**3GPP TSG-RAN WG2** **Meeting #116-e *R2-21xxxxx***

**Electronic, 1st - 12th November 2021**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | **draft** | **rev** | **-** | **Current version:** | **16.6.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Correction on PO determination for UE in inactive state | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE corporation,Sanechips | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17 | | | | |  | ***Date:*** | | | 2021-10-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***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 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:*** | | The PF and PO for paging are determined by the following formulae:  PF is given by following equation:  SFN mod T= (T div N)\*(UE\_ID mod N)  Index i\_s pointing to PO from subframe pattern will be derived from following calculation:  i\_s = floor(UE\_ID/N) mod Ns  - T: DRX cycle of the UE. Except for NB-IoT, if a UE specific extended DRX value of 512 radio frames is configured by upper layers according to 7.3, T =512. Otherwise, T is determined by the shortest of the UE specific DRX value, if allocated by upper layers, and a default DRX value broadcast in system information. If UE specific DRX is not configured by upper layers, the default value is applied. UE specific DRX is not applicable for NB-IoT. In RRC\_INACTIVE state, T is determined by the shortest of the RAN paging cycle, the UE specific paging cycle, and the default paging cycle, if allocated by upper layers.  - nB: 4T, 2T, T, T/2, T/4, T/8, T/16, T/32, T/64, T/128, and T/256, and for NB-IoT also T/512, and T/1024.  - N: min(T,nB)  For a UE, it is possible that the T used in inactive state is different from the T used in idle mode as NW is allowed to configure a RAN paging cycle different from the UE specific paging cycle configured by upper layer or the default value in system information while the N used in calculation is still the one broadcast in candidate value T, T/2, T/4, T/8, T/16, T/32, T/64, T/128, or T/256.  As a result, the index of the PO (i.e. the i\_s) would be different for inactive state and idle state as the N is a value related to the T while the T has different value in idle and inactive state, which deviates from the intention that the POs of a UE for CN-initiated and RAN-initiated paging should be overlapped.  To solve this PO mismatch for CN paging and RAN paging, the UE in inactive mode shall use the same i\_s as in idle mode. And a UE capability should be introduced to show UE support for such behavior. Network would indicate “useIdlePO” when releasing UE from RRC\_CONNECTED to RRC\_INACTIVE if UE indicates support. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Introduce UE capability to indicate support for UE in inactive mode to use the same i\_s in PO determination as idle mode. * Broadcast “ranPagingInIdlePO” in PCCH-Config to indicate that the network supports to send RAN paging in PO that corresponds to the i\_s as determined by UE in RRC\_IDLE state   **Impact Analysis**  Impacted 5G architecture options:  SA, NR-DC, EUTRA/5GC    Impacted functionality:  Paging    Inter-operability:  This CR can be implemented by earlier release UE.  If the UE is implemented according to this CR while the NW is not, there is no interoperability.  If the NW is implemented according to this CR while the UE is not, there is no interoperability issue. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The NW is not aware of whether a UE supports to use the same T in both inactive and idle mode to determine the index of PO. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.2, 6.3.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **x** |  | Other core specifications | | | | TS/TR36.304 CR xxxx  TS/TR36.306 CR xxxx | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

Start of change

### 6.3.2 Radio resource control information elements

– *RadioResourceConfigCommon*

The IE *RadioResourceConfigCommonSIB* and IE *RadioResourceConfigCommon* are used to specify common radio resource configurations in the system information and in the mobility control information, respectively, e.g., the random access parameters and the static physical layer parameters.

***RadioResourceConfigCommon* information element**

-- ASN1START

RadioResourceConfigCommonSIB ::= SEQUENCE {

rach-ConfigCommon RACH-ConfigCommon,

bcch-Config BCCH-Config,

pcch-Config PCCH-Config,

prach-Config PRACH-ConfigSIB,

pdsch-ConfigCommon PDSCH-ConfigCommon,

pusch-ConfigCommon PUSCH-ConfigCommon,

pucch-ConfigCommon PUCCH-ConfigCommon,

soundingRS-UL-ConfigCommon SoundingRS-UL-ConfigCommon,

uplinkPowerControlCommon UplinkPowerControlCommon,

ul-CyclicPrefixLength UL-CyclicPrefixLength,

...,

[[ uplinkPowerControlCommon-v1020 UplinkPowerControlCommon-v1020 OPTIONAL -- Need OR

]],

[[ rach-ConfigCommon-v1250 RACH-ConfigCommon-v1250 OPTIONAL -- Need OR

]],

[[ pusch-ConfigCommon-v1270 PUSCH-ConfigCommon-v1270 OPTIONAL -- Need OR

]],

[[ bcch-Config-v1310 BCCH-Config-v1310 OPTIONAL, -- Need OR

pcch-Config-v1310 PCCH-Config-v1310 OPTIONAL, -- Need OR

freqHoppingParameters-r13 FreqHoppingParameters-r13 OPTIONAL, -- Need OR

pdsch-ConfigCommon-v1310 PDSCH-ConfigCommon-v1310 OPTIONAL, -- Need OR

pusch-ConfigCommon-v1310 PUSCH-ConfigCommon-v1310 OPTIONAL, -- Need OR

prach-ConfigCommon-v1310 PRACH-ConfigSIB-v1310 OPTIONAL, -- Need OR

pucch-ConfigCommon-v1310 PUCCH-ConfigCommon-v1310 OPTIONAL -- Need OR

]],

[[ highSpeedConfig-r14 HighSpeedConfig-r14 OPTIONAL, -- Need OR

prach-Config-v1430 PRACH-Config-v1430 OPTIONAL, -- Need OR

pucch-ConfigCommon-v1430 PUCCH-ConfigCommon-v1430 OPTIONAL -- Need OR

]],

[[ prach-Config-v1530 PRACH-ConfigSIB-v1530 OPTIONAL, -- Cond EDT

ce-RSS-Config-r15 RSS-Config-r15 OPTIONAL, -- Need OR

wus-Config-r15 WUS-Config-r15 OPTIONAL, -- Need OR

highSpeedConfig-v1530 HighSpeedConfig-v1530 OPTIONAL -- Need OR

]],

[[ uplinkPowerControlCommon-v1540 UplinkPowerControlCommon-v1530 OPTIONAL -- Need OR

]],

[[ wus-Config-v1560 WUS-Config-v1560 OPTIONAL -- Need OR

]],

[[

wus-Config-v1610 WUS-Config-v1610 OPTIONAL, -- Need OR

highSpeedConfig-v1610 HighSpeedConfig-v1610 OPTIONAL, -- Need OR

crs-ChEstMPDCCH-ConfigCommon-r16 CRS-ChEstMPDCCH-ConfigCommon-r16 OPTIONAL, -- Need OR

gwus-Config-r16 GWUS-Config-r16 OPTIONAL, -- Need OR

uplinkPowerControlCommon-v1610 UplinkPowerControlCommon-v1610 OPTIONAL, -- Need OR

rss-MeasConfig-r16 ENUMERATED {enabled} OPTIONAL, -- Need OR

rss-MeasNonNCL-r16 ENUMERATED {enabled} OPTIONAL, -- Need OR

puncturedSubcarriersDL-r16 BIT STRING (SIZE (2)) OPTIONAL, -- Need OR

highSpeedInterRAT-NR-r16 BOOLEAN OPTIONAL -- Need OR

]],

[[

pcch-Config-v17xy PCCH-Config-v17xy OPTIONAL -- Need OR

]]

}

RadioResourceConfigCommon ::= SEQUENCE {

rach-ConfigCommon RACH-ConfigCommon OPTIONAL, -- Need ON

prach-Config PRACH-Config,

pdsch-ConfigCommon PDSCH-ConfigCommon OPTIONAL, -- Need ON

pusch-ConfigCommon PUSCH-ConfigCommon,

phich-Config PHICH-Config OPTIONAL, -- Need ON

pucch-ConfigCommon PUCCH-ConfigCommon OPTIONAL, -- Need ON

soundingRS-UL-ConfigCommon SoundingRS-UL-ConfigCommon OPTIONAL, -- Need ON

uplinkPowerControlCommon UplinkPowerControlCommon OPTIONAL, -- Need ON

antennaInfoCommon AntennaInfoCommon OPTIONAL, -- Need ON

p-Max P-Max OPTIONAL, -- Need OP

tdd-Config TDD-Config OPTIONAL, -- Cond TDD

ul-CyclicPrefixLength UL-CyclicPrefixLength,

...,

[[ uplinkPowerControlCommon-v1020 UplinkPowerControlCommon-v1020 OPTIONAL -- Need ON

]],

[[ tdd-Config-v1130 TDD-Config-v1130 OPTIONAL -- Cond TDD3

]],

[[ pusch-ConfigCommon-v1270 PUSCH-ConfigCommon-v1270 OPTIONAL -- Need OR

]],

[[

prach-Config-v1310 PRACH-Config-v1310 OPTIONAL, -- Need ON

freqHoppingParameters-r13 FreqHoppingParameters-r13 OPTIONAL, -- Need ON

pdsch-ConfigCommon-v1310 PDSCH-ConfigCommon-v1310 OPTIONAL, -- Need ON

pucch-ConfigCommon-v1310 PUCCH-ConfigCommon-v1310 OPTIONAL, -- Need ON

pusch-ConfigCommon-v1310 PUSCH-ConfigCommon-v1310 OPTIONAL, -- Need ON

uplinkPowerControlCommon-v1310 UplinkPowerControlCommon-v1310 OPTIONAL -- Need ON

]],

[[ highSpeedConfig-r14 HighSpeedConfig-r14 OPTIONAL, -- Need OR

prach-Config-v1430 PRACH-Config-v1430 OPTIONAL, -- Need OR

pucch-ConfigCommon-v1430 PUCCH-ConfigCommon-v1430 OPTIONAL, -- Need OR

tdd-Config-v1430 TDD-Config-v1430 OPTIONAL -- Cond TDD3

]],

[[

tdd-Config-v1450 TDD-Config-v1450 OPTIONAL -- Cond TDD3

]],

[[ uplinkPowerControlCommon-v1530 UplinkPowerControlCommon-v1530 OPTIONAL, -- Need ON

highSpeedConfig-v1530 HighSpeedConfig-v1530 OPTIONAL -- Need OR

]],

[[

highSpeedConfig-v1610 HighSpeedConfig-v1610 OPTIONAL, -- Need OR

uplinkPowerControlCommon-v1610 UplinkPowerControlCommon-v1610 OPTIONAL, -- Need OR

highSpeedInterRAT-NR-r16 BOOLEAN OPTIONAL -- Need ON

]]

}

RadioResourceConfigCommonPSCell-r12 ::= SEQUENCE {

basicFields-r12 RadioResourceConfigCommonSCell-r10,

pucch-ConfigCommon-r12 PUCCH-ConfigCommon,

rach-ConfigCommon-r12 RACH-ConfigCommon,

uplinkPowerControlCommonPSCell-r12 UplinkPowerControlCommonPSCell-r12,

...,

[[ uplinkPowerControlCommonPSCell-v1310

UplinkPowerControlCommon-v1310 OPTIONAL -- Need ON

]],

[[ uplinkPowerControlCommonPSCell-v1530

UplinkPowerControlCommon-v1530 OPTIONAL -- Need ON

]]

}

RadioResourceConfigCommonPSCell-v12f0 ::= SEQUENCE {

basicFields-v12f0 RadioResourceConfigCommonSCell-v10l0

}

RadioResourceConfigCommonPSCell-v1440 ::= SEQUENCE {

basicFields-v1440 RadioResourceConfigCommonSCell-v1440

}

RadioResourceConfigCommonSCell-r10 ::= SEQUENCE {

-- DL configuration as well as configuration applicable for DL and UL

nonUL-Configuration-r10 SEQUENCE {

-- 1: Cell characteristics

dl-Bandwidth-r10 ENUMERATED {n6, n15, n25, n50, n75, n100},

-- 2: Physical configuration, general

antennaInfoCommon-r10 AntennaInfoCommon,

mbsfn-SubframeConfigList-r10 MBSFN-SubframeConfigList OPTIONAL, -- Need OR

-- 3: Physical configuration, control

phich-Config-r10 PHICH-Config,

-- 4: Physical configuration, physical channels

pdsch-ConfigCommon-r10 PDSCH-ConfigCommon,

tdd-Config-r10 TDD-Config OPTIONAL -- Cond TDDSCell

},

-- UL configuration

ul-Configuration-r10 SEQUENCE {

ul-FreqInfo-r10 SEQUENCE {

ul-CarrierFreq-r10 ARFCN-ValueEUTRA OPTIONAL, -- Need OP

ul-Bandwidth-r10 ENUMERATED {n6, n15,

n25, n50, n75, n100} OPTIONAL, -- Need OP

additionalSpectrumEmissionSCell-r10 AdditionalSpectrumEmission

},

p-Max-r10 P-Max OPTIONAL, -- Need OP

uplinkPowerControlCommonSCell-r10 UplinkPowerControlCommonSCell-r10,

-- A special version of IE UplinkPowerControlCommon may be introduced

-- 3: Physical configuration, control

soundingRS-UL-ConfigCommon-r10 SoundingRS-UL-ConfigCommon,

ul-CyclicPrefixLength-r10 UL-CyclicPrefixLength,

-- 4: Physical configuration, physical channels

prach-ConfigSCell-r10 PRACH-ConfigSCell-r10 OPTIONAL, -- Cond TDD-OR-NoR11

pusch-ConfigCommon-r10 PUSCH-ConfigCommon

} OPTIONAL, -- Need OR

...,

[[ ul-CarrierFreq-v1090 ARFCN-ValueEUTRA-v9e0 OPTIONAL -- Need OP

]],

[[ rach-ConfigCommonSCell-r11 RACH-ConfigCommonSCell-r11 OPTIONAL, -- Cond ULSCell

prach-ConfigSCell-r11 PRACH-Config OPTIONAL, -- Cond UL

tdd-Config-v1130 TDD-Config-v1130 OPTIONAL, -- Cond TDD2

uplinkPowerControlCommonSCell-v1130

UplinkPowerControlCommonSCell-v1130 OPTIONAL -- Cond UL

]],

[[ pusch-ConfigCommon-v1270 PUSCH-ConfigCommon-v1270 OPTIONAL -- Need OR

]],

[[ pucch-ConfigCommon-r13 PUCCH-ConfigCommon OPTIONAL, -- Cond UL

uplinkPowerControlCommonSCell-v1310

UplinkPowerControlCommonSCell-v1310 OPTIONAL -- Cond UL

]],

[[ highSpeedConfigSCell-r14 HighSpeedConfigSCell-r14 OPTIONAL, -- Need OR

prach-Config-v1430 PRACH-Config-v1430 OPTIONAL, -- Cond UL

ul-Configuration-r14 SEQUENCE {

ul-FreqInfo-r14 SEQUENCE {

ul-CarrierFreq-r14 ARFCN-ValueEUTRA-r9 OPTIONAL, -- Need OP

ul-Bandwidth-r14 ENUMERATED {n6, n15,

n25, n50, n75, n100} OPTIONAL, -- Need OP

additionalSpectrumEmissionSCell-r14 AdditionalSpectrumEmission

},

p-Max-r14 P-Max OPTIONAL, -- Need OP

soundingRS-UL-ConfigCommon-r14 SoundingRS-UL-ConfigCommon,

ul-CyclicPrefixLength-r14 UL-CyclicPrefixLength,

prach-ConfigSCell-r14 PRACH-ConfigSCell-r10 OPTIONAL, -- Cond TDD-OR-NoR11

uplinkPowerControlCommonPUSCH-LessCell-v1430

UplinkPowerControlCommonPUSCH-LessCell-v1430 OPTIONAL -- Need OR

} OPTIONAL, -- Cond ULSRS

harq-ReferenceConfig-r14 ENUMERATED {sa2,sa4,sa5} OPTIONAL, -- Need OR

soundingRS-FlexibleTiming-r14 ENUMERATED {true} OPTIONAL -- Need OR

]],

[[ mbsfn-SubframeConfigList-v1430 MBSFN-SubframeConfigList-v1430 OPTIONAL -- Need ON

]],

[[ uplinkPowerControlCommonSCell-v1530 UplinkPowerControlCommon-v1530 OPTIONAL -- Need ON

]],

[[ highSpeedEnhMeasFlagSCell-r16 BOOLEAN OPTIONAL -- Need ON

]]

}

RadioResourceConfigCommonSCell-v10l0 ::= SEQUENCE {

-- UL configuration

ul-Configuration-v10l0 SEQUENCE {

additionalSpectrumEmissionSCell-v10l0 AdditionalSpectrumEmission-v10l0

}

}

RadioResourceConfigCommonSCell-v1440 ::= SEQUENCE {

ul-Configuration-v1440 SEQUENCE {

ul-FreqInfo-v1440 SEQUENCE {

additionalSpectrumEmissionSCell-v1440 AdditionalSpectrumEmission-v10l0

}

}

}

BCCH-Config ::= SEQUENCE {

modificationPeriodCoeff ENUMERATED {n2, n4, n8, n16}

}

BCCH-Config-v1310 ::= SEQUENCE {

modificationPeriodCoeff-v1310 ENUMERATED {n64}

}

FreqHoppingParameters-r13 ::= SEQUENCE {

dummy ENUMERATED {nb2, nb4} OPTIONAL,

dummy2 CHOICE {

interval-FDD-r13 ENUMERATED {int1, int2, int4, int8},

interval-TDD-r13 ENUMERATED {int1, int5, int10, int20}

} OPTIONAL,

dummy3 CHOICE {

interval-FDD-r13 ENUMERATED {int2, int4, int8, int16},

interval-TDD-r13 ENUMERATED { int5, int10, int20, int40}

} OPTIONAL,

interval-ULHoppingConfigCommonModeA-r13 CHOICE {

interval-FDD-r13 ENUMERATED {int1, int2, int4, int8},

interval-TDD-r13 ENUMERATED {int1, int5, int10, int20}

} OPTIONAL, -- Cond MP-A

interval-ULHoppingConfigCommonModeB-r13 CHOICE {

interval-FDD-r13 ENUMERATED {int2, int4, int8, int16},

interval-TDD-r13 ENUMERATED { int5, int10, int20, int40}

} OPTIONAL, -- Cond MP-B

dummy4 INTEGER (1..maxAvailNarrowBands-r13) OPTIONAL

}

PCCH-Config ::= SEQUENCE {

defaultPagingCycle ENUMERATED {

rf32, rf64, rf128, rf256},

nB ENUMERATED {

fourT, twoT, oneT, halfT, quarterT, oneEighthT,

oneSixteenthT, oneThirtySecondT}

}

PCCH-Config-v1310 ::= SEQUENCE {

paging-narrowBands-r13 INTEGER (1..maxAvailNarrowBands-r13),

mpdcch-NumRepetition-Paging-r13 ENUMERATED {r1, r2, r4, r8, r16, r32, r64, r128, r256},

nB-v1310 ENUMERATED {one64thT, one128thT, one256thT}

OPTIONAL -- Need OR

}

PCCH-Config-v17xy ::= SEQUENCE {

ranPagingInIdlePO-r17 ENUMERATED {true} OPTIONAL, -- Need OR

}

UL-CyclicPrefixLength ::= ENUMERATED {len1, len2}

HighSpeedConfig-r14 ::= SEQUENCE {

highSpeedEnhancedMeasFlag-r14 ENUMERATED {true} OPTIONAL, -- Need OR

highSpeedEnhancedDemodulationFlag-r14 ENUMERATED {true} OPTIONAL -- Need OR

}

HighSpeedConfig-v1530 ::= SEQUENCE {

highSpeedMeasGapCE-ModeA-r15 ENUMERATED {true}

}

HighSpeedConfigSCell-r14 ::= SEQUENCE {

highSpeedEnhancedDemodulationFlag-r14 ENUMERATED {true} OPTIONAL -- Need OR

}

HighSpeedConfig-v1610 ::= SEQUENCE {

highSpeedEnhMeasFlag2-r16 ENUMERATED {true} OPTIONAL, -- Need OR

highSpeedEnhDemodFlag2-r16 ENUMERATED {true} OPTIONAL -- Need OR

}

-- ASN1STOP

|  |
| --- |
| ***RadioResourceConfigCommon* field descriptions** |
| ***additionalSpectrumEmissionSCell***  The UE requirements related to *additionalSpectrumEmissionSCell* are defined in TS 36.101 [42]. E-UTRAN configures the same value in *additionalSpectrumEmissionSCell* for all SCell(s) of the same band with UL configured. The *additionalSpectrumEmissionSCell* is applicable for all serving cells (including PCell) of the same band with UL configured. |
| ***crs-ChEstMPDCCH-ConfigCommon***  Presence of this field indicates use of CRS for improving channel estimation on MPDCCH is enabled in RRC\_IDLE and RRC\_CONNECTED. |
| ***defaultPagingCycle***  Default paging cycle, used to derive 'T' in TS 36.304 [4]. Value rf32 corresponds to 32 radio frames, rf64 corresponds to 64 radio frames and so on. |
| ***dummy***  This field is not used in the specification. If received it shall be ignored by the UE. |
| ***harq-ReferenceConfig***  Indicates UL/ DL configuration used as the DL HARQ reference configuration for this serving cell. Value sa2 corresponds to Configuration2, sa4 to Configuration4 etc, as specified in TS 36.211 [21], table 4.2-2. E-UTRAN configures the same value for all serving cells residing on same frequency band. |
| ***highSpeedEnhancedMeasFlag***  If the field is present, the UE shall apply the high speed (350 km/h) measurement enhancements as specified in TS 36.133 [16]. If *highSpeedEnhMeasFlag2* is present, the UE indicating *measurementEnhancements2* shall ignore this field. |
| ***highSpeedEnhancedDemodulationFlag***  If the field is present, the UE shall apply the advanced receiver in SFN scenario (350 km/h) as specified in TS 36.101 [42]. If this field is included in *HighSpeedConfig* and *highSpeedEnhDemodFlag2* is present, the UE indicating *demodulationEnhancements2* shall ignore this field in *HighSpeedConfig*. |
| ***highSpeedEnhDemodFlag2***  If the field is present, the UE shall apply the further enhanced receiver in HST-SFN scenario (500 km/h) as specified in TS 36.101 [42]. |
| ***highSpeedEnhMeasFlag2***  If the field is present, the UE shall apply the high speed (500 km/h) measurement enhancements as specified in TS 36.133 [16]. |
| ***highSpeedEnhMeasFlagSCell***  If configured with value TRUE, the UE shall apply the high speed (350 km/h) SCell measurement enhancements as specified in TS 36.133 [16]. |
| ***highSpeedInterRAT-NR***  If the field is present, the UE shall apply the enhanced inter-RAT NR measurement requirements to support high speed up to 500 km/h as specified in TS 36.133 [16]. |
| ***highSpeedMeasGapCE-ModeA***  If the field is present, the UE in CE mode A shall apply the measurement gap sharing table associated with high-velocity scenario for measurements, as specified in TS 36.133 [16]. |
| ***interval-DLHoppingConfigCommonModeX***  Number of consecutive absolute subframes over which MPDCCH or PDSCH for CE mode X stays at the same narrowband before hopping to another narrowband. For interval-FDD, int1 corresponds to 1 subframe, int2 corresponds to 2 subframes, and so on. For interval-TDD, int1 corresponds to 1 subframe, int5 corresponds to 5 subframes, and so on. |
| ***interval-ULHoppingConfigCommonModeX***  Number of consecutive absolute subframes over which PUCCH or PUSCH for CE mode X stays at the same narrowband before hopping to another narrowband. For interval-FDD, int1 corresponds to 1 subframe, int2 corresponds to 2 subframes, and so on. For interval-TDD, int1 corresponds to 1 subframe, int5 corresponds to 5 subframes, and so on. |
| ***modificationPeriodCoeff***  Actual modification period, expressed in number of radio frames= *modificationPeriodCoeff* \* *defaultPagingCycle*. n2 corresponds to value 2, n4 corresponds to value 4, n8 corresponds to value 8, n16 corresponds to value 16, and n64 corresponds to value 64. |
| ***mpdcch-NumRepetition-Paging***  Maximum number of repetitions for MPDCCH common search space (CSS) for paging, see TS 36.211 [21]. |
| ***mpdcch-pdsch-HoppingOffset***  Parameter: cid:image020.png@01D1F4C1.16D3F4B0, see TS 36.211 [21], clause 6.4.1. |
| ***mpdcch-pdsch-HoppingNB***  The number of narrowbands for MPDCCH/PDSCH frequency hopping. Value nb2 corresponds to 2 narrowbands and value nb4 corresponds to 4 narrowbands. |
| ***nB***  Parameter: nB is used as one of parameters to derive the Paging Frame and Paging Occasion according to TS 36.304 [4]. Value in multiples of 'T' as defined in TS 36.304 [4]. A value of fourT corresponds to 4 \* T, a value of twoT corresponds to 2 \* T and so on. In case *nB-v1310* is signalled, the UE shall ignore *nB* (i.e. without suffix). EUTRAN configures *nB-v1310* only in the BR version of SI message. |
| ***paging-narrowBands***  Number of narrowbands used for paging, see TS 36.304 [4], TS 36.212 [22] and TS 36.213 [23]. |
| ***p-Max***  Pmax to be used in the target cell. If absent, for the band used in the target cell, the UE applies the maximum power according to its capability as specified in 36.101 [42], clause 6.2.2. In case the UE is configured with uplink intra-band contiguous CA and the UE indicates *ue-CA-PowerClass-N* in that band combination, then the *p-Max* in *RadioResourceConfigCommonSCell* for that SCell, if present, also applies for that band combination whenever that SCell is activated. This field is ignored by IAB-MT. The IAB-MT applies output power and emissions requirements, as specified in TS 38.174 [107] |
| ***prach-ConfigSCell***  Indicates a PRACH configuration for an SCell. The field is not applicable for an LAA SCell in this release. |
| ***puncturedSubcarriersDL***  Indicates number of punctured DL subcarriers and their locations, see TS 36.211 [31]. |
| ***rach-ConfigCommonSCell***  Indicates a RACH configuration for an SCell. The field is not applicable for an LAA SCell in this release. |
| ***ranPagingInIdlePO***  Indicates that the network supports to send RAN paging in PO that corresponds to the i\_s determined by UE in RRC\_IDLE state, see TS 36.304 [4]. |
| ***rss-MeasConfig***  Indicates whether RSS-based measurement is enabled. |
| ***rss-MeasNonNCL***  Indicates RSS of neighbour cells not in the Neighbour Cell List may be used for measurements. When this field is included, the UE assumes for all neighbour cells not in the Neighbour Cell List the RSS power bias is same as used for the serving cell or the camped cell. |
| ***soundingRS-FlexibleTiming***  Indicates the SRS flexible timing (if configured) for aperiodic SRS triggered by DL grant. If the SRS transmission is collided with ACK/NACK, postpone once to the next configured SRS transmission opportunity. |
| ***ul-Bandwidth***  Parameter: transmission bandwidth configuration, NRB, in uplink, see TS 36.101 [42], table 5.6-1. Value n6 corresponds to 6 resource blocks, n15 to 15 resource blocks and so on. If for FDD this parameter is absent, the uplink bandwidth is equal to the downlink bandwidth. For TDD this parameter is absent and it is equal to the downlink bandwidth. |
| ***ul-CarrierFreq***  For FDD: If absent, the (default) value determined from the default TX-RX frequency separation defined in TS 36.101 [42], table 5.7.3-1, applies.  For TDD: This parameter is absent and it is equal to the downlink frequency. |
| ***ul-CyclicPrefixLength***  Parameter: Uplink cyclic prefix length see TS 36.211 [21], clause 5.2.1, where len1 corresponds to normal cyclic prefix and len2 corresponds to extended cyclic prefix. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *EDT* | The field is optionally present, Need OR, if *edt-Parameters* is present; otherwise the field is not present and the UE shall delete any existing value for this field. |
| *MP-A* | The field is mandatory present for CE mode A. Otherwise the field is optional, Need OR. |
| *MP-B* | The field is mandatory present for CE mode B. Otherwise the field is optional, Need OR. |
| *TDD* | The field is optional for TDD, Need ON; it is not present for FDD and the UE shall delete any existing value for this field. |
| *TDD2* | If *tdd-Config-r10* is present, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *TDD3* | If *tdd-Config* is present, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *TDD-OR-NoR11* | If *prach-ConfigSCell-r11* is absent, the field is optional for TDD, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *TDDSCell* | This field is mandatory present for TDD; it is not present for FDD and LAA SCell, and the UE shall delete any existing value for this field. |
| *UL* | If the SCell is part of the STAG or concerns the PSCell or PUCCH SCell and if *ul-Configuration* is included, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *ULSCell* | For the PSCell (IE is included in *RadioResourceConfigCommonPSCell*) the field is absent. Otherwise, if the SCell is part of the STAG and if *ul-Configuration* is included, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *ULSRS* | If *ul-Configuration-r10* is absent, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |

Next change

6.3.6 Other information elements

– *UE-RadioPagingInfo*

The *UE-RadioPagingInfo* IE contains UE capability information needed for paging.

***UE-RadioPagingInfo* information element**

-- ASN1START

UE-RadioPagingInfo-r12 ::= SEQUENCE {

ue-Category-v1250 INTEGER (0) OPTIONAL,

...,

[[ ue-CategoryDL-v1310 ENUMERATED {m1} OPTIONAL,

ce-ModeA-r13 ENUMERATED {true} OPTIONAL,

ce-ModeB-r13 ENUMERATED {true} OPTIONAL

]],

[[ wakeUpSignal-r15 ENUMERATED {true} OPTIONAL,

wakeUpSignal-TDD-r15 ENUMERATED {true} OPTIONAL,

wakeUpSignalMinGap-eDRX-r15 ENUMERATED {ms40, ms240, ms1000, ms2000} OPTIONAL,

wakeUpSignalMinGap-eDRX-TDD-r15 ENUMERATED {ms40, ms240, ms1000, ms2000} OPTIONAL

]],

[[ ue-CategoryDL-v1610 ENUMERATED {m2} OPTIONAL,

groupWakeUpSignal-r16 ENUMERATED {true} OPTIONAL,

groupWakeUpSignalTDD-r16 ENUMERATED {true} OPTIONAL,

groupWakeUpSignalAlternation-r16 ENUMERATED {true} OPTIONAL,

groupWakeUpSignalAlternationTDD-r16 ENUMERATED {true} OPTIONAL

]],

[[

inactiveStatePODetermination-r17 ENUMERATED {true} OPTIONAL

]]

}

-- ASN1STOP

| ***UE-RadioPagingInfo* field descriptions** |
| --- |
| ***ce-ModeA, ce-ModeB***  Indicates whether the UE supports operation in CE mode A and/or B, as specified in TS 36.211 [21] and TS 36.213 [23]. |
| ***groupWakeUpSignal, groupWakeUpSignalTDD***  Indicates whether the UE supports GWUS for paging in RRC\_IDLE as specified in TS 36.211 [21], TS 36.213 [23] and TS 36.304 [4]. If this field is included, the minimum gap between GWUS and associated PO for DRX is fixed as 40 ms. |
| ***groupWakeUpSignalAlternation, groupWakeUpSignalAlternationTDD***  Indicates whether the UE supports GWUS with group resource alternation for paging in RRC\_IDLE as specified in TS 36.211 [21], TS 36.213 [23] and TS 36.304 [4]. If this field is included, the minimum gap between GWUS and associated PO for DRX is fixed as 40 ms. |
| ***inactiveStatePODetermination***  Indicates whether the UE other than BL UE or UE in CE supports to use the same i\_s in RRC\_INACTIVE state as in RRC\_IDLE state. |
| ***ue-Category, ue-CategoryDL***  UE category as defined in TS 36.306 [5]. A category M2 UE shall also include the field *ue-CategoryDL-v1310* in this version of the specification. |
| ***wakeUpSignal, wakeUpSignal-TDD***  Indicates whether the UE supports WUS for paging in RRC\_IDLE as specified in TS 36.213 [22] and TS 36.304 [4]. If this field is included, the minimum gap between WUS and associated PO for DRX is fixed as 40 ms. |
| ***wakeUpSignalMinGap-eDRX, wakeUpSignalMinGap-eDRX-TDD***  Indicates the minimum gap the UE supports between WUS and associated PO for eDRX as specified in TS 36.213 [22] and TS 36.304 [4]. Value ms40 corresponds to 40 ms, ms240 corresponds to 240 ms and so on. If this field is included, the UE shall also indicate support of WUS or GWUS for paging. |

End of change