transmission from a UE is in response to a detection of a PDCCH order by the UE that triggers a contention-free random access procedure and depending on the DL RS that the DM-RS of the PDCCH order is quasi-collocated with as described in clause 10.1

- when the PRACH association indicator is not present in the PDCCH order, or

- when the cell indicator field in the PDCCH order is not present or has value 0, or

- when a value of a PRACH association indicator field in the PDCCH order is 0 if the UE is not provided *SSB-MTC-AdditionalPCI*, or

- when the PRACH association indicator field in the PDCCH order indicates a *physCellId* associated with the cell of the PDCCH order reception,

or depending on an indicated SS/PBCH block

- when the PRACH transmission is on a candidate cell indicated by the cell indicator field in the PDCCH order, or

- when a value of a PRACH association indicator field in the PDCCH order is 1 if the UE is not provided *SSB-MTC-AdditionalPCI*, or

- when the PRACH association indicator field in the PDCCH order indicates a *physCellId* that is different that the *physCellId* associated with the cell of the PDCCH order reception,

*referenceSignalPower* is provided by a corresponding *ss-PBCH-BlockPower*.

<unchanged parts omitted>

**8.1 Random access preamble**

<unchanged parts omitted>

If a random access procedure is initiated by a PDCCH order, the UE, if requested by higher layers, transmits a PRACH in the selected PRACH occasion, as described in [11, TS 38.321], for which a time between the last symbol of the PDCCH order reception and the first symbol of the PRACH transmission is larger than or equal to msec, where

- is a time duration of symbols corresponding to a PUSCH preparation time for UE processing capability 1 [6, TS 38.214] assuming corresponds to the smallest SCS configuration between the SCS configuration of the PDCCH order and the SCS configuration of the corresponding PRACH transmission

- if the active UL BWP does not change, or if a cell indicator field in the PDCCH order indicates a candidate cell [5, TS 38.212], and is defined in [10, TS 38.133] otherwise

- msec for FR1 and msec for FR2

- is a switching gap duration as defined in [6, TS 38.214]

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

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**FL proposal 1-2v2**

* Approach 1: proposal by Huawei in R1-2403348
	+ For UL transmission after cell switch and before the serving cell TCI state is indicated, UE applies power control parameter in the *ul-powerControl-r17* of the TCI-State or the *TCI-UL-State*, if configured, corresponding to the *CandidateTCI-State* or the *CandidateTCI-UL-State* indicated in the LTM Cell Switch Command. Otherwise, *ul-powerControl-r17* configured in *BWP-UplinkDedicated* of the target cell is applied.
* Approach 2: Introduce the following new RRC parameters
	+ under *Uplink-powerControl-r17*,
		- Uplink-powerControlId-r18 ::= INTEGER(1.. maxNrofCandidateUL-TCI-r18)
	+ under *CandidateTCI-State-r18,*
		- ul-powerControl-r18 Uplink-powerControlId-r18 OPTIONAL,　 -- Need R
		- Field description: Configures power control parameters for PUCCH, PUSCH and SRS of the LTM candidate that includes this CandidateTCI-State
	+ under *CandidateTCI-UL-State-r18*,
		- ul-powerControl-r18 Uplink-powerControlId-r18 OPTIONAL,　 -- Need R
		- Field description: Configures power control parameters for PUCCH, PUSCH and SRS of the LTM candidate that includes this CandidateTCI-UL-State
	+ under *LTM-TCI-Info-r18,*
		- uplink-PowerControlToAddModList-r18　SEQUENCE (SIZE (1.. maxNrofCandidateUL-TCI-r18)) OF Uplink-powerControl-r18　　　OPTIONAL,　 -- Need N
		- uplink-PowerControlToReleaseList-r18 SEQUENCE (SIZE (1.. maxNrofCandidateUL-TCI-r18)) OF Uplink-powerControlId-r18　　OPTIONAL,　 -- Need N
		- Field description: Configures UL power control parameters for PUSCH, PUCCH and SRS when field unifiedTCI-StateType is configured for this serving cell.
	+ Default behaviour when this *ul-powerControl-r18* under *LTM-TCI-Info-r18* of for a candidate cell is not configured is defined
		- UE is expected to be configured either *ul-powerControl-r18* under *LTM-TCI-Info-r18* in *LTM-Candidate-r18* for a candidate cell or *ul-powerControl-r18* under *BWP-UplinkDedicated* in *ServingCellConfig* for the candidate cell.
* Send an LS to RAN2 to capture the parameters in 38.331 (If approach 2 is agreed)

##### [Proposals for Thursday Online]

**FL proposal 1-2v3**

Endorse the draft LS in R1-2403682

(Tdoc number for final version: R1-2403683)

**FL proposal X**

Agree the following formal CRs, which reflect the agreements in this meeting:

* R1-2403684(CR0619) to TS38.213 (related to issue 1-3)
* R1-2403685(CR0620) to TS38.213 (related to issue 1-4)
* R1-2403708(CR0621) to TS38.213 (related to issue 1-7)
* R1-2403709(CR0552) to TS38.214 (related to issue 1-8)
* R1-2403710(CR0622) to TS38.213 (related to issue 1-9)
* R1-2403711(CR0188) to TS38.212 (related to issue 1-10)

**FL proposal 1-5v2**

Conclusion

* For timing assumption between source and target cells described in clause 6.3.3.2 of TS38.211, the terminology “handover” includes LTM cell switch
	+ Note: The necessity of CR can be discussed in RAN1#117

**FL proposal 2-1v1**

* The draft CR in R1-2402528 is endorsed in principle for the 38.213 editor’s alignment CRs
* *FL note:*
	+ *this CR is to align the unit of defined in RAN4 specification*
	+ OK: Ericsson, Nokia, Samsung, vivo, Lenovo, Huawei, HiSilicon, NEC
	+ No need: ZTE

**FL proposal 2-4v1**

* The draft CR in R1-2402990 is endorsed in principle for the 38.214 editor’s alignment CRs
	+ FL note: this is to correct the description and the parameter name related to spCellInclusion
		- if *spCellInclusion* is configured, SSB resources in *ltm-CSI-SSB-ResourceList* associated with the current SpCell are the entries in the *ltm-CandidateIdList* where PCI given by *ltm-CandidatePCI* and frequency information given by *ssbFrequency* (given in *ltm-SSB-Config* ) are equal to the PCI and center frequency of cell-defining SSB of the current SpCell.
	+ OK: Ericsson, Nokia, Samsung, vivo, ZTE, Lenovo
	+ Not essential and can be left to editor: Huawei, HiSilicon

**FL proposal 2-5v1**

* The following TP is endorsed in principle for the 38.213 editor’s alignment CRs
	+ FL note: comments to yellow part has not been provided yet. (Originally from ZTE proposal)

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**21 L1/L2-triggered mobility procedures**

\*\*\* Unchanged parts are omitted \*\*\*

If *ltm-UE-MeasuredTA-ID* of a candidate cell and *~~ltm-UE-MeasuredTA-ID~~ ltm-ServingCellUE-MeasuredTA-ID* of the serving cell are provided to a UE and have same value, the UE estimates based on the UE implementation a timing advance to apply from a first transmission on the candidate cell that is after the reception of a cell switch command for the candidate cell when the condition defined in clause 5.18.35 of [11, TS 38.321] is satisfied.

\*\*\* Unchanged parts are omitted \*\*\*

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**FL proposal 2-6v1**

* The draft CR in R1-2402822 is endorsed in principle for the 38.213 editor’s alignment CRs
* FL note:
	+ Alignment of the parameter name
	+ No concern raised

# List of Contributions

## Contributions under AI 5

[R1-2401945](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2401945.zip) Reply LS on MAC CE to activate/deactivate semi-persistent PUCCH report for LTM RAN2, Fujitsu

* No RAN1 action is required

[R1-2401955](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2401955.zip) LS on timing assumption between source and target cells for R18 LTM cell switch RAN4, MediaTek

* Discussed based on the company CR

R1-2401951 Reply LS on n-TimingAdvanceOffset for PDCCH order RACH RAN2, Huawei

* No action in RAN1

## Contributions under AI 8.4

|  |  |  |
| --- | --- | --- |
| **TDoc** | **Title** | **Source** |
| [**R1-2402059**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402059.zip) | Draft CR on consistency between SSB index and TCI state in LTM Cell Switch Command MAC CE | ZTE |
| [**R1-2402060**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402060.zip) | Discussion on consistency between SSB index and TCI state in LTM Cell Switch Command MAC CE | ZTE |
| [**R1-2402061**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402061.zip) | Draft CR on prioritizations for transmission power reductions in LTM | ZTE |
| [**R1-2402062**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402062.zip) | Draft CR on capturing CFRA triggered by LTM Cell Switch Command MAC CE | ZTE |
| [**R1-2402198**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402198.zip) | Discussion on timing assumption between source and target cells for R18 LTM cell switch | vivo |
| [**R1-2402225**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402225.zip) | Draft CR on timing assumption between source and target cells for R18 LTM cell switch | vivo |
| [**R1-2402226**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402226.zip) | Discussion on LTM cell switch for target cell with multiple TAs | vivo |
| [**R1-2402302**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402302.zip) | Correction on Candidate Cell TCI state indication in TS 38.213 | OPPO |
| [**R1-2402493**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402493.zip) | Correction on timing assumption between source and target cells for R18 LTM cell switch | CATT |
| [**R1-2402502**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402502.zip) | Draft CR on TS38.211 for LTM | Lenovo |
| [**R1-2402709**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402709.zip) | Draft CR on applying UE-measured TA after LTM Cell Switch Command MAC CE | ZTE |
| [**R1-2402821**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402821.zip) | Correction on timing difference for LTM | ASUSTeK |
| [**R1-2402822**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402822.zip) | Correction on LTM | ASUSTeK |
| [**R1-2402983**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402983.zip) | Draft CR for 38.213 on candidate cell naming | Ericsson |
| [**R1-2402984**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402984.zip) | Draft CR for 38.213 on deactivation of candidate TCI states | Ericsson |
| [**R1-2402985**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402985.zip) | Draft CR for 38.213 on RACH procedure triggred by LTM cell switch | Ericsson |
| [**R1-2402986**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402986.zip) | Draft CR for 38.213 on signaling of TCI state in LTM cell switch command | Ericsson |
| [**R1-2402987**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402987.zip) | Draft CR for 38.213 on TCI state applied for CORESET 0 | Ericsson |
| [**R1-2402988**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402988.zip) | Draft CR for 38.214 on CSI report priority | Ericsson |
| [**R1-2402989**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402989.zip) | Draft CR for 38.214 on QCL assumption after LTM cell switch command | Ericsson |
| [**R1-2402990**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2402990.zip) | Draft CR for 38.214 on spCellInclusion | Ericsson |
| [**R1-2403073**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403073.zip) | Draft CR for 38.213 on PRACH collision handling for LTM | Nokia |
| [**R1-2403074**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403074.zip) | Draft CR for 38.213 on prioritizations for transmission power reductions for LTM | Nokia |
| [**R1-2403222**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403222.zip) | Maintenance on Further NR Mobility Enhancements | NTT DOCOMO |
| [**R1-2403331**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403331.zip) | Correction on supplementary uplink for LTM | Google |
| [**R1-2403334**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403334.zip) | Correction on CFRA triggered by cell switch command | Google |
| [**R1-2403347**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403347.zip) | Corrections to LTM TCI state application on target SCell in TS38.213 | Huawei, HiSilicon |
| [**R1-2403349**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403349.zip) | Corrections to the power control after LTM cell switch and Pathloss RS in LTM TCI state in TS38.213 | Huawei, HiSilicon |
| [**R1-2403350**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403350.zip) | Corrections to CFRA triggered by cell switch command in TS38.213 | Huawei, HiSilicon |
| [**R1-2403360**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_116b/Docs/R1-2403360.zip) | Corrections to UL/SUL indicator in DCI format 1\_0 for LTM early RACH in TS38.212 | Huawei, HiSilicon |

# High priority issues in RAN1#116bis

## [Postponed]: Issue 1-1: CSI report priority

### Summary of Proposal

[R1-2402988](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402988.zip) Draft CR for 38.214 on CSI report priority Ericsson

* The priority rule for LTM contradict with the spec description in 38.213 (FL found 3 parts, the following is just an example)



* Thus, Ericsson’s proposal is to change the formula to achieve a unique priority value

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes but…(new issue) | FL understands the intention by Ericsson. However, with this proposal, the priority value will be different between Rel-17 and Rel-18 even for the legacy CSI report without *LTM-CSI-ReportConfig* configured*.* FL suggestion is to discuss the solution how to address this issue in RAN1#116bis. Official offline discussion is planed for this issue.  |
| Nokia | NO | There is no need to change the formula. We have discussed this in RAN1 115 and decided to not change the formula.  |
| Samsung | No | TS 38.213 is already saying that the order is as described in TS 38.214, so we don’t see any ambiguity. |
| vivo | Yes | According to the current priority rule of CSI report(s), the priority value captured in TS38.213 is ambiguous. To solve it and avoid the issue mentioned by FL, the most straightforward way is to replace “ascending priority value” by “descending priority” in TS38.213. |
| ZTE | No | In previous meetings, I think that our basic consensus is not to change current formula of CSI priority. So for the issue raised by Ericsson, we tend to change corresponding text in TS 38.213 to align with agreement achieved before and I think the solution raised by vivo is a good direction to resolve this issue. |
| Spreadtrum | No | Agree with vivo. |
| CATT | Yes | We support to define a unique priority value for LTM CSI report. The formula needs to be further discussed. |
| Lenovo | No | We tend to agree with vivo’s suggestion. |
| Huawei, HiSilicon | No | We submitted similar formula in previous meetings. The group think to reuse existing one. We do not think it necessary reopen the discussion.  |
| NEC | Yes | Agree with feature lead |

### FL proposal 1-1v1

* Agree on the following TP for 38.214
	+ Yes: Ericsson, CATT, NEC
		- Vivo: the most straightforward way is to replace “ascending priority value” by “descending priority” in TS38.213.
	+ No: Nokia, Samsung, Lenovo, ZTE, Spreadtrum, Lenovo, Huawei

5.2.5 Priority rules for CSI reports

CSI reports are associated with a priority value where

- for a CSI report configured with *LTM-CSI-ReportConfig* and for a CSI report configured with *CSI-ReportConfig*

-  for aperiodic CSI reports to be carried on PUSCH  for semi-persistent CSI reports to be carried on PUSCH,  for semi-persistent CSI reports to be carried on PUCCH and  for periodic CSI reports to be carried on PUCCH;

-  for CSI reports carrying L1-RSRP or L1-SINR and  for CSI reports not carrying L1-RSRP or L1-SINR;

- *c* is the serving cell index and is the value of the higher layer parameter *maxNrofServingCells*;

- for a CSI report configured with *LTM-CSI-ReportConfig*, *c* is the serving cell index value where the report configuration is configured.

- *s* is the *reportConfigID* andis the value of the higher layer parameter *maxNrofCSI-ReportConfigurations.*

- for a CSI report configured with *LTM-CSI-ReportConfig*, *s* is the *LTM-CSI-ReportConfigID* and *Ms* is the value of the higher layer parameter *maxNrofLTM-CSI-ReportConfigurations*

A first CSI report is said to have priority over second CSI report if the associated value is lower for the first report than for the second report.

Two CSI reports are said to collide if the time occupancy of the physical channels scheduled to carry the CSI reports overlap in at least one OFDM symbol and are transmitted on the same carrier. When a UE is configured to transmit two colliding CSI reports,

- if *y* values are different between the two CSI reports, the following rules apply except for the case when one of the *y* value is 2 and the other *y* value is 3 (for CSI reports transmitted on PUSCH, as described in Clause 5.2.3; for CSI reports transmitted on PUCCH, as described in Clause 5.2.4):

- The CSI report with higher value shall not be sent by the UE.

- otherwise, the two CSI reports are multiplexed or either is dropped based on the priority values, as described in Clause 9.2.5.2 in [6, TS 38.213].

If a semi-persistent CSI report to be carried on PUSCH overlaps in time with PUSCH data transmission in one or more symbols on the same carrier, and if the earliest symbol of these PUSCH channels starts no earlier than N2+d2,1 symbols after the last symbol of the DCI scheduling the PUSCH where d2,1 is the maximum of the d2,1 associated with the PUSCH carrying semi-persistent CSI report and the PUSCH with data transmission, the CSI report shall not be transmitted by the UE. Otherwise, if the timeline requirement is not satisfied this is an error case.

### Conclusion

Issue 1-1 is postponed to the next meeting. Companies are encouraged to further check if this is really an issue (i.e. the contradicting description in 38.213) or not and what can be the solution.

With this, the discussion of this section is closed.

## [Thu online] Issue 1-2: power control after LTM cell switch and pathloss RS

### Summary of Proposal

[R1-](file:///C%3A%5C%5C3GPP%5C%5CRAN1_116bis%5C%5CInbox%5C%5Cdrafts%5C%5C8.4%28NR_others%29%5C%5CMobility%5C%5CDocs%5C%5CR1-2403348.zip)[2403348](file:///C%3A%5C%5C3GPP%5C%5CRAN1_116bis%5C%5CInbox%5C%5Cdrafts%5C%5C8.4%28NR_others%29%5C%5CMobility%5C%5CDocs%5C%5CR1-2403348.zip) Discussion on the power control after LTM cell switch and pathloss RS in LTM TCI state Huawei, HiSilicon
[R1-2403349](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403349.zip) Corrections to the power control after LTM cell switch and Pathloss RS in LTM TCI state in TS38.213 Huawei, HiSilicon

🡪The proposals by Huawei are the followings:

* **Proposal 1:** For UL transmission after cell switch and before the serving cell TCI state is indicated, UE applies power control parameter in the ul-powerControl-r17 of the TCI-State or the TCI-UL-State, if configured, corresponding to the CandidateTCI-State or the CandidateTCI-UL-State indicated in the LTM Cell Switch Command. Otherwise, ul-powerControl-r17 configured in BWP-UplinkDedicated of the target cell is applied.
* **Proposal 2:** For the first UL based on CG resources in LTM, the rrc-P0-PUSCH-r18 and rrc-Alpha-r18 are not applicable.
* **Proposal 3:** Capture the procedure of pathloss estimation for candidate cells and define the maximum number simultaneous pathloss estimation across all candidate cells before LTM cell switch in RAN1 specification.

### Companies view.

|  |  |
| --- | --- |
| Company | Comment |
| FL | FL suggestion is to gather the companies view on Proposals 1,2 and 3 above before going to the CR. Also official offline discussion is planned for this issue. For proposal 1, considering the RRC parameter session, it has already been agreed not to introduce power control parameters in CandidateTCI-State or CandidateTCI-UL-State. Then, Proposal 1 would be the right approach. On the other hand, the association between TCI-State and CandidateTCI-state (as well as TCI-UL-State andCandidateTCI-UL-State) also needs discussion as no consensus was achieved at RAN1#116. Proposal 2 is a new issue. Companies input are appreciated. Proposal 3 might be a UE capability issue (which can be handled under AI 8.5.3). FL plan is firstly discuss if a restriction on simultaneous pathloss estimation is introduced or not.  |
| Ericsson | Not needed. The UE applies the serving cell configuration of the target and follows that. |
| Nokia | For P1 and P2 , this may be based on the target cell configuration. We are open to discuss P3. |
| Samsung | Proposal 1: The UE already receives the LTM TCI state in the cell switch command, which is the same as (or corresponds to) the TCI state configured for the candidate cell. Hence, the UL power control parameters from the candidate cell TCI state can be used.Proposal 2: LTM follows uTCI framework where power control parameters are determined based on the associated TCI state, hence we don’t see a need for these parameters.Proposal 3: Not essential issue. The pathloss RS is defined, remaining details are up to UE’s implementation. PL-RS of candidate cell can be in addition to the PL-RS of serving cell, or be included as one of them (hence the total limit of 4). This can be discussed in UE features. |
| vivo | For proposal 1, the issue is valid. According to the agreement achieved before, UE follows the indicated CandidateTCI-state and/or CandidateTCI-UL-State in the cell switch command to perform transmission and reception until a new TCI state and/or TCI-IL-State is indicated. If ul-powerControl-r17 is absent in the CandidateTCI-State or CandidateTCI-UL-State or a default behaviour is not defined, the determination of uplink transmission power is ambiguous before a new indicated TCI State or TCI-UL-State is applied, except for the CG-based first transmission. Besides the introduction of ul-powerControl-r17 in the CandidateTCI-State or CandidateTCI-UL-State, the other solution is to define a default behaviour. For example, UE follows the ul-powerControl configured in UL BWP to determine transmission power before a new TCI State or TCI-UL-State is indicated. For proposal 2, it depends on the outcome of proposal 1. If proposal 1 is agreed, it is unnecessary to configure rrc-P0-PUSCH-r18 and rrc-Alpha-r18 in CG-RRC-Configuration-r18. If a default mechanism is agreed, rrc-P0-PUSCH-r18 and rrc-Alpha-r18 could be valid and applicable. For proposal 3, we are open to discuss it.  |
| ZTE | For P1, we understand that this issue is relevant to relationship between LTM TCI state and legacy TCI state. In our view, if the agreement on relationship between LTM TCI state and legacy TCI state achieved before will be captured in LTM spec (RAN1 or RAN2), UE can acquire ul power control parameter (if configured) by TCI-State or TCI-UL-State-r17 corresponding to CandidateTCI-State or CandidateTCI-UL-State respectively, or in BWP-UplinkDedicated of target cell. Otherwise, we think that it is necessary to add new “ul power control” parameter in CandidateTCI-State or CandidateTCI-UL-State.For P2, these two parameters can be obtained based on RRC configuration of target cell.For P3, we are also open to discuss it and a simple solution can be considered, e.g., max 4 pothloss RSs per candidate cell and max 4\*the number of candidate cell across candidate cells. |
| Spreadtrum | P1&P2: two proposals are related; they can be discussed together. We support to apply P1 for CG and DG.P3: Agree with FL, it can be in UE feature discussion. |
| CATT | Proposal 1, this issue needs to be further discussed.Proposal 2: this is a new issue and can be further discussed. Proposal 3. Support FL’s proposal. |
| Lenovo | Proposal 1: This issue is valid and the similar behaviour for the serving cell can be reused for candidate cell. We can support this proposal.Proposal 2: This proposal seems not needed if proposal 1 is agreed.Proposal 3: We are open to discuss this issue. |
| Huawei, HiSilicon | For P1, it is trying to clarify the UE assumption on the power control parameter after cell switch and before serving cell TCI state is indicated. RAN1 agreed that UE follows indicated LTM TCI state in CSC, but there is no power control parameters in LTM TCI state. For P2, the current CG configuration are shared across multiple features, i.e. LTM, NTN and IAB. In the current IE, the power control parameter may be configured differently from those of serving cell TCI state corresponding to the indicated LTM TCI state. In such case, how UE determines these parameters, values from serving cell TCI state vs. configuration in CG should be decided.For P3, at least the maximum number of pathloss RS in LTM TCI states can be configured to a UE should be clarified, similar as those for serving cell TCI states.  |
| NEC | We support P1, P2 and P3 we support FL’s views |
|  |  |

### FL proposal 1-2v1

* **Proposal 1**: For UL transmission after cell switch and before the serving cell TCI state is indicated, UE applies power control parameter in the ul-powerControl-r17 of the TCI-State or the TCI-UL-State, if configured, corresponding to the CandidateTCI-State or the CandidateTCI-UL-State indicated in the LTM Cell Switch Command. Otherwise, ul-powerControl-r17 configured in BWP-UplinkDedicated of the target cell is applied.
	+ **FL view: this is a common understanding?**
	+ **Question is whether/how to capture it in the specification**
		- **OK to discuss: vivo, ZTE, CATT Lenovo, NEC, Huawei**
		- **No discussion is needed:** Ericsson, Nokia, Samsung
	+ ***FL proposal: What we can do is to make a conclusion in this meeting, and come back in the next meeting how/whether to capture this in the specification.***
* **Proposal 2**: For the first UL based on CG resources in LTM, the rrc-P0-PUSCH-r18 and rrc-Alpha-r18 are not applicable.
	+ **FL view: This is a common understanding**
	+ ***FL proposal: What we can do is to make a conclusion in this meeting, and come back in the next meeting how/whether to capture this in the specification.***
* **Proposal 3**: Capture the procedure of pathloss estimation for candidate cells and define the maximum number simultaneous pathloss estimation across all candidate cells before LTM cell switch in RAN1 specification.
	+ **OK to discuss**: Nokia, vivo, ZTE, Spreadtrum, NEC, CATT, Huawei
	+ **No discussion is needed:** Samsung (can be discussed in UE feature)

### FL proposal 1-2v2

* Approach 1: proposal by Huawei in R1-2403348
	+ For UL transmission after cell switch and before the serving cell TCI state is indicated, UE applies power control parameter in the *ul-powerControl-r17* of the TCI-State or the *TCI-UL-State*, if configured, corresponding to the *CandidateTCI-State* or the *CandidateTCI-UL-State* indicated in the LTM Cell Switch Command. Otherwise, *ul-powerControl-r17* configured in *BWP-UplinkDedicated* of the target cell is applied.
* Approach 2: Introduce the following new RRC parameters
	+ under *Uplink-powerControl-r17*,
		- Uplink-powerControlId-r18 ::= INTEGER(1.. maxNrofCandidateUL-TCI-r18)
	+ under *CandidateTCI-State-r18,*
		- ul-powerControl-r18 Uplink-powerControlId-r18 OPTIONAL,　 -- Need R
		- Field description: Configures power control parameters for PUCCH, PUSCH and SRS of the LTM candidate that includes this CandidateTCI-State
	+ under *CandidateTCI-UL-State-r18*,
		- ul-powerControl-r18 Uplink-powerControlId-r18 OPTIONAL,　 -- Need R
		- Field description: Configures power control parameters for PUCCH, PUSCH and SRS of the LTM candidate that includes this CandidateTCI-UL-State
	+ under *LTM-TCI-Info-r18,*
		- uplink-PowerControlToAddModList-r18　SEQUENCE (SIZE (1.. maxNrofCandidateUL-TCI-r18)) OF Uplink-powerControl-r18　　　OPTIONAL,　 -- Need N
		- uplink-PowerControlToReleaseList-r18 SEQUENCE (SIZE (1.. maxNrofCandidateUL-TCI-r18)) OF Uplink-powerControlId-r18　　OPTIONAL,　 -- Need N
		- Field description: Configures UL power control parameters for PUSCH, PUCCH and SRS when field unifiedTCI-StateType is configured for this serving cell.
	+ Default behaviour when this *ul-powerControl-r18* under *LTM-TCI-Info-r18* of for a candidate cell is not configured is defined
		- UE is expected to be configured either *ul-powerControl-r18* under *LTM-TCI-Info-r18* in *LTM-Candidate-r18* for a candidate cell or *ul-powerControl-r18* under *BWP-UplinkDedicated* in *ServingCellConfig* for the candidate cell.
* Send an LS to RAN2 to capture the parameters in 38.331 (If approach 2 is agreed)

### FL proposal 1-2v3

Agree the draft LS in R1-24xxxx

## [CR review] Issue 1-3: Prioritizations for transmission power reductions

### Summary of Proposal

[R1-2402061](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402061.zip) Draft CR on prioritizations for transmission power reductions in LTM ZTE
[R1-2403074](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403074.zip) Draft CR for 38.213 on prioritizations for transmission power reductions for LTM Nokia

* Power allocation prioritization is captured in clause 21 of TS38.213. Meanwhile, nothing is described in clause 7.5, where the detailed rule for power prioritization is captured.

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(majority supported the TP in the previous meeting) | ZTE and Nokia addresses the same issue, the proposal is almost the same. FL has no strong view which one to take.  |
| Ericsson | Yes | Either version is fine |
| Samsung | No | While, the change is correct, we don’t see a strong need to introduce “PRACH transmission on a candidate cell, if any, as described in Clause 21” as it is already captured in the list. |
| vivo | No | As mentioned by Samsung, it has been already captured in Clause 21. Hence, not needed.  |
| ZTE | Yes | In our view, although high-level description has been mentioned in clause 21, any places in clause 7.5 does not reflect behavior on “candidate cell” or for candidate cell case, it is unclear and also easily to bring incorrect guidance for new readers. So we think such CR to align with clause 21 is quite necessary. |
| CATT | Yes | The rule for power prioritization for LTM should be captured in clause 7.5. |
| Lenovo | No | Agree with Samsung. |
| Huawei, HiSilicon | Yes | Fine to add, to keep consistent between clause 21 and 8.  |
| NEC | Yes | Agree with Samsung |

### FL proposal 1-3v1

For the power allocation prioritization issue which has already captured in clause 21 of TS38.213,

* TP in R1-2402061 and R1-2403074 are agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, ZTE, CATT, Huawei
	+ No: Samsung, vivo, Lenovo (the description in clause 21 of TS38.213 is sufficient)

## TP from ZTE (R1-2402061) for TS38.213

## 7.5 Prioritizations for transmission power reductions

For single cell operation with two uplink carriers or for operation with carrier aggregation or for operation with a candidate cell configured by *LTM-Config*, if a total UE transmit power for PUSCH or PUCCH or PRACH or SRS transmissions on serving cells or on a candidate cell, if any, in a frequency range in a respective transmission occasion would exceed , where is the linear value of in transmission occasion as defined in [8-1, TS 38.101-1] for FR1 and [8-2, TS 38.101-2] for FR2, the UE allocates power to PUSCH/PUCCH/PRACH/SRS transmissions according to the following priority order (in descending order) so that the total UE transmit power for transmissions on serving cells or on a candidate cell, if any, in the frequency range is smaller than or equal to for that frequency range in every symbol of transmission occasion . If the UE transmits SRS on multiple SRS resources according the *XYZ* [6, TS 38.214], the UE allocates power so that all REs of the SRS transmission have same power.

For the purpose of power allocation in this clause, if a UE is provided *uci-MuxWithDiffPrio* and the UE multiplexes HARQ-ACK information in a PUSCH, a priority index of the PUSCH is the larger of (a) the priority index of the PUSCH according to clause 9 and (b) the larger priority index of the HARQ-ACK information. When determining a total transmit power for serving cells or a candidate cell, if any, as described in Clause 21 in a frequency range in a symbol of transmission occasion , the UE does not include power for transmissions starting after the symbol of transmission occasion . The total UE transmit power in a symbol of a slot is defined as the sum of the linear values of UE transmit powers for PUSCH, PUCCH, PRACH, and SRS in the symbol of the slot.

### Conclusion

Agreement

Adopt the following TP to section 7.5, TS38.213.

**7.5 Prioritizations for transmission power reductions**

For single cell operation with two uplink carriers or for operation with carrier aggregation or for operation with a candidate cell configured by *LTM-Config*, if a total UE transmit power for PUSCH or PUCCH or PRACH or SRS transmissions on serving cells or on a candidate cell, if any, in a frequency range in a respective transmission occasion would exceed , where is the linear value of in transmission occasion as defined in [8-1, TS 38.101-1] for FR1 and [8-2, TS 38.101-2] for FR2, the UE allocates power to PUSCH/PUCCH/PRACH/SRS transmissions according to the following priority order (in descending order) so that the total UE transmit power for transmissions on serving cells or on a candidate cell, if any, in the frequency range is smaller than or equal to for that frequency range in every symbol of transmission occasion . If the UE transmits SRS on multiple SRS resources according the *XYZ* [6, TS 38.214], the UE allocates power so that all REs of the SRS transmission have same power.

For the purpose of power allocation in this clause, if a UE is provided *uci-MuxWithDiffPrio* and the UE multiplexes HARQ-ACK information in a PUSCH, a priority index of the PUSCH is the larger of (a) the priority index of the PUSCH according to clause 9 and (b) the larger priority index of the HARQ-ACK information. When determining a total transmit power for serving cells or a candidate cell, if any, as described in Clause 21 in a frequency range in a symbol of transmission occasion , the UE does not include power for transmissions starting after the symbol of transmission occasion . The total UE transmit power in a symbol of a slot is defined as the sum of the linear values of UE transmit powers for PUSCH, PUCCH, PRACH, and SRS in the symbol of the slot.

## [CR review] Issue 1-4: CFRA triggered by cell switch command

### Summary of Proposal

[R1-2402062](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402062.zip) Draft CR on capturing CFRA triggered by LTM Cell Switch Command MAC CE ZTE
[R1-2403334](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403334.zip) Correction on CFRA triggered by cell switch command Google
[R1-2402985](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402985.zip) Draft CR for 38.213 on RACH procedure triggred by LTM cell switch Ericsson

R1-2403350 Corrections to CFRA triggered by cell switch command in TS38.213 Huawei, HiSilicon

* Not necessary to capture the same description in RAN2 specs.
* The merged version of the CR is found below:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TP for 38.213 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

8.1 Random access preamble

Physical random access procedure for a UE is triggered upon request of a PRACH transmission by higher layers or by a PDCCH order or LTM Cell Switch Command MAC CE in clause 6.1.3.75 [11, TS 38.321] for a cell. A configuration by higher layers for a PRACH transmission includes the following:

- A configuration for PRACH transmission on the cell [4, TS 38.211].

- A preamble index, a preamble SCS, , a corresponding RA-RNTI when applicable [11, TS 38.321], and a PRACH resource for the cell.

- A number of preamble repetitions for the PRACH transmission if the UE would transmit the PRACH with repetitions.

A configuration by LTM Cell Switch Command MAC CE for a PRACH transmission includes the following:

- A Random Access Preamble index.

- A SS/PBCH index.

- A PRACH Mask index.

<Unchanged part is omitted>

For a PRACH transmission by a UE triggered by a PDCCH order or an LTM cell switch command MAC CE, the PRACH mask index field, if the value of the random access preamble index field is not zero, indicates the PRACH occasion for the PRACH transmission where the PRACH occasions are associated with the SS/PBCH block index indicated by the SS/PBCH block index field of the PDCCH order or the LTM cell switch command MAC CE and, if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212]. If the UE is provided by *cellSpecificKoffset*, the PRACH occasion is after slot where is the slot of the UL BWP for the PRACH transmission that overlaps with the end of the reception of the PDCCH order or the LTM cell switch command MAC CE assuming , and is the SCS configuration for the PRACH transmission. If the PDCCH reception for the PDCCH order includes two PDCCH candidates from two linked search space sets based on *searchSpaceLinkingId*, as described in clause 10.1, the last symbol of the PDCCH reception is the last symbol of the PDCCH candidate that ends later. The PDCCH reception includes the two PDCCH candidates also when the UE is not required to monitor one of the two PDCCH candidates as described in clauses 10 (except clause 10.4), 11.1, 11.1.1 and 17.2.

<Unchanged part is omitted>

If a random access procedure is initiated by a PDCCH order or an LTM cell switch command MAC CE, the UE, if requested by higher layers, transmits a PRACH in the selected PRACH occasion, as described in [11, TS 38.321], for which a time between the last symbol of the reception of the PDCCH order or the LTM cell switch command MAC CE and the first symbol of the PRACH transmission is larger than or equal to msec, where

- is a time duration of symbols corresponding to a PUSCH preparation time for UE processing capability 1 [6, TS 38.214] assuming corresponds to the smallest SCS configuration between the SCS configuration of the PDCCH order or the PUSCH carrying the LTM cell switch command MAC CE and the SCS configuration of the corresponding PRACH transmission

- if the active UL BWP does not change, or if a cell indicator field in the PDCCH order indicates a non-serving cell [5, TS 38.212], and is defined in [10, TS 38.133] otherwise

- msec for FR1 and msec for FR2

- is a switching gap duration as defined in [6, TS 38.214]

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

21 L1/L2-triggered mobility procedures

<Unchanged part is omitted>

A UE can be provided configurations, by *EarlyUlSyncConfig*, for PRACH transmission parameters for each of the candidate cells. The UE can be triggered a PRACH transmission on a candidate cell by a PDCCH order that the UE receives on a serving cell and includes an indication of the candidate cell for the PRACH transmission [4, TS 38.212]. If the serving cell and the candidate cell operate in a same frequency range and the UE would have transmissions that overlap in time, or when a gap between a first or last symbol of a PRACH transmission to the candidate cell is less than 𝑁 symbols from a last or first symbol, respectively, of an UL transmission to the serving cell, where is defined in Clause 8.1, the UE

- drops the transmissions on the serving cell when the UE does not support transmissions that overlap in time or are separated by less than the gap on the serving cell and the candidate cell

- prioritizes power allocation to the PRACH transmission on the candidate cell in clause 7.5 when the UE supports transmissions that overlap in time or are separated by less than the gap, and a total UE transmit power in the frequency range would exceed

The UE transmits the PRACH on the candidate cell as described in Clause 8.1 with a power determined as described in Clause 7.4.

The UE can be triggered a PRACH transmission on a target cell by LTM Cell Switch Command MAC CE including an index of candidate target configuration, in clause 6.1.3.75 [11, TS 38.321], that is received on a serving cell.

<Unchanged part is omitted>

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(majority supported the TP in the previous meeting) | ZTE and Nokia addresses the same issue, and almost same changes are proposed. FL has no strong view which one to take. FL thinks the yellow part of the merged CR above may not be necessary as they have already been captured in 38.321 FL will prepare a merged CR after receiving the input from interested companies.  |
| Ericsson | Yes | We note that an LTM MAC CE also corresponds to higher layers. But in some cases, 38.213 just writes “by PDCCH order”, while not mentioning the LTM MAC CE. |
| Nokia | Yes |  |
| Samsung |  | Agree with feature lead, part in yellow is not essential as it is already included in the 38.321. The other changes are fine. |
| vivo | Yes | Agree with FL that the yellow part of the merged CR is not necessary. We are fine with other changes. |
| ZTE | Yes | For first yellow part, we think that it is no harm to add similar configuration parameters as legacy higher layers for a PRACH transmission in current spec. If it can be ingored from current spec, I want to know why similar configuration information for a PRACH transmission initiated by higher layers is added here, although it can be also found in other RAN1 or RAN2 spec.For second yellow part, clause 21 is an overview chapter to describe which functions are supported in LTM. So we don’t think that such functional description can be omitted here. And similar description on PDCCH order triggering a PRACH transmission have been also included in , i.e., “The UE can be triggered a PRACH transmission on a candidate cell by a PDCCH order that the UE receives on a serving cell and includes an indication of the candidate cell for the PRACH transmission [4, TS 38.212].” For the following paragragh, we think that a cited reference, i.e., [11, TS 38.321] should be added in end of this para since for a PRACH triggered by LTM cell switch command MAC CE, a cell indicator filed is provided in TS 38.321, NOT TS 38.212.

|  |
| --- |
| For a PRACH transmission by a UE triggered by a PDCCH order or an LTM cell switch command MAC CE, the PRACH mask index field, if the value of the random access preamble index field is not zero, indicates the PRACH occasion for the PRACH transmission where the PRACH occasions are associated with the SS/PBCH block index indicated by the SS/PBCH block index field of the PDCCH order or the LTM cell switch command MAC CE and, if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212]. |

**Proposed changes:**

|  |
| --- |
| For a PRACH transmission by a UE triggered by a PDCCH order or an LTM cell switch command MAC CE, the PRACH mask index field, if the value of the random access preamble index field is not zero, indicates the PRACH occasion for the PRACH transmission where the PRACH occasions are associated with the SS/PBCH block index indicated by the SS/PBCH block index field of the PDCCH order or the LTM cell switch command MAC CE and, if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212] or [11, TS 38.321]. |

 |
| Spreadtrum | Yes | Agree with FL, two yellow parts are not necessary. Fine with other parts. |
| CATT | Yes | Fine. |
| Lenovo | Yes | For the minimal time duration requirement for MAC CE triggered CFRA, the time duration should be defined between the last symbol of the reception of the PUCCH with the HARQ-ACK information corresponding to the PDSCH carrying the LTM cell switch command MAC CE reception and the first symbol of the PRACH transmission. |
| ASUSTeK | Yes | Fine to discuss. Agree with FL that the HLed part is not needed and has been covered by other section/spec. |
| Huawei, HiSilicon |  | We also had CR on this topic, R1-2403350The timeline between CSC and first RO should be discussed. It is different from PDCCH order because there is no ACK after DCI. We think the starting point of some components, e.g. , should be after the ACK feedback of CSC. As for the timeline for NTN (sentence with Koffset), it is originally defined to facilitate network to save detection effort due to large RTT. However, in LTM, the target cell will not receive CFRA from UE until it receives higher layer indication. continue using the timeline is not suitable.No need at least for the 1st yellow part because it is already reflected by “a PRACH resource for the cell” above.  |
| NEC | Yes | Agree with FL |
| ZTE |  | On today online session, some companies think that it is not clear to only capture a reference, i.e., [11, TS 38.321] after sentence “...., if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212] ” and a cell indicator field is not configured in LTM cell switch command MAC CE. Based on this, I would like to try again to provide an updated version to resolve the concern mentioned above. Proposed changes can be found in the following yellow highlighted part.

|  |
| --- |
| 8.1 Random access preamblePhysical random access procedure for a UE is triggered upon request of a PRACH transmission by higher layers or by a PDCCH order or LTM Cell Switch Command MAC CE in clause 6.1.3.75 [11, TS 38.321] for a cell. A configuration by higher layers for a PRACH transmission includes the following: - A configuration for PRACH transmission on the cell [4, TS 38.211]. - A preamble index, a preamble SCS, , a corresponding RA-RNTI when applicable [11, TS 38.321], and a PRACH resource for the cell. - A number of preamble repetitions for the PRACH transmission if the UE would transmit the PRACH with repetitions. <Unchanged part is omitted>For a PRACH transmission by a UE triggered by a PDCCH order or an LTM cell switch command MAC CE, the PRACH mask index field, if the value of the random access preamble index field is not zero, indicates the PRACH occasion for the PRACH transmission where the PRACH occasions are associated with the SS/PBCH block index indicated by the SS/PBCH block index field of the PDCCH order or the LTM cell switch command MAC CE and, if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212] or target configuration ID field indicates a target configuration corresponding to a cell where the PRACH transmission is transmitted [11, TS 38.321]. If the UE is provided by *cellSpecificKoffset*, the PRACH occasion is after slot where is the slot of the UL BWP for the PRACH transmission that overlaps with the end of the PDCCH order reception assuming , and is the SCS configuration for the PRACH transmission. If the PDCCH reception for the PDCCH order includes two PDCCH candidates from two linked search space sets based on *searchSpaceLinkingId*, as described in clause 10.1, the last symbol of the PDCCH reception is the last symbol of the PDCCH candidate that ends later. The PDCCH reception includes the two PDCCH candidates also when the UE is not required to monitor one of the two PDCCH candidates as described in clauses 10 (except clause 10.4), 11.1, 11.1.1 and 17.2.<Unchanged part is omitted> |

 |

### FL proposal 1-4v1

* Agree the following TP.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TP for 38.213 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

8.1 Random access preamble

Physical random access procedure for a UE is triggered upon request of a PRACH transmission by higher layers or by a PDCCH order or LTM Cell Switch Command MAC CE in clause 6.1.3.75 [11, TS 38.321] for a cell. A configuration by higher layers for a PRACH transmission includes the following:

- A configuration for PRACH transmission on the cell [4, TS 38.211].

- A preamble index, a preamble SCS, , a corresponding RA-RNTI when applicable [11, TS 38.321], and a PRACH resource for the cell.

- A number of preamble repetitions for the PRACH transmission if the UE would transmit the PRACH with repetitions.

~~A configuration by LTM Cell Switch Command MAC CE for a PRACH transmission includes the following:~~

~~- A Random Access Preamble index.~~

~~- A SS/PBCH index.~~

~~- A PRACH Mask index.~~

<Unchanged part is omitted>

For a PRACH transmission by a UE triggered by a PDCCH order or an LTM cell switch command MAC CE, the PRACH mask index field, if the value of the random access preamble index field is not zero, indicates the PRACH occasion for the PRACH transmission where the PRACH occasions are associated with the SS/PBCH block index indicated by the SS/PBCH block index field of the PDCCH order or the LTM cell switch command MAC CE and, if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212] or [11, TS 38.321]. If the UE is provided by *cellSpecificKoffset*, the PRACH occasion is after slot where is the slot of the UL BWP for the PRACH transmission that overlaps with the end of the reception of the PDCCH order or the LTM cell switch command MAC CE (Note:Huawei thinks this description is for NTN, which is not suitable for LTM. Can we postpone?) assuming , and is the SCS configuration for the PRACH transmission. If the PDCCH reception for the PDCCH order includes two PDCCH candidates from two linked search space sets based on *searchSpaceLinkingId*, as described in clause 10.1, the last symbol of the PDCCH reception is the last symbol of the PDCCH candidate that ends later. The PDCCH reception includes the two PDCCH candidates also when the UE is not required to monitor one of the two PDCCH candidates as described in clauses 10 (except clause 10.4), 11.1, 11.1.1 and 17.2.

<Unchanged part is omitted>

If a random access procedure is initiated by a PDCCH order or an LTM cell switch command MAC CE, the UE, if requested by higher layers, transmits a PRACH in the selected PRACH occasion, as described in [11, TS 38.321], for which a time between the last symbol of the reception of the PDCCH order or the LTM cell switch command MAC CE (Note: Huawei wants to discuss more. Can we postpone?) and the first symbol of the PRACH transmission is larger than or equal to msec, where

- is a time duration of symbols corresponding to a PUSCH preparation time for UE processing capability 1 [6, TS 38.214] assuming corresponds to the smallest SCS configuration between the SCS configuration of the PDCCH order or the PUSCH carrying the LTM cell switch command MAC CE and the SCS configuration of the corresponding PRACH transmission

- if the active UL BWP does not change, or if a cell indicator field in the PDCCH order indicates a non-serving cell [5, TS 38.212], and is defined in [10, TS 38.133] otherwise

- msec for FR1 and msec for FR2

- is a switching gap duration as defined in [6, TS 38.214]

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

21 L1/L2-triggered mobility procedures

<Unchanged part is omitted>

A UE can be provided configurations, by *EarlyUlSyncConfig*, for PRACH transmission parameters for each of the candidate cells. The UE can be triggered a PRACH transmission on a candidate cell by a PDCCH order that the UE receives on a serving cell and includes an indication of the candidate cell for the PRACH transmission [4, TS 38.212]. If the serving cell and the candidate cell operate in a same frequency range and the UE would have transmissions that overlap in time, or when a gap between a first or last symbol of a PRACH transmission to the candidate cell is less than 𝑁 symbols from a last or first symbol, respectively, of an UL transmission to the serving cell, where is defined in Clause 8.1, the UE

- drops the transmissions on the serving cell when the UE does not support transmissions that overlap in time or are separated by less than the gap on the serving cell and the candidate cell

- prioritizes power allocation to the PRACH transmission on the candidate cell in clause 7.5 when the UE supports transmissions that overlap in time or are separated by less than the gap, and a total UE transmit power in the frequency range would exceed

The UE transmits the PRACH on the candidate cell as described in Clause 8.1 with a power determined as described in Clause 7.4.

The UE can be triggered a PRACH transmission on a target cell by LTM Cell Switch Command MAC CE including an index of candidate target configuration, in clause 6.1.3.75 [11, TS 38.321], that is received on a serving cell.

<Unchanged part is omitted>

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### FL proposal 1-4v2

* Agree the following TP to 38.213

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TP for 38.213 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

8.1 Random access preamble

Physical random access procedure for a UE is triggered upon request of a PRACH transmission by higher layers or by a PDCCH order or LTM Cell Switch Command MAC CE in clause 6.1.3.75 [11, TS 38.321] for a cell. A configuration by higher layers for a PRACH transmission includes the following:

- A configuration for PRACH transmission on the cell [4, TS 38.211].

- A preamble index, a preamble SCS, , a corresponding RA-RNTI when applicable [11, TS 38.321], and a PRACH resource for the cell.

- A number of preamble repetitions for the PRACH transmission if the UE would transmit the PRACH with repetitions.

~~A configuration by LTM Cell Switch Command MAC CE for a PRACH transmission includes the following:~~

~~- A Random Access Preamble index.~~

~~- A SS/PBCH index.~~

~~- A PRACH Mask index.~~

<Unchanged part is omitted>

For a PRACH transmission by a UE triggered by a PDCCH order or an LTM cell switch command MAC CE, the PRACH mask index field, if the value of the random access preamble index field is not zero, indicates the PRACH occasion for the PRACH transmission where the PRACH occasions are associated with the SS/PBCH block index indicated by the SS/PBCH block index field of the PDCCH order or the LTM cell switch command MAC CE and, if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212] or [11, TS 38.321]. If the UE is provided by *cellSpecificKoffset*, the PRACH occasion is after slot where is the slot of the UL BWP for the PRACH transmission that overlaps with the end of the PDCCH order ~~or the LTM cell switch command MAC CE (Note:Huawei thinks this description is for NTN, which is not suitable for LTM. Can we postpone?)~~ reception assuming , and is the SCS configuration for the PRACH transmission. If the PDCCH reception for the PDCCH order includes two PDCCH candidates from two linked search space sets based on *searchSpaceLinkingId*, as described in clause 10.1, the last symbol of the PDCCH reception is the last symbol of the PDCCH candidate that ends later. The PDCCH reception includes the two PDCCH candidates also when the UE is not required to monitor one of the two PDCCH candidates as described in clauses 10 (except clause 10.4), 11.1, 11.1.1 and 17.2.

<Unchanged part is omitted>

If a random access procedure is initiated by a PDCCH order or an LTM cell switch command MAC CE, the UE, if requested by higher layers, transmits a PRACH in the selected PRACH occasion, as described in [11, TS 38.321], for which a time between the last symbol of the reception of the PDCCH order ~~or the LTM cell switch command MAC CE (Note: Huawei wants to discuss more. Can we postpone?)~~ and the first symbol of the PRACH transmission is larger than or equal to msec, where

- is a time duration of symbols corresponding to a PUSCH preparation time for UE processing capability 1 [6, TS 38.214] assuming corresponds to the smallest SCS configuration between the SCS configuration of the PDCCH order or the PUSCH carrying the LTM cell switch command MAC CE and the SCS configuration of the corresponding PRACH transmission

- if the active UL BWP does not change, or if a cell indicator field in the PDCCH order indicates a non-serving cell [5, TS 38.212], and is defined in [10, TS 38.133] otherwise

- msec for FR1 and msec for FR2

- is a switching gap duration as defined in [6, TS 38.214]

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

21 L1/L2-triggered mobility procedures

<Unchanged part is omitted>

A UE can be provided configurations, by *EarlyUlSyncConfig*, for PRACH transmission parameters for each of the candidate cells. The UE can be triggered a PRACH transmission on a candidate cell by a PDCCH order that the UE receives on a serving cell and includes an indication of the candidate cell for the PRACH transmission [4, TS 38.212]. If the serving cell and the candidate cell operate in a same frequency range and the UE would have transmissions that overlap in time, or when a gap between a first or last symbol of a PRACH transmission to the candidate cell is less than 𝑁 symbols from a last or first symbol, respectively, of an UL transmission to the serving cell, where is defined in Clause 8.1, the UE

- drops the transmissions on the serving cell when the UE does not support transmissions that overlap in time or are separated by less than the gap on the serving cell and the candidate cell

- prioritizes power allocation to the PRACH transmission on the candidate cell in clause 7.5 when the UE supports transmissions that overlap in time or are separated by less than the gap, and a total UE transmit power in the frequency range would exceed

The UE transmits the PRACH on the candidate cell as described in Clause 8.1 with a power determined as described in Clause 7.4.

~~The UE can be triggered a PRACH transmission on a target cell by LTM Cell Switch Command MAC CE including an index of candidate target configuration, in clause 6.1.3.75 [11, TS 38.321], that is received on a serving cell.~~

<Unchanged part is omitted>

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### Conclusion

In the Wed online session, the following agreements were made:

Agreement

Adopt the following TP to Section 8.1, TS38.213.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TP for 38.213 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

8.1 Random access preamble

Physical random access procedure for a UE is triggered upon request of a PRACH transmission by higher layers or by a PDCCH order or LTM Cell Switch Command MAC CE in clause 6.1.3.75 [11, TS 38.321] for a cell. A configuration by higher layers for a PRACH transmission includes the following:

- A configuration for PRACH transmission on the cell [4, TS 38.211].

- A preamble index, a preamble SCS, , a corresponding RA-RNTI when applicable [11, TS 38.321], and a PRACH resource for the cell.

- A number of preamble repetitions for the PRACH transmission if the UE would transmit the PRACH with repetitions.

<Unchanged part is omitted>

For a PRACH transmission by a UE triggered by a PDCCH order or an LTM cell switch command MAC CE, the PRACH mask index field, if the value of the random access preamble index field is not zero, indicates the PRACH occasion for the PRACH transmission where the PRACH occasions are associated with the SS/PBCH block index indicated by the SS/PBCH block index field of the PDCCH order or the LTM cell switch command MAC CE and, if any, a cell indicator field indicates a cell for the PRACH transmission [5, TS 38.212]. If the UE is provided by *cellSpecificKoffset*, the PRACH occasion is after slot where is the slot of the UL BWP for the PRACH transmission that overlaps with the end of the PDCCH order reception assuming , and is the SCS configuration for the PRACH transmission. If the PDCCH reception for the PDCCH order includes two PDCCH candidates from two linked search space sets based on *searchSpaceLinkingId*, as described in clause 10.1, the last symbol of the PDCCH reception is the last symbol of the PDCCH candidate that ends later. The PDCCH reception includes the two PDCCH candidates also when the UE is not required to monitor one of the two PDCCH candidates as described in clauses 10 (except clause 10.4), 11.1, 11.1.1 and 17.2.

<Unchanged part is omitted>

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TP for 38.213 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Meanwhile, it is also pointed out the following aspect should/can be further discussed at RAN1#117, which were deleted because more consideration is required.

* Relationship between LTM and NTN
* Timeline when RACH is triggered by LTM Cell Switch Command MAC CE
* Reference to [11, TS 38.321] related to the cell indicator field

Interested companies are required to further study whether/how to address the issues above until the next meeting.

## [Wed online] Issue 1-5: Capturing RAN4 agreement (R1-2401955)

### Summary of Proposal

[R1-2402225](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402225.zip) Draft CR on timing assumption between source and target cells for R18 LTM cell switch vivo
[R1-2402493](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402493.zip) Correction on timing assumption between source and target cells for R18 LTM cell switch CATT
[R1-2402502](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402502.zip) Draft CR on TS38.211 for LTM Lenovo
R1-2402821 Correction on timing difference for LTM ASUSTeK

* The four proponents propose to add “LTM cell switch procedure” into 38.211 based on the RAN4 input
* The proposed change by ASUSTek includes UL sync before cell switch.

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(new issue) | FL share the same view as vivo (R1-2402225) that the terminology “handover” does not include PScell change. FL suggestion is to approve R1-2402225.  |
| Ericsson | Yes |  |
| Nokia | Yes |  |
| Samsung | No | Cell switch is a type of handover. Hence, no change is needed. |
| ZTE | No | The term “handover” has covered LTM case, so no spec change is needed. |
| Spreadtrum | Yes | It is good to add LTM cell switch procedure to make the spec clear.  |
| CATT | Yes | Support to discuss. |
| Lenovo | Yes |  |
| ASUSTeK | Yes | Handover is used for L3-based mobility so that covering L1-based mobility in addition is required. |
| Huawei, HiSilicon | No | Share similar view Samsung and ZTE. |
|  |  |  |

### FL proposal 1-5v1

For the timing assumption between source and target cells described in the RAN4 LS R1-2401955,

* TP in R1-2402225 is agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, Spreadtrum, CATT, Lenovo, ASUSTek
	+ No: Samsung, ZTE, Huawei (terminology “Handover” includes LTM)

#### 6.3.3.2 Mapping to physical resources

For ~~handover~~ RRC-triggered handover and LTM cell switch purposes to a target cell in paired or unpaired spectrum where the target cell uses , the UE may assume the absolute value of the time difference between radio frame in the current cell and radio frame in the target cell is less than if the association pattern period in clause 8.1 of [5, TS 38.213] is not equal to 10 ms.

For inter frequency ~~handover~~ RRC-triggered handover and LTM cell switch purposes where the source cell is either in paired or unpaired spectrum and the target cell is in unpaired spectrum and uses , the UE may assume the absolute value of the time difference between radio frame in the current cell and radio frame in the target cell is less than

### FL proposal 1-5v2

Conclusion

* For timing assumption between source and target cells described in clause 6.3.3.2 of TS38.211, the terminology “handover” includes LTM cell switch
	+ Note: The necessity of CR can be discussed in RAN1#117

## Issue 1-6: Deactivation of candidate TCI states

### Summary of Proposal

[R1-2402984](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402984.zip) Draft CR for 38.213 on deactivation of candidate TCI states Ericsson

* The rule for candidate cell TCI state deactivation after RRC reconfiguration with sync is not captured in the specification

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes?(new issue) | OK to have this CR for clear UE behaviour. However, FL thinks the spec wouldn’t be broken even without this CR. When no UE behaviour is captured in the spec, the gNB can’t assume any activated TCI states and hance the gNB has to activate necessary TCI states for candidate cells before LTM.If everyone is fine with this CR, FL suggest approving R1-2402984 |
| Samsung | No | If TCI states are not activated, then they are deactivated by default. No need to mention this. |
| vivo | No | According to the current specification, upon the reception of LTM MAC CE, the activated TCI state(s) other than the indicated TCI state will be deactivated. The CandidateTCI-State and/or CandidateTCI-UL-State will be deactivated when the Candidate TCI state activation command is received. Therefore, the spec is clear and the proposed change is not needed. |
| ZTE | No | Current clause 21 is to describe some features supported for LTM, it is not relevant to RRC based handover. So we tend to discuss this issue in RAN2. |
| Spreadtrum | No | Agree with Samsung.  |
| CATT | No | Agree with FL’s opinion. |
| Lenovo | No | Agree with Samsung and vivo. |
| Huawei, HiSilicon | No | It is traditional L3 HO. All TCI states including LTM TCI states will be released according to the current spec as MAC will be reset. No need to change.  |
| NEC | Yes | Agree with FL |

## [CR review] Issue 1-7: TCI state applied for CORESET 0

### Summary of Proposal

[R1-2402987](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402987.zip) Draft CR for 38.213 on TCI state applied for CORESET 0 Ericsson

* The current fallback rule for the TCI state to receive CORESET 0 (to SSB identified though initial access procedure) is not applicable to LTM. This aspect needs to be clarified

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(new issue) | FL thinks the spec description will contradict without this additional sentence. FL suggestion is to approve R1-2402987 |
| Nokia | Yes |  |
| Samsung | Yes |  |
| vivo | Yes |  |
| ZTE | No | Rule mentioned in clause 21 can be applied for CORESET#0, i.e., follow indicated TCI state in LTM cell switch command MAC CE. No see the need to change spec in clause 10.1. |
| CATT | Yes | Support |
| Lenovo | Yes |  |
| Huawei, HiSilicon |  | Why only for RACH-less LTM? after RACH-based LTM and before serving cell TCI state is indicated, UE may still detect CORESET0. |
| NEC | Yes |  |

### FL proposal 1-7v1

For the TCI state applied for CORESET 0,

* TP in R1-2402987 is agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, Samsung, vivo, CATT, Lenovo
		- Huawei: How about RACH-based LTM?
	+ No: ZTE (rule defined n clause 21 of TS38.213 is sufficient)

TP for TS38.213 in R1-240298

10.1 UE procedure for determining physical downlink control channel assignment

- else, the UE assumes that a DM-RS antenna port for PDCCH receptions in the CORESET is quasi co-located with

- the one or more DL RS configured by a TCI state, where the TCI state is indicated by a MAC CE activation command for the CORESET, if any, or

- the one or more DL RS configured by a candidate TCI state, where the candidate TCI state is indicated by an LTM cell switch command that triggers a RACH-less and RACH-based LTM cell switch, if any, or

- a SS/PBCH block the UE identified during a most recent random access procedure not initiated by a PDCCH order that triggers a contention-free random access procedure, if no MAC CE activation command indicating a TCI state for the CORESET is received after the most recent random access procedure, or a SS/PBCH block the UE identified during a most recent configured grant PUSCH transmission as described in clause 19.

### Conclusion

Agreement

Adopt the following TP to section 10.1, TS38.213 in principle.

**10.1 UE procedure for determining physical downlink control channel assignment**

- else, the UE assumes that a DM-RS antenna port for PDCCH receptions in the CORESET is quasi co-located with

- the one or more DL RS configured by a TCI state, where the TCI state is indicated by a MAC CE activation command for the CORESET, if any, or

- the one or more DL RS configured by a candidate TCI state, where the candidate TCI state is indicated by an LTM cell switch command that triggers a RACH-less or RACH-based LTM cell switch, if any, or

- a SS/PBCH block the UE identified during a most recent random access procedure not initiated by a PDCCH order that triggers a contention-free random access procedure, if no MAC CE activation command indicating a TCI state for the CORESET is received after the most recent random access procedure, or a SS/PBCH block the UE identified during a most recent configured grant PUSCH transmission as described in clause 19.

## [CR review] Issue 1-8: TCI state applied after LTM cell switch

### Summary of Proposal

[R1-2402989](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402989.zip) Draft CR for 38.214 on QCL assumption after LTM cell switch command Ericsson

* The current rule for default TCI state (i.e. associated with SSB identified though initial access procedure) is not applicable to LTM. This aspect needs to be clarified

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(new issue) | FL thinks the current spec description will contradict without this additional sentence. FL suggestion is to approve R1-2402989 |
| Nokia | Yes |  |
| Samsung | No | This is redundant with clause 21 of TS 38.213 where the application of LTM TCI state after cell switch is described. No need to repeated in TS 38.214 |
| vivo | Yes |  |
| ZTE | No | For UE behavior before TCI state takes effect, current spec can be reuse, so I don’t identify the need to change spec. |
| CATT | Yes | Support |
| Lenovo | Yes | Fine |
| Huawei, HiSilicon | Yes |  |
| NEC | Yes |  |

### FL proposal 1-8v1

For the TCI state applied after LTM cell switch,

* TP in R1-2402989 is agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, vivo, CATT, Lenovo, Huawei
	+ No: Samsung, ZTE (rule defined in clause 21 of TS38.213 is sufficient)

TP for TR38.214 in R1-2402989

5.1.5 Antenna ports quasi co-location

After a UE receives an initial higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* and before application of an indicated TCI state from the configured TCI states:

- The UE assumes that DM-RS of PDSCH and DM-RS of PDCCH and the CSI-RS applying the indicated TCI state are quasi co-located with the reference signal(s) in the *CandidateTCI-State* indicated in the LTM cell switch command [10, 38.321] if applicable, otherwise

- The UE assumes that DM-RS of PDSCH and DM-RS of PDCCH and the CSI-RS applying the indicated TCI state are quasi co-located with the SS/PBCH block the UE identified during the initial access procedure.

After a UE receives an initial higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or *ul-TCI-StateList* with more than one *TCI-UL-State* and before application of an indicated TCI state from the configured TCI states:

- The UE determines the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, from the *CandidateTCI-State* or *CandidateTCI-UL-State* indicated in the LTM cell switch command [10, 38.321] if applicable, otherwise

- The UE assumes that the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, is the same as that for a PUSCH transmission scheduled by a RAR UL grant or a MsgA PUSCH transmission during the initial access procedure.

<unchanged parts omitted>

### Conclusion

Agreement

Adopt the following TP to section 5.1.5, TS38.214 in principle.

**5.1.5 Antenna ports quasi co-location**

After a UE receives an initial higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* and before application of an indicated TCI state from the configured TCI states:

- The UE assumes that DM-RS of PDSCH and DM-RS of PDCCH and the CSI-RS applying the indicated TCI state are quasi co-located with the reference signal(s) in the *CandidateTCI-State* indicated in the LTM cell switch command [10, 38.321] if applicable, otherwise

- The UE assumes that DM-RS of PDSCH and DM-RS of PDCCH and the CSI-RS applying the indicated TCI state are quasi co-located with the SS/PBCH block the UE identified during the initial access procedure.

After a UE receives an initial higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or *ul-TCI-StateList* with more than one *TCI-UL-State* and before application of an indicated TCI state from the configured TCI states:

- The UE determines the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, from the *CandidateTCI-State* or *CandidateTCI-UL-State* indicated in the LTM cell switch command [10, 38.321] if applicable, otherwise

- The UE assumes that the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, is the same as that for a PUSCH transmission scheduled by a RAR UL grant or a MsgA PUSCH transmission during the initial access procedure.

<unchanged parts omitted>

## [CR review] Issue 1-9: PRACH collision handling

### Summary of Proposal

[R1-2403073](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403073.zip) Draft CR for 38.213 on PRACH collision handling for LTM Nokia

* This is to reflect the RAN1 agreement that “When the UE does not support simultaneous/parallel transmissions of PRACH in candidate cell and UL channels and signals in serving cell, support serving cell UL TX is dropped.”

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(slight majority supported the TP in the previous meeting) | This is to capture the RAN1 agreementFL suggestion is to approve R1-2403073 |
| Ericsson | Yes |  |
| Samsung | No | If Msg1/Msg3/MsgA is UE initiated, UE’s own implementation can avoid overlap. If in response to network trigger, this can be avoided by network.  |
| vivo | Yes |  |
| ZTE |  | We have no strong view to align with RAN2’s agreement on UE implementation to resolve such collision. |
| CATT | Yes | Agree with FL’s proposal |
| Lenovo | Yes |  |
| ASUSTeK | No | Current RAN1’s text in TS38.213 is under the assumption/implementation that UE choose to initiate PRACH for LTM. After consulting our RAN2 colleague, the UE implementation is concerning “the whole random access procedure” level, not only whether they overlap in time domain or not. So even with the new text added by the CR, it could not cover the case/implementation that UE choose to continue the existing RA and does not initiate RA for LTM. Also it’s our understanding is that the RAN1 agreement has been reflected in MAC spec, since UE would conduct only one random access procedure at a time so that there would not be any overlapping at all. |
| Huawei, HiSilicon | Yes |  |
| NEC | Yes |  |

### FL proposal 1-9v1

For the PRACH collision handling for LTM,

* TP in R1-2403073 is agreed in principle, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, vivo, CATT, Lenovo, Huawei
	+ No:
		- Samsung, (If Msg1/Msg3/MsgA is UE initiated, UE’s own implementation can avoid overlap. If in response to network trigger, this can be avoided by network.)
		- ASUS (reflected in MAC spec)

TP for TS38.213 in R1-2403073

# 21 L1/L2-triggered mobility procedures

A UE can be provided configurations, by *EarlyUlSyncConfig*, for PRACH transmission parameters for each of the candidate cells. The UE can be triggered a PRACH transmission on a candidate cell by a PDCCH order that the UE receives on a serving cell and includes an indication of the candidate cell for the PRACH transmission [4, TS 38.212]. If the serving cell and the candidate cell operate in a same frequency range and the UE would have transmissions that overlap in time, or when a gap between a first or last symbol of a PRACH transmission to the candidate cell is less than 𝑁 symbols from a last or first symbol, respectively, of an UL transmission to the serving cell, where is defined in Clause 8.1, the UE

- drops the transmissions on the serving cell when the UE does not support transmissions that overlap in time or are separated by less than the gap on the serving cell and the candidate cell and the UL transmission to the serving cell is other than a RACH Msg 1, Msg A, or Msg 3 transmission.

- prioritizes power allocation to the PRACH transmission on the candidate cell in clause 7.5 when the UE supports transmissions that overlap in time or are separated by less than the gap, and a total UE transmit power in the frequency range would exceed

### Conclusion

Agreement

Adopt the following TP to section 21, TS38.213.

**21 L1/L2-triggered mobility procedures**

A UE can be provided configurations, by *EarlyUlSyncConfig*, for PRACH transmission parameters for each of the candidate cells. The UE can be triggered a PRACH transmission on a candidate cell by a PDCCH order that the UE receives on a serving cell and includes an indication of the candidate cell for the PRACH transmission [4, TS 38.212]. If the serving cell and the candidate cell operate in a same frequency range and the UE would have transmissions that overlap in time, or when a gap between a first or last symbol of a PRACH transmission to the candidate cell is less than 𝑁 symbols from a last or first symbol, respectively, of an UL transmission to the serving cell, where is defined in Clause 8.1, the UE

- drops the transmissions on the serving cell when the UE does not support transmissions that overlap in time or are separated by less than the gap on the serving cell and the candidate cell and the UL transmission to the serving cell is other than a RACH Msg 1, Msg A, or Msg 3 transmission.

- prioritizes power allocation to the PRACH transmission on the candidate cell in clause 7.5 when the UE supports transmissions that overlap in time or are separated by less than the gap, and a total UE transmit power in the frequency range would exceed

## [CR reveiw] Issue 1-10: UL/SUL indicator

### Summary of Proposal

[R1-2403331](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403331.zip) Correction on supplementary uplink for LTM Google
[R1-2403360](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403360.zip) Corrections to UL/SUL indicator in DCI format 1\_0 for LTM early RACH in TS38.21 Huawei, HiSilicon

🡪 Google and Huawei have a common understanding on the interpretation of the UL/SUL indicator field. On the other hand, Huawei see the need to change the order of bit field: Cell indictor field should be placed before UL/SUL indicator because the interpretation of UL/SUL indicator depends on cell indicator

### Companies view.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(majority supported the TP in the previous meeting) | As proposed by Goole and Huawei, the text change for UL/SUL field is essential. As for the change of position for cell indicator field (proposed by Huawei), FL thinks it is “nice to have” as the interpretation of the filed can be done sequentially. However, the system will still work without this change. We can discuss which draft CR to take, Google or Huawei. |
| Ericsson | Yes | Prefer Google’s version  |
| Nokia | Yes |  |
| Samsung |  | OK, prefer update from Google. |
| vivo | Yes |  |
| ZTE | Yes |  |
| CATT | Yes | Detailed text change can be further discussed. |
| Lenovo | Yes |  |
| ASUSTeK | Yes |  |
| Huawei, HiSilicon | Yes | The reason to split paragraph into subbullets is to make it clear that the “otherwise” is corresponding to cases no matter cell indicator is there or not, instead of just for case where cell indicator is configured.As for the order change, we can leave it to editor if companies think there is no technique issue. |
| NEC | Yes |  |

### FL proposal 1-10v1

For the UL/SUL indicator in DCI format 1\_0 for LTM,

* TP in R1-2403331 is agreed in principle with the following change, and the moderator will prepare a final CR.
	+ Yes: Ericsson, Nokia, Samsung, vivo, ZTE, CATT, Lenovo, ASUS
		- Huawei: Need to clarify if-otherwise relationship:

7.3.1.2.1 Format 1\_0

If the CRC of the DCI format 1\_0 is scrambled by C-RNTI and the "Frequency domain resource assignment" field are of all ones, the DCI format 1\_0 is for random access procedure initiated by a PDCCH order, with all remaining fields set as follows:

- Random Access Preamble index - 6 bits according to *ra-PreambleIndex* in Clause 5.1.2 of [8, TS38.321]

- UL/SUL indicator - 1 bit.

* If the Cell indicator field is absent or the Cell indicator field indicates serving cell, if the value of the "Random Access Preamble index" is not all zeros and if the UE is configured with *supplementaryUplink* in *ServingCellConfig* in the cell, this field indicates which UL carrier in the cell to transmit the PRACH according to Table 7.3.1.1.1-1;
* If the Cell indicator field indicates a candidate cell, if the value of the "Random Access Preamble index" is not all zeros and if the UE is configured with *ltm-EarlyUL-SyncConfigSUL* in *LTM-Candidate* for the candidate cell, this field indicates which UL carrier in the candidate cell to transmit the PRACH according to Table 7.3.1.1.1-1;
* Otherwise, this field is reserved

### Conclusion

Agreement

Adopt the following TP to section 7.3.1.2.1, TS38.212.

**7.3.1.2.1 Format 1\_0**

If the CRC of the DCI format 1\_0 is scrambled by C-RNTI and the "Frequency domain resource assignment" field are of all ones, the DCI format 1\_0 is for random access procedure initiated by a PDCCH order, with all remaining fields set as follows:

- Random Access Preamble index - 6 bits according to *ra-PreambleIndex* in Clause 5.1.2 of [8, TS38.321]

- UL/SUL indicator - 1 bit.

* If the Cell indicator field is absent or the Cell indicator field indicates serving cell, if the value of the "Random Access Preamble index" is not all zeros and if the UE is configured with *supplementaryUplink* in *ServingCellConfig* in the cell, this field indicates which UL carrier in the cell to transmit the PRACH according to Table 7.3.1.1.1-1;
* If the Cell indicator field indicates a candidate cell, if the value of the "Random Access Preamble index" is not all zeros and if the UE is configured with *ltm-EarlyUL-SyncConfigSUL* in *LTM-Candidate* for the candidate cell, this field indicates which UL carrier in the candidate cell to transmit the PRACH according to Table 7.3.1.1.1-1;
* Otherwise, this field is reserved

# Wording change/Alignment to be concluded in RAN1#116bis or #117 if necessary

## [Thu online] Issue 2-1: Alignment of

[R1-2402528](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402528.zip) Correction on Further NR Mobility Enhancements Langbo

* Change the unit of a parameter (slot number 🡪 millisecond).

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(majority supported the TP in the previous meeting) | The intention is OK and the spec will be clearer with this change.  |
| Ericsson | Yes |  |
| Nokia | Yes |  |
| Samsung | OK |  |
| vivo | Yes |  |
| ZTE |  | We noticed that this parameter is defined in RAN4 using “duration” concept or in unit, so we understand that it is simpler that RAN1 directly refer to the RAN4 definition without the need for additional modifications in RAN1 spec. |
| Lenovo | Yes |  |
| Huawei, HiSilicon | Yes |  |
| NEC | Yes |  |

### FL proposal 2-1v1

* The draft CR in R1-2402528 is endorsed in principle for the 38.213 editor’s alignment CRs

## [Thu online] Issue 2-2: Terminology of “non-serving” cell for LTM

[R1-2402983](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402983.zip) Draft CR for 38.213 on candidate cell naming Ericsson

* The intention is not to use “non-serving” cell for LTM purpose

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(new issue) | Intention is OK |
| Nokia | Yes |  |
| Samsung | OK |  |
| vivo | Yes |  |
| ZTE  | Yes |  |
| Lenovo | Yes |  |
| ASUSTeK |  | Our thinking is the term “non-serving cell” would not cause any confusion so staying with the existing text seems fine. While we would not object if most companies would like to change it. |
| Huawei,HiSilicon |  | Agree with the intention. However, for the change “or for a cell with *physCellId* different from the *physCellId* of the serving cell”, it should be left for MIMO.For the first “candidate cell”, we suggest to modify as “candidate cell configured with higher layer parameter *EarlyUlSyncConfig*” to reflect that only cells configured with early RACH need to measure the PL and algin with 212 definition. |
| NEC | Yes |  |

### FL proposal 2-2v2

* Agree the following TP for 38.213

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**7.4 Physical random access channel**

A UE determines a transmission power for a physical random access channel (PRACH), , on active UL BWP of carrier of cell based on DL RS for cell in transmission occasion as

 [dBm],

where

- is the UE configured maximum output power defined in [8-1, TS 38.101-1], [8-2, TS 38.101-2] and [8-3, TS 38.101-3] for carrier of cell within transmission occasion ,

- is the PRACH target reception power *PREAMBLE\_RECEIVED\_TARGET\_POWER* provided by higher layers [11, TS 38.321] for the active UL BWP of carrier of cell , and

- is a pathloss for the active UL BWP of carrier based on the DL RS associated with the PRACH transmission on the active DL BWP of cell and calculated by the UE in dB as *referenceSignalPower* – higher layer filtered RSRP in dBm, where RSRP is defined in [7, TS 38.215] and the higher layer filter configuration is defined in [12, TS 38.331]. If the active DL BWP is the initial DL BWP and for SS/PBCH block and CORESET multiplexing pattern 2 or 3 as described in clause 13, or for a candidate cell configured with higher layer parameter *EarlyUl-SyncConfig*, [or for a cell with *physCellId* different from the *physCellId* of the serving cell (Note: Huawei wants to confirm if this sentence is for MIMO(multi-TA) or LTM.)], the UE determines based on the SS/PBCH block associated with the PRACH transmission.

If a PRACH transmission from a UE is not in response to a detection of a PDCCH order by the UE, or is in response to a detection of a PDCCH order by the UE that triggers a contention based random access procedure, or is associated with a link recovery procedure where a corresponding index is associated with a SS/PBCH block, as described in clause 6, *referenceSignalPower* is provided by *ss-PBCH-BlockPower*.

If a PRACH transmission from a UE is in response to a detection of a PDCCH order by the UE that triggers a contention-free random access procedure and depending on the DL RS that the DM-RS of the PDCCH order is quasi-collocated with as described in clause 10.1

- when the PRACH association indicator is not present in the PDCCH order, or

- when the cell indicator field in the PDCCH order is not present or has value 0, or

- when a value of a PRACH association indicator field in the PDCCH order is 0 if the UE is not provided *SSB-MTC-AdditionalPCI*, or

- when the PRACH association indicator field in the PDCCH order indicates a *physCellId* associated with the cell of the PDCCH order reception,

or depending on an indicated SS/PBCH block

- when the PRACH transmission is on a candidate cell indicated by the cell indicator field in the PDCCH order, or

- when a value of a PRACH association indicator field in the PDCCH order is 1 if the UE is not provided *SSB-MTC-AdditionalPCI*, or

- when the PRACH association indicator field in the PDCCH order indicates a *physCellId* that is different that the *physCellId* associated with the cell of the PDCCH order reception,

*referenceSignalPower* is provided by a corresponding *ss-PBCH-BlockPower*.

<unchanged parts omitted>

**8.1 Random access preamble**

<unchanged parts omitted>

If a random access procedure is initiated by a PDCCH order, the UE, if requested by higher layers, transmits a PRACH in the selected PRACH occasion, as described in [11, TS 38.321], for which a time between the last symbol of the PDCCH order reception and the first symbol of the PRACH transmission is larger than or equal to msec, where

- is a time duration of symbols corresponding to a PUSCH preparation time for UE processing capability 1 [6, TS 38.214] assuming corresponds to the smallest SCS configuration between the SCS configuration of the PDCCH order and the SCS configuration of the corresponding PRACH transmission

- if the active UL BWP does not change, or if a cell indicator field in the PDCCH order indicates a candidate cell [5, TS 38.212], and is defined in [10, TS 38.133] otherwise

- msec for FR1 and msec for FR2

- is a switching gap duration as defined in [6, TS 38.214]

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

- if a cell indicator field in the PDCCH order indicates a serving cell or if cell indicator field is not present, and is defined in [10, TS 38.133] otherwise

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## Issue 2-3: TCI state ID in cell switch command

[R1-2402986](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402986.zip) Draft CR for 38.213 on signaling of TCI state in LTM cell switch command Ericsson

* TCI state ID and/or UL TCI state ID is provided by a LTM Cell Switch Command instead of *CandidateTCI-State* and/or *CandidateTCI-UL-State.*

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(new issue) | Intention is OK |
| Nokia | Yes |  |
| Samsung | No | Existing wording is clear. |
| vivo | OK |  |
| ZTE |  | We are open to change current spec. In our view, the change corresponding to the CR is more aligned with the term used in TS 38.321. But if no any change is made, it seems also not to have any ambiguity. |
| Lenovo | OK |  |
| Huawei, HiSilicon | No | Not essential. |
| NEC | No | Existing is fine |

## [Thu online] Issue 2-4: clarification on spCellInclusion

[R1-2402990](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402990.zip) Draft CR for 38.214 on spCellInclusion Ericsson

* *.*

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(new issue) | OK with the intentionFor FL, the yellow part sounds weird (from non-native speaker point of view) since SSB resource is not defined inside of the *ltm-CandidateIdList*. “associated with” instead of “in the” would be better ? if *spCellInclusion* is configured, SSB resources in *ltm-CSI-SSB-ResourceList* associated with the current SpCell are the entries in the *ltm-CandidateIdList* where ~~LTM-CSI-SSB-ResourceSet-r18 ::= SEQUENCE { ltm-CSI-SSB-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-SSB-ResourcesPerSet-r18)) OF SSB-Index, ltm-CandidateIdList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-SSB-ResourcesPerSet-r18)) OF LTM-CandidateId-r18, ...}FL is fine if everyone is OK with the original proposal from Ericsson. |
| Nokia | Yes |  |
| Samsung | OK |  |
| vivo | OK |  |
| ZTE | Yes |  |
| Lenovo | OK |  |
| Huawei, HiSilicon | Not essential | It can be left to editor. |
|  |  |  |

### FL proposal 2-4v1

* The draft CR in R1-2402990 is endorsed in principle for the 38.214 editor’s alignment CRs

## [Thu online] Issue 2-5: Parameter name correction for UE-based TA

[R1-2403009](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403009.zip) Draft CR on L1/L2-triggered mobility procedures ETRI
[R1-2403010](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403010.zip) Discussion on L1/L2-triggered mobility procedures ETRI

* Focus on R1-2403009 . This CR is to correct the parameter name

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes but… (new issue) | This proposal is fine as an alignment CR. On the other hand,* the first change “*~~ltm-UE-MeasuredTA-ID~~* *ltm-UE-MeasuredTA-ID”* does not change anything.
* the description is completely same as the condition defined in section 5.3.5.18.3 of 38.331. Then, another solution is just refer to this 38.331 to avoid a duplication.

Ether approach is fine from FL perspective.  |
| Ericsson | Yes? | Prefer to keep the description in 38.213. |
| Nokia | Yes but.. | Agree with only changes proposed for 38.213.  |
| Samsung | Editorial | To align with parameter names in TS 38.331 |
| vivo |  | Fine with the editorial change. |
| ZTE |  | Tend to keep current term in TS 38.213. |
| Lenovo | OK |  |
| Huawei,HiSilicon |  | Is the 2nd change the alignment CR? No need to have post-fix -r18 |
| NEC | Yes |  |

### FL proposal 2-5v1

Let’s combine Issue 3-4 here to reduce the CRs:

* The following TP is endorsed in principle for the 38.213 editor’s alignment CRs

# 21 L1/L2-triggered mobility procedures

\*\*\* Unchanged parts are omitted \*\*\*

If *ltm-UE-MeasuredTA-ID* of a candidate cell and *~~ltm-UE-MeasuredTA-ID~~ ltm-ServingCellUE-MeasuredTA-ID* of the serving cell are provided to a UE and have same value, the UE estimates based on the UE implementation a timing advance to apply from a first transmission on the candidate cell that is after the reception of a cell switch command for the candidate cell when the condition defined in clause 5.18.35 of [11, TS 38.321] is satisfied.

\*\*\* Unchanged parts are omitted \*\*\*

## [Thu online] Issue 2-6: Parameter name correction - miscellenous

R1-2402822 Correction on LTM ASUSTeK

* This CR is to correct the parameter name

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| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes(new issue) | OK as an alignment CR  |
| Ericsson | Yes | OK as part of alignment CR |
| Nokia | Yes |  |
| Samsung | Editorial | To align with parameter names in TS 38.331 |
| vivo | Yes |  |
| ZTE | Yes |  |
| Lenovo | OK |  |
| ASUSTeK | Yes |  |
| Huawei, HiSilicon | Yes |  |
| NEC | Yes |  |

### FL proposal 2-6v1

* The draft CR in R1-2402822 is endorsed in principle for the 38.213 editor’s alignment CRs

# Issues that need more discussion: to be concluded in RAN1#117 if necessary

## Issue 3-1: Consitency between SSB index and TCI state in cell switch command MAC CE

[R1-2402059](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402059.zip) Draft CR on consistency between SSB index and TCI state in LTM Cell Switch Command MAC CE ZTE
[R1-2402060](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402060.zip) Discussion on consistency between SSB index and TCI state in LTM Cell Switch Command MAC CE ZTE

* This proposal tries to achieve the consistency between SSB index for PRACH transmission and the TCI state

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| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | No(not many input in the previous meeting) | The potential mismatch between SSB index and TCI state in cell switch command MAC CE can be avoided by gNB implementation. |
| Ericsson | No | Agree with FL. The specification is clear |
| Nokia | No | Not needed. |
| Samsung | No | Agree with FL |
| vivo | No | Agree with FL |
| ZTE |  | For this issue, we can observe from RAN2 agreement that RAN2 has assumed both SSB index and TCI state to be included in LTM cell switch command and ask RAN1 if it is necessary to remove SSB index from current TS 38.321. why is there such a agreement and assumption in RAN2? it is because RAN2 itself think that SSB index and TCI state are both considered consistent for determining “Tx spatial filter” of PRACH transmission.Based on above, we think that if RAN1 has no any further discussion on the issue raised by RAN2, it means that RAN1 confirms the agreement and understanding from RAN2. from this point of views, at least there is a conclusion to confirm RAN2’s assumption and understanding. Otherwise, we tend to send an LS to RAN2 for asking the intention of agreement achieved in RAN2 and clarify the relationship between SSB index and TCI state in LTM cell switch command MAC CE. |
| Lenovo | No | Agree with FL |
| Huawei, HiSilicon |  | I think a consistent configuration/indication is a reasonable implementation. |
| NEC | No | Agree with FL |

## Issue 3-2: LTM coexistence with Rel-18 multiple TA

[R1-2402226](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402226.zip) Discussion on LTM cell switch for target cell with multiple TAs vivo

* The following proposals are made:
	+ Proposal 1: Add the information for mapping between TCI state and TAG ID in the CandidateTCI-State and CandidateTCI-UL-State.
	+ Proposal 2: If the co-existence between RACH-based LTM and Rel-18 MIMO multiple TAs is supported, how to avoid or resolve the mismatch between the TAGs associated with the indicated TCI state and the calculated TA in the RAR needs further study.

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| Company | Essential or Not(Yes or No) | Comment |
| FL | ?(new issue) | According to R1-2402226, the RAN2 discussion is still ongoing. FL suggestion is to check the RAN2 status and come back in the next meeting for more clarity. (FL believes this approach is not too late considering this is a bis meeting) |
| Samsung | No | As we are in maintenance phase, only essential corrections are considered. This introduces new functionality. |
| NEC | Yes |  |
|  |  |  |

## Issue 3-3: Clarification of Candidate Cell TCI state activation

[R1-2402302](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402302.zip) Correction on Candidate Cell TCI state indication in TS 38.213 OPPO

* Clarify the UE behaviour that a Candidate Cell TCI States Activation/Deactivation MAC CE can activate TCI states and LTM Cell Switch Command MAC CE can also activate TCI state(s) if the TCI state(s) is not activated.

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| Company | Essential or Not(Yes or No) | Comment |
| FL | No?(new issue) | FL does not see the difference between the original specification and the CR. FL would like to hear the opinion from companies.  |
| Ericsson | No |  |
| Samsung | No | Origin text is clear. |
| vivo | No |  |
| ZTE | No |  |
| Lenovo | No |  |
| Huawei, HiSilicon | No |  |
| NEC | No |  |

## Issue 3-4: Condition to apply UE-measured TA

[R1-2402709](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402709.zip) Draft CR on applying UE-measured TA after LTM Cell Switch Command MAC CE ZTE

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| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | No(new issue) | Reference to 38.321 has already been captured in the corresponding sentence in 38.213, and the condition to apply UE-measured TA can be found there. |
| Ericsson | No | No need to replicate 38.321. |
| Nokia | Yes/No | No strong view. Its Ok to add the clarification in 38.213. |
| Samsung | No | Agree with FL |
| vivo | No | Agree with FL. |
| ZTE | Yes | we think that the description corresponding to RAN2 is necessary to be added in RAN1. If there is no such condition on when TA acquired by UE is applied, current description or UE behavior is incorrect and not aligned with RAN2 agreement. |
| Lenovo | No | Agree with FL |
| Huawei, HiSilicon | Yes | Share similar view as Nokia/ZTE |
| NEC | No | Agree with FL |
|  |  |  |

## Issue 3-5: TA offset information for UE-based TA

[R1-2402785](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402785.zip) Correction on TA offset information for UE-based TA acquisition Fujitsu

* Clarify the TA offset value used for UE based TA.

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| Company | Essential or Not(Yes or No) | Comment |
| FL | Yes – more discussion needed(Not many supports in the previous meeting) | FL sees two issues related to this proposal:UE procedure related to *n-TimingAdvanceOffset* for a candidate cell (including default value) is not described in the specification irrespective of UE-measured TA or not.For the second change, FL thinks the expect behaviour can anyway captured for the spec clarity. On the other hand, the simplest solution is to leave everything to UE implementation, i.e. assuming the UE to use *n-TimingAdvanceOffset* in *EarlyUL-SyncConfig*. *“n-TimingAdvanceOffset-ltm”* in this CR should be *“n-TimingAdvanceOffset* in *EarlyUL-SyncConfig”* |
| Ericsson | No? | This feels like an optimization. UE-based TA estimation will not be applicable between any pair of cells, so the NW would not configure UE-based estimation between cells with different values of *n-TimingAdvanceOffset* |
| Samsung |  | OK to discuss further if any changes are needed. |
| vivo |  | open to discuss. |
| ZTE |  | We understand that it is up to UE implementation. |
| Huawei, HiSilicon |  | We think UE can obtain *TimingAdvanceOffset* after cell switch as no UL transmission before CSC. |
|  |  |  |

## Issue 3-6: Handling of TRS traking

[R1-2403222](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403222.zip) Maintenance on Further NR Mobility Enhancements NTT DOCOMO, INC.

* The following proposals were made:
* If UE does not support TRS tracking for candidate cells before cell switch, UE measures/tracks SSBs for candidate cells before cell switch command. After cell switch command, UE measures/tracks TRS for target cell if TRS is provided in the indicated TCI state.
* If UE supports TRS tracking for candidate cells before cell switch, UE measures/tracks TRS for candidate cells before cell switch command if TRS is provided in the activated TCI states.

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| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | OK to clarify (but FL understanding from the last meeting is No) | There might be a different understanding on the UE behaviour for TRS. However, according to the offline discussion at RAN1#115, the following is the intention of the current specifications:- The UE capability applies both before and after cell switch command- A UE is capable of TRS, the UE can be configured with TRS. The UE behaviour is the same before and after cell switch command, i.e. TRS is used for tracking before and after CSC- A UE is capable of SSB, the UE can be configured with SSB. The UE behaviour is the same before and after cell switch command, i.e. SSB is used for tracking before and after CSC |
| Ericsson | No | TRS tracking is up to UE implementation. |
| Nokia | No |  |
| Samsung | No | If UE doesn’t support TRS, then the TRS should not be configured as a source RS in the LTM (candidate cell) TCI state. |
| vivo |  | Open to discuss. |
| ZTE |  | Open to discuss or it can be captured in RAN4 spec. |
| Lenovo |  | Open to discuss |
| Huawei, HiSilicon | No | It is resolved in UE feature discussion.  |
| NEC | No |  |

## Issue 3-7: Timing to apply new UL TCI state

[R1-2402991](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2402991.zip) Remaining issue on beam usage after LTM cell switch command Panasonic
[R1-2403310](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403310.zip) Draft CR for 38.213 for TCI state usage after RACH-based LTM Panasonic

* It is pointed out in this contribution that after RACH procedure the timing to apply the indicated TCI state is not clear

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | No(new issue) | Even though it is not captured in the FL summaries and Chair’s note, it was discussed in the offline session that “completion of the random access procedure” refers to the description in RAN2 specification, i.e. the condition of the completion of random access procedure is clearly captured in section 5.1.5 of 38.321. FL thinks no new interpretation needs to be defined in RAN1.  |
| Ericsson | No | Current description is sufficient. |
| Samsung | No | Agree with FL. |
| vivo | No | Agree with FL. |
| ZTE | No | Agree with FL. |
| Lenovo | No | Agree with FL. |
| Huawei, HiSilicon | No | Agree with FL |
| NEC | No | Agree with FL |

## Issue 3-8: LTM TCI state application on target SCell

[R1-2403337](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403337.zip) Discussion on LTM TCI state application on target SCell Huawei, HiSilicon
[R1-2403347](file:///C%3A%5C3GPP%5CRAN1_116bis%5CInbox%5Cdrafts%5C8.4%28NR_others%29%5CMobility%5CDocs%5CR1-2403347.zip) Corrections to LTM TCI state application on target SCell in TS38.213 Huawei, HiSilicon
[R1-2402710](https://fujitsu-my.sharepoint.com/personal/akimoto_yosuke_jp_fujitsu_com/Documents/%E3%83%89%E3%82%AD%E3%83%A5%E3%83%A1%E3%83%B3%E3%83%88/Internal/1.work/1.3GPP%E6%8A%80%E8%A1%93%E8%A7%A3%E8%AA%AC/L1L2mob-BM/116bis-L1L2mob-contirb/FL-Summary/Docs/R1-2402710.zip) Discussion on applying TCI state indicated in LTM Cell Switch Command MAC CE to a list of CCs ZTE

* The following proposal is made
* If more than one CCs are configured in the same simultaneousU-TCI-UpdateList of CellGroupConfig for the target cell, UE activates and applies the indicated LTM TCI state on the SCells in the simultaneousU-TCI-UpdateList AFTER CSC without additional signalling
* If “simultaneousU-TCI-UpdateList” is configured, the TCI state for target SpCell indicated in LTM Cell Switch Command MAC CE can be applied for all CCs in the same CC list configured by “simultaneousU-TCI-UpdateList” as the target SpCell.

|  |  |  |
| --- | --- | --- |
| Company | Essential or Not(Yes or No) | Comment |
| FL | No (not many supports in the previous meeting) | Firstly, FL wants to understand correctly what the consequence is if this CR is not agreed. Huawei mentioned that “the UE behaviour is not clear” in the CR. If so, sending a (Unified) TCI States Activation/Deactivation MAC CE after the completion of cell switch would be the simplest solution, even though this is not an optimum solution.  |
| Ericsson | No. |  |
| Samsung | No | This seems to be introducing new functionality during maintenance, which should be avoided. |
| vivo |  | Fine to discuss. |
| ZTE |  | We think that the issue can be re-opened to discuss. |
| Lenovo | No |  |
| Huawei, HiSilicon |  | RAN2 agreed that SCells can be activated after CSC without additional signaling. However, no TCI state can be used on SCell after CSC. The agreed feature is broken. We hope to fix it. |
| NEC | No |  |