**3GPP TSG-RAN WG2 Meeting #110-e *R2-200xxxx***

**Online, 1st – 12th June 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.304** | **CR** | **0793** | **rev** | **1** | **Current version:** | **15.5.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Clarification for CP EDT | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NB\_IOTenh2-Core, LTE\_eMTC4-Core | | | | |  | ***Date:*** | | | 2020-06-xx |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-15 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Rel-15 introduced early data transmission which allows one uplink data transmission optionally followed by one downlink data transmission without transition to RRC\_CONNECTED. The eNB instructs the UE to stay in RRC\_IDLE after the transmission by sending *RRCConnectionRelease* or *RRCEarlyDataComplete* to the UE. The UE then performs the actions upon entering Idle mode.  In 36.304, *RRCEarlyDataComplete* is not mentionedas a trigger for the corresponding actions. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Clarify that reception of *RRCEarlyDataComplete* triggers the same actions as reception of *RRCConnectionRelease*.  **Impact analysis**  Impacted functionality:  CP-EDT  Inter-operability:  The CR only impacts the UE Idle mode procedures, there is no interoperability issue. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UE actions upon entering RRC\_IDLE triggered by reception of *RRCEarlyDataComplete* are not specified. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.4.1, 5.2.7, 5.7a | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

|  |
| --- |
| First change |

#### 5.2.4.1 Reselection priorities handling

Absolute priorities of different E-UTRAN frequencies or inter-RAT frequencies may be provided to the UE in the system information, in the *RRCConnectionRelease* or *RRCEarlyDataComplete* message, or by inheriting from another RAT at inter-RAT cell (re)selection. In the case of system information, an E-UTRAN frequency or inter-RAT frequency may be listed without providing a priority (i.e. the field *cellReselectionPriority* is absent for that frequency). If priorities are provided in dedicated signalling, the UE shall ignore all the priorities provided in system information. If UE is in *camped on any cell* state, UE shall only apply the priorities provided by system information from current cell, and the UE preserves priorities provided by dedicated signalling and *deprioritisationReq* received in *RRCConnectionReject* unless specified otherwise. When the UE in *camped normally* state, has only dedicated priorities other than for the current frequency, the UE shall consider the current frequency to be the lowest priority frequency (i.e. lower than any of the network configured values). While the UE is camped on a suitable CSG cell in normal coverage, the UE shall always consider the current frequency to be the highest priority frequency (i.e. higher than any of the network configured values), irrespective of any other priority value allocated to this frequency. When the HSDN capable UE is in High-mobility state, the UE shall always consider the HSDN cells to be the highest priority (i.e. higher than any other network configured priorities). When the HSDN capable UE is not in High-mobility state, the UE shall always consider HSDN cells to be the lowest priority (i.e. lower than network configured priorities). If the UE capable of sidelink communication is configured to perform sidelink communication and can only perform the sidelink communication while camping on a frequency, the UE may consider that frequency to be the highest priority. If the UE capable of V2X sidelink communication is configured to perform V2X sidelink communication and can only perform the V2X sidelink communication while camping on a frequency, the UE may consider that frequency to be the highest priority. If the UE capable of V2X sidelink communication is configured to perform V2X sidelink communication and can only use pre-configuration while not camping on a frequency, the UE may consider the frequency providing inter-carrier V2X sidelink configuration to be the highest priority. If the UE is configured to perform both V2X sidelink communication and NR sidelink communication, the UE may consider the frequency providing both V2X sidelink communication and NR sidelink communication configuration to be the highest priority.If the UE is configured to perform only V2X sidelink communication, the UE may consider the frequency providing V2X sidelink communication configuration to be the highest priority. If the UE is configured to perform only NR sidelink communication, the UE may consider the frequency providing NR sidelink communication configuration to be the highest priority. If the UE capable of sidelink discovery is configured to perform Public Safety related sidelink discovery and can only perform the Public Safety related sidelink discovery while camping on a frequency, the UE may consider that frequency to be the highest priority.

NOTE 1: The prioritization among the frequencies which UE considers to be the highest priority frequency is left to UE implementation.

NOTE 1a: The frequency only providing the anchor frequency configuration should not be prioritized for V2X service during cell reselection as specified in TS 36.331[3].

NOTE 1b: When UE is configured to perform NR sidelink communication or V2X sidelink communication performs cell reselection, it may consider the frequencies providing the intra-carrier and inter-carrier configuration have equal priority in cell reselection.

NOTE 1c: The UE is configured to perform V2X sidelink communication or NR sidelink communication, if it has the capability and is authorized for the corresponding sidelink operation.

NOTE 1d: When UE is configured to perform both NR sidelink communication and V2X sidelink communication, but cannot find a frequency which can provide both NR sidelink communication configuration and V2X sidelink communication configuration, UE may consider the frequency providing either NR sidelink communication configuration or V2X sidelink communication configuration to be the highest priority.

If the UE is capable either of MBMS Service Continuity or of SC-PTM reception and is receiving or interested to receive an MBMS service and can only receive this MBMS service while camping on a frequency on which it is provided, the UE may consider that frequency to be the highest priority during the MBMS session TS 36.300 [2] as long as the two following conditions are fulfilled:

1) Either:

- the UE is capable of MBMS service continuity and the reselected cell is broadcasting SIB13; or

- the UE is capable of SC-PTM reception and the reselected cell is broadcasting SIB20;

2) Either:

- SIB15 of the serving cell indicates for that frequency one or more MBMS SAIs included and associated with that frequency in the MBMS User Service Description (USD) TS 26.346 [22] of this service; or

- SIB15 is not broadcast in the serving cell and that frequency is included in the USD of this service.

If the UE is capable either of MBMS Service Continuity or of SC-PTM reception and is receiving or interested to receive an MBMS service provided on a downlink only MBMS frequency, on a frequency used by dedicated MBMS cells, on a frequency used by FeMBMS/Unicast-mixed cells as defined in TS 36.300 [2], or on a frequency belonging to PLMN different from its registered PLMN, the UE may consider cell reselection candidate frequencies at which it can not receive the MBMS service to be of the lowest priority during the MBMS session TS 36.300 [2], as long as the above mentioned condition 1) is fulfilled for the cell on the MBMS frequency which the UE monitors or this cell broadcasts SIB1-MBMS and as long as the above mentioned condition 2) is fulfilled for the serving cell.

NOTE 2: Example scenarios in which the previous down-prioritisation may be needed concerns the cases where camping is not possible, while the UE can only receive this MBMS frequency when camping on a subset of cell reselection candidate frequencies, e.g. the MBMS frequency is a downlink only carrier, the MBMS frequency is used by dedicated MBMS cells, the MBMS frequency is used by FeMBMS/Unicast-mixed cells TS 36.300 [2], or the MBMS frequency belongs to a PLMN different from UE's registered PLMN.

If the UE is not capable of MBMS Service Continuity but has knowledge on which frequency an MBMS service of interest is provided, it may consider that frequency to be the highest priority during the MBMS session TS 36.300 [2] as long as the reselected cell is broadcasting SIB13.

If the UE is not capable of MBMS Service Continuity but has knowledge on which downlink only frequency, on which frequency used by dedicated MBMS cells, on which frequency used by FeMBMS/Unicast-mixed cells as defined in TS 36.300 [2] or on which frequency belonging to PLMN different from its registered PLMN an MBMS service of interest is provided, it may consider cell reselection candidate frequencies at which it can not receive the MBMS service to be of the lowest priority during the MBMS session TS 36.300 [2] as long as the cell on the MBMS frequency which the UE monitors is broadcasting SIB13 or SIB1-MBMS.

NOTE 3: The UE considers that the MBMS session is ongoing using the session start and end times as provided by upper layers in the USD i.e. the UE does not verify if the session is indicated on MCCH.

In case UE receives *RRCConnectionReject* with *deprioritisationReq*, UE shall consider current carrier frequency and stored frequencies due to the previously received *RRCConnectionReject* with *deprioritisationReq* or all the frequencies of EUTRA to be the lowest priority frequency (i.e. lower than any of the network configured values) while T325 is running irrespective of camped RAT. The UE shall delete the stored deprioritisation request(s) when a PLMN selection is performed on request by NAS TS 23.122 [5].

NOTE 4: Connecting to CDMA2000 does not imply PLMN selection.

NOTE 5: UE should search for a higher priority layer for cell reselection as soon as possible after the change of priority. The minimum related performance requirements specified in TS 36.133 [10] are still applicable.

The UE shall delete priorities provided by dedicated signalling when:

- the UE enters a different RRC state; or

- the optional validity time of dedicated priorities (T320) expires; or

- a PLMN selection is performed on request by NAS TS 23.122 [5].

NOTE 6: Equal priorities between RATs are not supported.

The UE shall only perform cell reselection evaluation for E-UTRAN frequencies and inter-RAT frequencies that are given in system information and for which the UE has a priority provided.

The UE shall not consider any black listed cells as candidate for cell reselection.

The UE shall inherit the priorities provided by dedicated signalling and the remaining validity time (i.e., T320 in E-UTRA and NR, T322 in UTRA and T3230 in GERAN), if configured, at inter-RAT cell (re)selection.

NOTE 7: The network may assign dedicated cell reselection priorities for frequencies not configured by system information.

While T360 is running, redistribution target is considered to be the highest priority (i.e. higher than any of the network configured values). UE shall continue to consider the serving frequency as the highest priority until completion of E-UTRAN Inter-frequency Redistribution procedure specified in 5.2.4.10 if triggered on T360 expiry/ stop.

|  |
| --- |
| Next change |

### 5.2.7 Cell Selection at transition to RRC\_IDLE or RRC\_INACTIVE state

For NB-IoT cell selection at transition to RRC\_IDLE state is defined in clause 5.2.7a.

At reception of *RRCConnectionRelease* message or *RRCEarlyDataComplete* message to move the UE into RRC\_IDLE or RRC\_INACTIVE, UE shall attempt to camp on a suitable cell according to *redirectedCarrierInfo*, if included in the *RRCConnectionRelease* message. If the UE cannot find a suitable cell, the UE is allowed to camp on any suitable cell of the indicated RAT. If the *RRCConnectionRelease* message or *RRCEarlyDataComplete* message does not contain the *redirectedCarrierInfo* UE shall attempt to select a suitable cell on an EUTRA carrier. If no suitable cell is found according to the above, the UE shall perform a cell selection starting with Stored Information Cell Selection procedure in order to find a suitable cell to camp on.

When returning to RRC\_IDLE or RRC\_INACTIVE state after UE moved to RRC\_CONNECTED state from *camped on any cell* state, UE shall attempt to camp on an acceptable cell according to *redirectedCarrierInfo*, if included in the *RRCConnectionRelease* message. If the UE cannot find an acceptable cell, the UE is allowed to camp on any acceptable cell of the indicated RAT. If the *RRCConnectionRelease* message does not contain *redirectedCarrierInfo* UE shall attempt to select an acceptable cell on an EUTRA carrier. If no acceptable cell is found according to the above, the UE shall continue to search for an acceptable cell of any PLMN in state *any cell selection*.

### 5.2.7a Cell Selection at transition to RRC\_IDLE state for NB-IoT

At reception of *RRCConnectionRelease-NB* message or *RRCEarlyDataComplete-NB* message to move the UE into RRC\_IDLE, UE shall attempt to camp on a suitable cell according to *redirectedCarrierInfo*, if included in the *RRCConnectionRelease-NB* message or *RRCEarlyDataComplete-NB* message. If the UE cannot find a suitable cell, the UE is allowed to camp on a suitable cell of any NB-IoT carrier. If the *RRCConnectionRelease-NB* message or *RRCEarlyDataComplete-NB* message does not contain the *redirectedCarrierInfo* UE shall attempt to select a suitable cell on a NB-IoT carrier.

|  |
| --- |
| Next change |