**3GPP TSG-RAN WG2 Meeting*****R2-220xxxx***

**Electronic Meeting, 9th May – 20th May 2022**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **38.331** | **CR** | **2872** | **rev** | **-** | **Current version:** | **17.0.0** |  |
|  |
| *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 | **x** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Indication on EPS fallback frequency |
|  |  |
| ***Source to WG:*** | vivo, China Telecom, CMCC, SoftBank, China Unicom, Vodafone |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2022-xx-xx |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-17 |
|  | *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 canbe 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | In order to support various deployment scenarios for obtaining IMS voice service, the UE and NG-RAN may support RAT fallback or EPS Fallback. And the EPS/RAT Fallback procedure may be triggered when the request for establishing the QoS flow for IMS voice reaches the supported NG-RAN. However, in the real network, the delay of IMS voice based on EPS Fallback is around 2s to 4s, which highly impacts the user experience. To solve the above delay, it has been proposed that introducing indication for EPS fallback frequency which UE may do early measurement on.  |
|  |  |
| ***Summary of change:*** | * In 6.3.2, introducing indications to indicate EPS/RAT Fallback carrier frequency.

**Impact analysis****Impacted 5G architecture options:** NR SA, NR-DC, NE-DC**Impacted functionality:**Idle/inactive measurement  **Inter-operability analysis:**1. If the network is implemented according to the CR and the UE is not, no inter-operability issues are expected.2. If the UE is implemented according to the CR and the network is not, no inter-operability issues are expected. |
|  |  |
| ***Consequences if not approved:*** | The latency may be too long for IMS voice. |
|  |  |
| ***Clauses affected:*** | 5.2.2.4.12, 5.7.8, 6.3.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  |  |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

Start of change

### 6.3.2 Radio resource control information elements

#### – *MeasIdleConfig*

The IE *MeasIdleConfig* is used to convey information to UE about measurements requested to be done while in RRC\_IDLE or RRC\_INACTIVE.

*MeasIdleConfig* information element

-- TAG-MEASIDLECONFIG-START

MeasIdleConfigSIB-r16 ::= SEQUENCE {

 measIdleCarrierListNR-r16 SEQUENCE (SIZE (1..maxFreqIdle-r16)) OF MeasIdleCarrierNR-r16 OPTIONAL, -- Need S

 measIdleCarrierListEUTRA-r16 SEQUENCE (SIZE (1..maxFreqIdle-r16)) OF MeasIdleCarrierEUTRA-r16 OPTIONAL, -- Need S

...,

[[

 measVoiceFallbackcarrierList-r17 SEQUENCE (SIZE (1..maxFreqIdle-r16)) OF MeasVoiceFallbackCarrier-r17 OPTIONAL -- Need S

 ]]

}

MeasIdleConfigDedicated-r16 ::= SEQUENCE {

 measIdleCarrierListNR-r16 SEQUENCE (SIZE (1..maxFreqIdle-r16)) OF MeasIdleCarrierNR-r16 OPTIONAL, -- Need N

 measIdleCarrierListEUTRA-r16 SEQUENCE (SIZE (1..maxFreqIdle-r16)) OF MeasIdleCarrierEUTRA-r16 OPTIONAL, -- Need N

 measIdleDuration-r16 ENUMERATED{sec10, sec30, sec60, sec120, sec180, sec240, sec300, spare},

 validityAreaList-r16 ValidityAreaList-r16 OPTIONAL, -- Need N

...

}

ValidityAreaList-r16 ::= SEQUENCE (SIZE (1..maxFreqIdle-r16)) OF ValidityArea-r16

ValidityArea-r16 ::= SEQUENCE {

 carrierFreq-r16 ARFCN-ValueNR,

 validityCellList-r16 ValidityCellList OPTIONAL -- Need N

}

ValidityCellList ::= SEQUENCE (SIZE (1.. maxCellMeasIdle-r16)) OF PCI-Range

MeasIdleCarrierNR-r16 ::= SEQUENCE {

 carrierFreq-r16 ARFCN-ValueNR,

 ssbSubcarrierSpacing-r16 SubcarrierSpacing,

 frequencyBandList MultiFrequencyBandListNR OPTIONAL, -- Need R

 measCellListNR-r16 CellListNR-r16 OPTIONAL, -- Need R

 reportQuantities-r16 ENUMERATED {rsrp, rsrq, both},

 qualityThreshold-r16 SEQUENCE {

 idleRSRP-Threshold-NR-r16 RSRP-Range OPTIONAL, -- Need R

 idleRSRQ-Threshold-NR-r16 RSRQ-Range OPTIONAL -- Need R

 } OPTIONAL, -- Need R

 ssb-MeasConfig-r16 SEQUENCE {

 nrofSS-BlocksToAverage-r16 INTEGER (2..maxNrofSS-BlocksToAverage) OPTIONAL, -- Need S

 absThreshSS-BlocksConsolidation-r16 ThresholdNR OPTIONAL, -- Need S

 smtc-r16 SSB-MTC OPTIONAL, -- Need S

 ssb-ToMeasure-r16 SSB-ToMeasure OPTIONAL, -- Need S

 deriveSSB-IndexFromCell-r16 BOOLEAN,

 ss-RSSI-Measurement-r16 SS-RSSI-Measurement OPTIONAL -- Need S

 } OPTIONAL, -- Need S

 beamMeasConfigIdle-r16 BeamMeasConfigIdle-NR-r16 OPTIONAL, -- Need R

 ...

}

MeasIdleCarrierEUTRA-r16 ::= SEQUENCE {

 carrierFreqEUTRA-r16 ARFCN-ValueEUTRA,

 allowedMeasBandwidth-r16 EUTRA-AllowedMeasBandwidth,

 measCellListEUTRA-r16 CellListEUTRA-r16 OPTIONAL, -- Need R

 reportQuantitiesEUTRA-r16 ENUMERATED {rsrp, rsrq, both},

 qualityThresholdEUTRA-r16 SEQUENCE {

 idleRSRP-Threshold-EUTRA-r16 RSRP-RangeEUTRA OPTIONAL, -- Need R

 idleRSRQ-Threshold-EUTRA-r16 RSRQ-RangeEUTRA-r16 OPTIONAL -- Need R

}

 OPTIONAL, -- Need S

...

}

measVoiceFallbackcarrier-r17 ::= SEQUENCE {

 carrierFreqvoiceFallback-r17 ARFCN-ValueEUTRA,

...

}

CellListNR-r16 ::= SEQUENCE (SIZE (1..maxCellMeasIdle-r16)) OF PCI-Range

CellListEUTRA-r16 ::= SEQUENCE (SIZE (1..maxCellMeasIdle-r16)) OF EUTRA-PhysCellIdRange

BeamMeasConfigIdle-NR-r16 ::= SEQUENCE {

 reportQuantityRS-Indexes-r16 ENUMERATED {rsrp, rsrq, both},

 maxNrofRS-IndexesToReport-r16 INTEGER (1.. maxNrofIndexesToReport),

 includeBeamMeasurements-r16 BOOLEAN

}

RSRQ-RangeEUTRA-r16 ::= INTEGER (-30..46)

-- TAG-MEASIDLECONFIG-STOP

-- ASN1STOP

|  |
| --- |
| ***MeasIdleConfig* field descriptions** |
| ***absThreshSS-BlocksConsolidation***Threshold for consolidation of L1 measurements per RS index. |
| ***beamMeasConfigIdle***Indicates the beam level measurement configuration. |
| ***carrierFreq***Indicates the NR carrier frequency to be used for measurements during RRC\_IDLE or RRC\_INACTIVE. |
| ***carrierFreqEUTRA***Indicates the E-UTRA carrier frequency to be used for measurements during RRC\_IDLE or RRC\_INACTIVE.  |
| ***deriveSSB-IndexFromCell***This field indicates whether the UE may use the timing of any detected cell on that frequency to derive the SSB index of all neighbour cells on that frequency. If this field is set to true, the UE assumes SFN and frame boundary alignment across cells on the neighbor frequency as specified in TS 38.133 [14]. |
| ***frequencyBandList***Indicates the list of frequency bands for which the NR idle/inactive measurement parameters apply. The UE shall select the first listed band which it supports in the frequencyBandList field to represent the NR neighbour carrier frequency. |
| ***includeBeamMeasurements***Indicates whether or not the UE shall include beam measurements in the NR idle/inactive measurement results. |
| ***maxNrofRS-IndexesToReport***Max number of beam indices to include in the idle/inactive measurement result. |
| ***measCellListEUTRA***Indicates the list of E-UTRA cells which the UE is requested to measure and report for idle/inactive measurements. |
| ***measCellListNR***Indicates the list of NR cells which the UE is requested to measure and report for idle/inactive measurements. |
| ***measIdleCarrierListEUTRA***Indicates the E-UTRA carriers to be measured during RRC\_IDLE or RRC\_INACTIVE. |
| ***measIdleCarrierListNR***Indicates the NR carriers to be measured during RRC\_IDLE or RRC\_INACTIVE. |
| ***measVoiceFallbackcarrierList***Indicates E-UTRA carriers which the network may use as the target carrier in EPS voice fallback.  |
| ***measIdleDuration***Indicates the duration for performing idle/inactive measurements while in RRC\_IDLE or RRC\_INACTIVE. Value sec10 correspond to 10 seconds, value sec30 to 30 seconds and so on. |
| ***nrofSS-BlocksToAverage***Number of SS blocks to average for cell measurement derivation. |
| ***qualityThreshold***Indicates the quality thresholds for reporting the measured cells for idle/inactive NR measurements. |
| ***qualityThresholdEUTRA***Indicates the quality thresholds for reporting the measured cells for idle/inactive E-UTRA measurements. |
| ***reportQuantities***Indicates which measurement quantities UE is requested to report in the idle/inactive measurement report.  |
| ***reportQuantitiesEUTRA***Indicates which E-UTRA measurement quantities the UE is requested to report in the idle/inactive measurement report. |
| ***reportQuantityRS-Indexes***Indicates which measurement information per beam index the UE shall include in the NR idle/inactive measurement results. |
| ***smtc***Indicates the measurement timing configuration for inter-frequency measurement. If this field is absent in *VarMeasIdleConfig*, the UE assumes that SSB periodicity is 5 ms in this frequency. |
| ***ssbSubcarrierSpacing***Indicates subcarrier spacing of SSB. Only the values 15 kHz or 30 kHz (FR1), and 120 kHz or 240 kHz (FR2) are applicable***.*** |
| ***ssb-ToMeasure***The set of SS blocks to be measured within the SMTC measurement duration (see TS 38.215 [9]). When the field is absent in *VarMeasIdleConfig*, the UE measures on all SS-blocks. |
| ***ss-RSSI-Measurement***Indicates the SSB-based RSSI measurement configuration. If the field is absent in *VarMeasIdleConfig*, the UE behaviour is defined in TS 38.215 [89], clause 5.1.3. |
| ***validityAreaList***Indicates the list of frequencies and optionally, for each frequency, a list of cells within which the UE is required to perform measurements while in RRC\_IDLE and RRC\_INACTIVE.  |

End of change