**3GPP TSG-RAN4 Meeting #111**[**R4-2410327**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410327.zip)

**Fukuoka, Japan, May 20 – 24, 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **<CR#>** | **rev** |  | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **×** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Draft CR on NFG core part maintenance | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Xiaomi | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_MG\_enh2-Core | | | | |  | ***Date:*** | | | 2024-05-08 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | <Rel-18> |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Correction for the core requirements for needForGapMG in Rel18 base on endorsed bigCR R4-2406509 | | | | | | | | |
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| ***Summary of change:*** | | 1. 1.Correct the applicable conditions for 9.2.6 intra-frequency measurement with gap 2. 2. Clarification that interruptions are not allowed if SSB is contained in the active BWP, as in agreement from RAN4 #106, issue 1-5-1   3.Capture agreement that if gap is overlaping or parcially overlapping with SMTC, measurements are performed within gaps   1. Remove scenarios that were not discussed in NR\_MG\_enh2, like HST and FR2-2. 2. Other maintence correction | | | | | | | | |
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| ***Consequences if not approved:*** | | The requirements in 38.133 has some ambiguous requerments and typo mistakes. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.2.1 , 9.2.2, 9.2.5. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.533 | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**--- Start of change 1 ---**

### 9.2.1 Introduction

A measurement is defined as a SSB based intra-frequency measurement provided the centre frequency of the SSB of the serving cell and the centre frequency of the SSB of the neighbour cell indicated for measurement are the same, and the subcarrier spacing of the two SSBs are also the same.

If the UE supports *ncd-SSB-BWP-Wor-r18*, a measurement is defined as a SSB based intra-frequency measurement provided the centre frequency of the reference SSB of the serving cell and the centre frequency of the SSB of the neighbour cell are the same, and the subcarrier spacing of the two SSBs are also the same. The reference SSB is the SSB defined in BWP-specific *servingCellMO* under *BWP-DownlinkDedicated* of active DL BWP. If the field is absent, the reference SSB is the SSB defined in *servingCellMO* under *ServingCellConfig* [2].

The UE shall be able to identify new intra-frequency cells and perform SS-RSRP, SS-RSRQ, and SS-SINR measurements of identified intra-frequency cells if carrier frequency information is provided by PCell or the PSCell, even if no explicit neighbour list with physical layer cell identities is provided.

The UE can perform intra-frequency SSB based measurements without measurement gaps (either legacy measurement gap or NCSG) if

- CD-SSB is within the configured UE-specific CBW provided UE supports *bwpOperationMeasWithoutInterrupt-r18*, or

- the UE indicates ‘no-gap’ via *intraFreq-needForGap* for intra-frequency measurement, or

- the SSB is completely contained in the active BWP of the UE, or

- the active downlink BWP is initial BWP[3].

Besides the conditions listed above,

for UE supporting *nr-NeedForGapNCSG-reporting-r17* and indicating *NeedForGapNCSG-InfoNR* for intra-frequency measurement,

- An intra-frequency SSB measurement is defined as measurement without gap if

- the UE indicates ‘nogap-noncsg’ via *NeedForGapNCSG-InfoNR* for the intra-frequency measurement, and

- the SSB is not completely contained in the active BWP of the UE, and

- the active downlink BWP is not an initial BWP [3].

- An intra-frequency SSB measurement is defined as measurement with NCSG if

- the UE indicates ‘ncsg’ via *NeedForGapNCSG-InfoNR* for the intra-frequency measurement, and

- the SSB is not completely contained in the active BWP of the UE, and

- the active downlink BWP is not an initial BWP [3]

- An intra-frequency SSB measurement is defined as measurement with gap if

- the UE indicates ‘gap’ via *NeedForGapNCSG-InfoNR* for the intra-frequency measurement, and

- the SSB is not completely contained in the active BWP of the UE, and

- the active downlink BWP is not an initial BWP [3]

The UE can perform intra-frequency SSB based measurement corresponding to a deactivated SCell or dormant SCell with NCSG.

For intra-frequency SSB based measurements with NCSG, UE may cause scheduling restriction as specified in clause 9.2.7.3.

For UE supporting *nr-NeedForInterruptionReport-r18* and indicating *NeedForInterruptionInfoNR-r18* for intra-frequency measurement,

- an intra-frequency SSB measurement is defined as measurement without gap if

- SMTC is not partially nor fully overlapped with a configured GAP and the UE indicates ‘no-gap’ via *intraFreq-needForGap* and the UE indicates ‘no-gap-no-interruption’ or ‘no-gap-with-interruption’ via *NeedForInterruptionInfoNR-r18* for the intra-frequency measurement

- the UE is not allowed to cause interruption during intra-frequency measurement without gap when UE indicate no-gap-no-interruption

- the UE is not allowed to cause interruption if the SSB is completely contained in the active BWP of the UE

- the UE is allowed to cause interruption during intra-frequency measurement without gap when UE indicate no-gap-with-interruption, the interruption requirement is defined in clause 8.2.2.2.19

- An intra-frequency SSB measurement is defined as measurement with gap if

- the UE indicates ‘gap’ via intraFreq-needForGap for intra-frequency measurement, or if measurement gaps configured and the SMTC is partially or fully overlapping with the measurement gap.

For intra-frequency SSB based measurements without measurement gaps, UE may cause scheduling restriction as specified in clause 9.2.5.3.SSB based measurements are configured along with one or two measurement timing configuration(s) (SMTC(s)) which provides periodicity, duration and offset information on a window of up to 5ms where the measurements are to be performed. For intra-frequency connected mode measurements, up to two measurement window periodicities may be configured. A single measurement window offset and measurement duration are configured per intra-frequency measurement object.

When measurement gaps are needed, the UE is not expected to detect SSB and measure RSSI of RSRQ which start earlier than the gap starting time + switching time, nor detect SSB and measure RSSI of RSRQ which end later than the gap end – switching time. Switching time is 0.5ms for frequency range FR1 and 0.25ms for frequency range FR2.

The requirements in this clause shall also apply, when the UE is configured to perform SRS carrier based switching and using measurement gaps.

The measurement requirements defined for an activated SCell with a non-dormant active BWP defined in this clause shall also apply to an activated SCell with dormant BWP as active BWP.

The measurement reporting delay can be longer for the measurement reporting requirements in this clause when IDC autonomous denial is configured.

*Editor Note: FFS the scenario when deactivated SCell measurement object is fully overlapping with measurement gap*

The intra-frequency measurement requirements in clause 9.2.5 applies for the following scenarios:

- SSB based intra-frequency measurements with no measurement gap,

- for a UE supporting concurrent gaps and when concurrent gaps are configured:

- When none of the SMTC occasions of this intra-frequency measurement object are overlapped by the union of concurrent measurement gaps.

- When part of the SMTC occasions of this intra-frequency measurement object are overlapped by the union of concurrent measurement gaps.

- otherwise, for a UE not supporting concurrent gaps or if concurrent gaps are not configured:

- When none of the SMTC occasions of this intra-frequency measurement object are overlapped by the measurement gap.

- When part of the SMTC occasions of this intra-frequency measurement object are overlapped by the measurement gap.

- SSB based intra-frequency measurements object with no measurement gap for UE capable of *nr-NeedForInterruptionReport-r18*,

- When UE indicates ‘no-gap’ via *intraFreq-needForGap* for intra-frequency measurement and indicates ‘*no-gap-with-interruption’* or ‘*no-gap-no-interruption’* via *NeedForInterruptionInfoNR-r18* for the intra-frequency measurement intra-frequency, and SMTC is fully non overlapping with GAP,

- When UE indicates ‘no-gap’ via *intraFreq-needForGap* for intra-frequency measurement and indicates *no-gap-no-interruption* via *NeedForInterruptionInfoNR-r18* for the intra-frequency measurement, and SMTC is partially overlapping with GAP,

The intra-frequency measurement requirements in clause 9.2.6 applies for the following scenarios:

- SSB based intra-frequency measurements with measurement gap,

- SSB based intra-frequency measurements with no measurement gap with the following condition,

- for a UE supporting concurrent gaps and when concurrent gaps are configured:

- when all of the SMTC occasions of this intra-frequency measurement object are overlapped with the associated measurement gap in the concurrent measurement gaps, or

- when part of the SMTC occasions of this intra-frequency measurement object are overlapped with the associated measurement gap and all the SMTC occasions of this intra-frequency measurement object are overlapped with the union of concurrent measurement gaps.

- otherwise, for a UE not supporting concurrent gaps or if concurrent gaps are not configured:

- when all of the SMTC occasions of this intra-frequency measurement object are overlapped with the measurement gap.

- SSB-based intra-frequency measurement object with NCSG, and measurement gap is configured.

- - When UE indicates ‘no-gap’ via *intraFreq-needForGap* for intra-frequency measurement and indicates *no-gap-with-interruption* via *NeedForInterruptionInfoNR-r18* for the intra-frequency measurement, and SMTC is partially overlapping with GAP

The intra-frequency measurement requirements in clause 9.2.7 applies for the following scenarios:

- SSB based intra-frequency measurements without measurement gaps corresponding to an activated serving cell, when all of the SMTC occasions of this intra-frequency measurement object are overlapped by the NCSG;

- SSB-based intra-frequency measurement object corresponding to an activated serving cell (in non-dormancy) when UE supports *nr-NeedForGapNCSG-reporting-r17* and indicates ‘ncsg’ in *NeedForGapNCSG-InfoNR* for intra-frequency measurement and all or part of the SMTC occasions of this intra-frequency measurement object are overlapped by the NCSG;

- SSB-based intra-frequency measurement object corresponding to a deactivated serving cell or to an activated serving cell in dormancy when all or part of the SMTC occasions of this intra-frequency measurement object are overlapped by the NCSG.

Editor’s note: RAN4 has to decide the UE behaviour when DRX is condifured whehter interruptions are allowed.

**--- End of change 1 ---**

**---- Start of change 2 ---**

### 9.2.5 Intrafrequency measurements without measurement gaps

#### 9.2.5.1 Intrafrequency cell identification

The UE shall be able to identify a new detectable intra-frequency cell within Tidentify\_intra\_without\_index if the UE is not indicated to report SSB based RRM measurement result with the associated SSB index(*reportQuantityRsIndexes* or *maxNrofRSIndexesToReport* is not configured), or the UE is indicated that the neighbour cell is synchronous with the serving cell (*deriveSSB-IndexFromCell* is enabled). Otherwise UE shall be able to identify a new detectable intra frequency cell within Tidentify\_intra\_with\_index. The UE shall be able to identify a new detectable intra frequency SS block of an already detected cell within Tidentify\_intra\_without\_index. It is assumed that *deriveSSB-IndexFromCell* is always enabled for FR1 TDD and FR2 with SCS smaller or equal to 480 kHz.

Tidentify\_intra\_without\_index = (TPSS/SSS\_sync\_intra + T SSB\_measurement\_period\_intra) ms

Tidentify\_intra\_with\_index = (TPSS/SSS\_sync\_intra + T SSB\_measurement\_period\_intra + TSSB\_time\_index\_intra) ms

Where:

TPSS/SSS\_sync\_intra: it is the time period used in PSS/SSS detection

- For UE supporting power class 6 with *highSpeedMeasFlagFR2-r17* configured, if SMTC <= 40ms, TPSS/SSS\_sync\_intra is given in Table 9.2.5.1-11; otherwise, TPSS/SSS\_sync\_intra is given in Table 9.2.5.1-2.

- For UE indicating *no-gap-no-interruption* via *NeedForInterruptionInfoNR-r18*, TPSS/SSS\_sync\_intra is given in Table 9.2.5.1-1 for FR1 and Table 9.2.5.1-2 for FR2. For UE indicating *no-gap-with-interruption* via *NeedForInterruptionInfoNR-r18*, TPSS/SSS\_sync\_intra is given in Table 9.2.5.1-17 for FR1 and Table 9.2.5.1-18 for FR2.

- Otherwise, TPSS/SSS\_sync\_intra is given in table 9.2.5.1-1, 9.2.5.1-2, 9.2.5.1-4 (deactivated SCell) or 9.2.5.1-5 (deactivated SCell) or 9.2.5.1-9 (deactivated SCell) or 9.2.5.1-11 or 9.2.5.1-12 (deactivated PSCell) or 9.2.5.1-13 (deactivated PSCell).

TSSB\_time\_index\_intra: it is the time period used to acquire the index of the SSB being measured

- For UE indicatting *no-gap-no-interruption* via *NeedForInterruptionInfoNR-r18*, TSSB\_time\_index\_intra is given in Table 9.2.5.1-3 for FR1 and Table 9.2.5.1-15 for FR2-2. For UE indicating *no-gap-with-interruption* via *NeedForInterruptionInfoNR-r18*, TSSB\_time\_index\_intra is given in Table 9.2.5.1-19 for FR1 and Table 9.2.5.1-20 for FR2-2.

- Otherwise, TSSB\_time\_index\_intra is given in table 9.2.5.1-3, 9.2.5.1-15 (FR2-2), 9.2.5.1-6 (deactivated SCell), 9.2.5.1-10(deactivated SCell) or 9.2.5.1-14 (deactivated PSCell).

T SSB\_measurement\_period\_intra: equal to a measurement period of SSB based measurement

- For UE supporting power class 6 with *highSpeedMeasFlagFR2-r17* configured, if SMTC <= 40ms, TSSB\_measurement\_period\_intra is given in Table 9.2.5.2-7; otherwise, T SSB\_measurement\_period\_intra is given in Table 9.2.5.2-2.

- For UE indicating *no-gap-no-interruption* via *NeedForInterruptionInfoNR-r18*, TSSB\_measurement\_period\_intra is given in Table 9.2.5.2-1 for FR1 and Table 9.2.5.2-2 for FR2. For UE indicating *no-gap-with-interruption* via *NeedForInterruptionInfoNR-r18*, TSSB\_measurement\_period\_intra is given in Table 9.2.5.2-10 for FR1 and Table Table 9.2.5.2-11 for FR2.

- For power class 6 UE supporting [*measurementEnhancementCAInterFreqFR2-r18*] when [*highSpeedMeasFlagFR2]* is configured, the T SSB\_measurement\_period\_intra given in Table 9.2.5.2-7 (if SMTC <= 40ms) and Table 9.2.5.2-2 (if SMTC > 40ms) shall apply for SCC.

- Otherwise, T SSB\_measurement\_period\_intra is given in table 9.2.5.2-1, table 9.2.5.2-2 table 9.2.5.2-3 (deactivated SCell), 9.2.5.2-4(deactivated SCell), 9.2.5.2-5 or 9.2.5.2-6(deactivated SCell), 9.2.5.2-8(deactivated PSCell) or 9.2.5.2-9(deactivated PSCell).

CSSFintra: it is a carrier specific scaling factor and is determined

- according to CSSFoutside\_gap,i in clause 9.1.5.1 for measurement conducted outside measurement gaps, i.e.

- when intra-frequency SMTC is fully non overlapping or partially overlapping with GAP, or

- when intra-frequency SMTC is fully non overlapping with GAP for UE indicating no-gap-with-interruption, or

- when intra-frequency SMTC is fully non overlapping or partially overlapping with GAP for UE indicating no-gap-no-interruption, or

For a UE that supports Pre-MG, an SMTC occasion is only considered to be overlapped by Pre-MG if the Pre-MG is activated.

if the high layer in TS 38.331 [2] signalling of *smtc2* is configured, the assumed periodicity of intra-frequency SMTC occasions corresponds to the value of higher layer parameter *smtc2*; Otherwise the assumed periodicity of intra-frequency SMTC occasions corresponds to the value of higher layer parameter *smtc1*.

Mpss/sss\_sync\_w/o\_gaps: For a UE supporting FR2-1 power class 1 or 5, Mpss/sss\_sync\_w/o\_gaps =40. For a UE supporting power class 2, Mpss/sss\_sync\_w/o\_gaps =24. For a UE supporting FR2-1 power class 3, Mpss/sss\_sync\_w/o\_gaps =24. For a UE supporting FR2-1 power class 4, Mpss/sss\_sync\_w/o\_gaps =24. For a UE supporting FR2-2 power class 1, Mpss/sss\_sync\_w/o\_gaps = 60. For a UE supporting FR2-2 power class 2, Mpss/sss\_sync\_w/o\_gaps = 36. For a UE supporting FR2-2 power class 3, Mpss/sss\_sync\_w/o\_gaps = 36.

Mmeas\_period\_w/o\_gaps: For a UE supporting FR2-1 power class 1 or 5, Mmeas\_period\_w/o\_gaps =40. For a UE supporting FR2-1 power class 2, Mmeas\_period\_w/o\_gaps =24. For a UE supporting FR2-1 power class 3, Mmeas\_period\_w/o\_gaps =24. For a UE supporting power class 4, Mmeas\_period\_w/o\_gaps =24. For a UE supporting FR2-2 power class 1, Mmeas\_period\_w/o\_gaps = 60. For a UE supporting FR2-2 power class 2, Mmeas\_period\_w/o\_gaps = 36. For a UE supporting FR2-2 power class 3, Mmeas\_period\_w/o\_gaps = 36.

MSSB\_index\_intra: For a UE supporting FR2-2 power class 1, MSSB\_index\_intra = 72 samples. For a UE supporting FR2-2 power class 2, MSSB\_index\_intra = 48 samples. For a UE supporting FR2 power class 3, MSSB\_index\_intra = 48 samples.

When UE supports concurrent GAPs, i.e., supports the following capability or capabilities’ combination:

- concurrentMeasGap-r17, or

- concurrentMeasGapsPreMG-r18, or

- concurrentMeasGapsNCSG-r18,

Or when UE supports *musim-GapPreference-r17* or both concurrent measurement GAPs and *musim-GapPreference-r17*and UE concurrent GAPs or periodic MUSIM gaps or both concurrent gaps and periodic MUSIM gaps are configured

Kp is the scaling factor for an SSB frequency layer to be measured without GAP. Kp = Ntotal / Navailable, where Navailable and Ntotal are calculated as follows:

- For a window W of duration max(SMTC period, xRP\_max), where xRP\_max is the maximum xRP across all configured per-UE GAPs, periodic MUSIM gaps, and/or per-FR GAPs within the same FR as the SSB frequency layer, and starting from the beginning of any SMTC occasion:

- Ntotal is the total number of SMTC occasions within the window, including those overlapped with GAP and MUSIM gap occasions within the window, and

- Navailable is the number of SMTC occasions that are not overlapped with any non-dropped GAP or non-dropped MUSIM gap occasions within the window W, after accounting for measurement GAP and MUSIM gap collisions by applying the collision rules for GAP and MUSIM gap in section 9.1.8.3, 9.1.10.4, 9.1.10.5, 9.1.12.3, and 9.1.13.3, respectively.

Kp = 1 when Navailable = 0.

- xRP = MGRP when configured GAP is activated Pre-MG or MG, and xRP = VIRP when configured GAP is NCSG, also xRP = MGRP for periodic MUSIM gap.

Requirements in this clause do not apply when Navailable = 0 due to fully overlapping between SMTC occasions and MUSIM gap occasions within the window W.

Editor Note: FSS for the case when Navailable = 0 due to fully overlapping between SMTC occasions and the union of MUSIM gap and measurement gap occasions within the window W.

When UE supports [*MUSIM-GapConfig-17]* and the SMTC occasion of the target frequency layer is overlapping with the configured aperiodic MUSIM gap, longer cell identification period for the target frequency layer is expected.

- Otherwise, when the UE is not configured with or UE does not support concurrent GAPs and the UE is not configured with periodic MUSIM gaps or UE does not support MUSIM gaps:

When intra-frequency SMTC is fully non overlapping with measurement gaps or NCSG, or intra-frequency SMTC is fully overlapping with MGs or NCSG, Kp=1

When intra-frequency SMTC is partially overlapping with measurement gaps, Kp = 1/(1- (SMTC period /MGRP)), where SMTC period < MGRP. When intra-frequency SMTC is partially overlapping with NCSG, Kp = 1/(1- (SMTC period /VIRP)), where SMTC period < VIRP. For calculation of Kp, if the high layer signalling (TS 38.331 [2]) of *smtc2* is configured, for cells indicated in the *pci-List* parameter in *smtc2*, the SMTC periodicity corresponds to the value of higher layer parameter *smtc2*; for the other cells, the SMTC periodicity corresponds to the value of higher layer parameter *smtc1.* If the higher layer signaling in TS38.331 [2] signalling of *smtc2* is present and smtc1 is fully overlapping with measurement gaps and smtc2 is partially overlapping with measurement gaps, requirements are not specified for Tidentify\_intra\_without\_index or Tidentify\_intra\_with\_index

For FR2,

Klayer1\_measurement=1,

- if all of the reference signals configured for RLM, BFD, CBD or L1-RSRP for beam reporting on any FR2 serving frequency in the same band outside measurement gap are not fully overlapped by intra-frequency SMTC occasions, or

- if all of the reference signal configured for RLM, BFD, CBD or L1-RSRP for beam reporting on any FR2 serving frequency in the same band outside measurement gap and fully-overlapped by intra-frequency SMTC occasions are not overlapped with any of the SSB symbols and the RSSI symbols, and 1 symbol before each consecutive SSB symbols and the RSSI symbols, and 1 symbol after each consecutive SSB symbols and the RSSI symbols, given that *SSB-ToMeasure* and *SS-RSSI-Measurement* are configured, where SSB symbols are indicated by the union set of SSB-ToMeasure from all the configured measurement objects on the same serving carrier which can be merged.and RSSI symbols are indicated by *SS-RSSI-Measurement*;

Klayer1\_measurement=1.5, otherwise.

If the above-mentioned reference signal configured for L1-RSRP measurement is aperiodic CSI-RS resource, longer cell identification delay would be expected.

If MCG DRX is in use, cell identification requirements for intra-frequency measurement in MCG specified in Table 9.2.5.1-1, Table 9.2.5.1-2, Table 9.2.5.1-3, Table 9.2.5.1-4, Table 9.2.5.1-5 and Table 9.2.5.1-6 shall depend on the MCG DRX cycle. If SCG DRX is in use, cell identification requirements for intra-frequency measurement in SCG specified in Table 9.2.5.1-1, Table 9.2.5.1-2, Table 9.2.5.1-3, Table 9.2.5.1-4, Table 9.2.5.1-5, Table 9.2.5.1-6, Table 9.2.5.1-12, Table 9.2.5.1-13 and Table 9.2.5.1-14 shall depend on the SCG DRX cycle. Otherwise, the requirements for when DRX is not in use shall apply.

- When the target SSB is completely contained in active BWP of UE or the active downlink BWP is initial BWP, the intra-frequency measurement shall be conducted without gap and without interruption regardless of the NeedForGaps’ status reporting.

Table 9.2.5.1-1: Time period for PSS/SSS detection, (Frequency range FR1)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max( 600ms, ceil( 5 x Kp) x SMTC period )Note 1 x CSSFintra |
| DRX cycle≤ 320ms | max( 600ms, ceil(M2 Note 2x 5 x Kp) x max(SMTC period,DRX cycle)) x CSSFintra |
| DRX cycle>320ms | ceil(5 x Kp) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: When *highSpeedMeasFlag-r16* is not configured, M2 = 1.5; When *highSpeedMeasFlag-r16* is configured, M2 = 1.5 if SMTC periodicity > 40 ms;,otherwise M2=1.  NOTE 3: When *highSpeedMeasFlag-r16* is configured, the requirements apply only to UE supporting either *measurementEnhancement-r16* or *intraNR-MeasurementEnhancement-r16* on measurements of the primary component carrier and do not apply to measurements of a secondary component carrier with active SCell.  NOTE 4: When *highSpeedMeasCA-Scell-r17* is configured and UE supports *measurementEnhancementCA-r17*, M2 = 1.5 if SMTC periodicity > 40 ms; otherwise M2=1. | |

Table 9.2.5.1-2: Time period for PSS/SSS detection, (Frequency range FR2)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max(600ms, ceil(Mpss/sss\_sync\_w/o\_gaps x KFR x Kp x Klayer1\_measurement)x SMTC period)Note 1 x CSSFintra |
| DRX cycle≤ 320ms | max(600ms, ceil(1.5 x Mpss/sss\_sync\_w/o\_gaps x KFR x Kp x Klayer1\_measurement)x max(SMTC period,DRX cycle)) x CSSFintra |
| DRX cycle>320ms | ceil(Mpss/sss\_sync\_w/o\_gaps x KFR x Kp x Klayer1\_measurement) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: KFR is a scaling factor depending on the frequency range and the SSB SCS. For FR2-1, KFR = 1. For FR2-2: KFR = 1 if the SCS of the SSB of the cell being detected is 120 kHz, KFR = 2 if the SCS of the SSB of the cell being detected is 480 kHz, and KFR = 3 if the SCS of the SSB of the cell being detected is 960 kHz. | |

Table 9.2.5.1-3: Time period for time index detection (FR1)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | max(120ms, ceil( 3 x Kp )x SMTC period)Note 1 x CSSFintra |
| DRX cycle≤ 320ms | max(120ms, ceil (M2 Note 2 x 3 x Kp) x max(SMTC period,DRX cycle)) x CSSFintra |
| DRX cycle>320ms | Ceil(3 x Kp) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: When *highSpeedMeasFlag-r16* is not configured, M2 = 1.5; When *highSpeedMeasFlag-r16* is configured, M2 = 1.5 if SMTC periodicity > 40 ms;,otherwise M2=1  NOTE 3: When *highSpeedMeasFlag-r16* is configured, the requirements apply only to UE supporting either *measurementEnhancement-r16* or *intraNR-MeasurementEnhancement-r16* on measurements of the primary component carrier and do not apply to measurements of a secondary component carrier with active SCell.  NOTE 4: When *highSpeedMeasCA-Scell-r17* is configured and UE supports *measurementEnhancementCA-r17*, M2 = 1.5 if SMTC periodicity > 40 ms; otherwise M2=1 | |

Table 9.2.5.1-4: Time period for PSS/SSS detection, deactivated SCell (FR1)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | Ceil(5 x Kp) x measCycleSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(5 x Kp) x max(measCycleSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(5 x Kp) x max(measCycleSCell, DRX cycle) x CSSFintra |
| NOTE 1: The requirements also apply to deactivated SCG SCell. | |

Table 9.2.5.1-5: Time period for PSS/SSS detection, deactivated SCell (FR2)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | Ceil(Mpss/sss\_sync\_w/o\_gaps x Kp) x measCycleSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(Mpss/sss\_sync\_w/o\_gaps x Kp) x max(measCycleSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(Mpss/sss\_sync\_w/o\_gaps x Kp) x max(measCycleSCell, DRX cycle) x CSSFintra |
| NOTE 1: The requirements also apply to deactivated SCG SCell. | |

Table 9.2.5.1-6: Time period for time index detection, deactivated SCell (FR1)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | Ceil(3 x Kp) x measCycleSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(3 x Kp) x max(measCycleSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(3 x Kp) x max(measCycleSCell, DRX cycle) x CSSFintra |
| NOTE 1: The requirements also apply to deactivated SCG SCell. | |

Table 9.2.5.1-7: Void

Table 9.2.5.1-8: Void

Table 9.2.5.1-9: Time period for PSS/SSS detection, deactivated SCell (FR1), when *highSpeedMeasCA-Scell-r17* is configured

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | Ceil(5 x Kp) x measCycleSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(5 x Kp) x max(measCycleSCell, M2 Note 1xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(5 x Kp) x max(measCycleSCell, DRX cycle) x CSSFintra |
| NOTE 1: M2 = 1.5 if SMTC periodicity > 40 ms; otherwise M2=1 | |

Table 9.2.5.1-10: Time period for time index detection, deactivated SCell (FR1)，when *highSpeedMeasCA-Scell-r17* is configured

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | Ceil(3 x Kp) x measCycleSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(3 x Kp) x max(measCycleSCell, M2 Note 1xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(3 x Kp)x max(measCycleSCell, DRX cycle) x CSSFintra |
| NOTE 1: M2 = 1.5 if SMTC periodicity > 40 ms; otherwise M2=1 | |

Table 9.2.5.1-11: Time period for PSS/SSS detection when *highSpeedMeasFlagFR2-r17* is configured, (Frequency range FR2) when SMTC period <= 40ms

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max(600ms, ceil(M1Note 2 x Kp x Klayer1\_measurement)x SMTC period)Note 1 x CSSFintra |
| DRX cycle≤ 80ms | max(600ms, ceil(M1Note 2 x Kp x Klayer1\_measurement)x max(SMTC period,DRX cycle)) x CSSFintra |
| 80ms< DRX cycle≤ 320ms | ceil(1.5x Mpss/sss\_sync\_w/o\_gaps Note 3 x Kp x Klayer1\_measurement)x max(SMTC period,DRX cycle) x CSSFintra |
| DRX cycle>320ms | ceil(Mpss/sss\_sync\_w/o\_gaps Note 3 x Kp x Klayer1\_measurement) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: For UE supporting power class 6, M1= 6 if *highSpeedMeasFlagFR2-r17* = set1 or M1= 18 if *highSpeedMeasFlagFR2-r17* = set2  NOTE 3: Void | |

Table 9.2.5.1-12: Time period for PSS/SSS detection, deactivated PSCell (FR1)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | Ceil(5 x Kp) x measCyclePSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(5 x Kp) x max(measCyclePSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(5 x Kp) x max(measCyclePSCell, DRX cycle) x CSSFintra |

Table 9.2.5.1-13: Time period for PSS/SSS detection, deactivated PSCell (FR2)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | Ceil(Mpss/sss\_sync\_w/o\_gaps x Kp) x measCyclePSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(Mpss/sss\_sync\_w/o\_gaps x Kp) x max(measCyclePSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(Mpss/sss\_sync\_w/o\_gaps x Kp) x max(measCyclePSCell, DRX cycle) x CSSFintra |

Table 9.2.5.1-14: Time period for time index detection, deactivated PSCell (FR1)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | Ceil(3 x Kp) x measCyclePSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(3 x Kp) x max(measCyclePSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(3 x Kp) x max(measCyclePSCell, DRX cycle) x CSSFintra |

Table 9.2.5.1-15: Time period for time index detection (Frequency range FR2-2)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | max(200ms, ceil(MSSB\_index\_intra x Kp x SMTC period) x CSSFintra |
| DRX cycle≤ 320ms | max(200ms, ceil(1.5 x MSSB\_index\_intra x Kp) x max(SMTC period, DRX cycle) x CSSFintra) |
| DRX cycle>320ms | Ceil(MSSB\_index\_intra x Kp )x DRX cycle x CSSFintra |

Table 9.2.5.1-16: Void

Table 9.2.5.1-17: Time period for PSS/SSS detection for UE indicating *no-gap-with-interruption*, (Frequency range FR1)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max( 600ms, 5 x max (80ms, SMTC period ))Note 1 x CSSFintra |
| [DRX cycle≤ 320ms] | max( 600ms, ceil(M2 Note 2x 5) x [max(80ms, SMTC period,DRX cycle)]) x CSSFintra |
| [DRX cycle>320ms] | 5 x [DRX cycle x] CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: M2 = 1.5.  NOTE 3: void  NOTE 4: void  NOTE 5: Requirements only apply when measurement gap is not configured, or measurement gap is fully non-overlapped with SMTC on any carrier on which UE indicates [no gap with interruption]. | |

Table 9.2.5.1-18: Time period for PSS/SSS detection for UE indicating *no-gap-with-interruption*, (Frequency range FR2)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max(600ms, ceil(Mpss/sss\_sync\_w/o\_gaps x KFR x Klayer1\_measurement)x max (80ms, SMTC period ))Note 1 x CSSFintra |
| [DRX cycle≤ 320ms] | max(600ms, ceil(1.5 x Mpss/sss\_sync\_w/o\_gaps x KFR x Klayer1\_measurement)x [max(80ms, SMTC period,DRX cycle)]) x CSSFintra |
| [DRX cycle>320ms] | [ceil(Mpss/sss\_sync\_w/o\_gaps x KFR x Klayer1\_measurement) x DRX cycle] x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: KFR is a scaling factor depending on the frequency range and the SSB SCS. For FR2-1, KFR = 1.  NOTE 3: Requirements only apply when measurement gap is not configured, or measurement gap is fully non-overlapped with SMTC on any carrier on which UE indicates [no gap with interruption]. | |

Table 9.2.5.1-19: Time period for time index detection for UE indicating *no-gap-with-interruption* (FR1)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | max(120ms, 3x max (80ms, SMTC period ))Note 1 x CSSFintra |
| [DRX cycle≤ 320ms] | max(120ms, ceil (M2 Note 2 x 3) x [max(80ms, SMTC period,DRX cycle)]) x CSSFintra |
| [DRX cycle>320ms] | 3 x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: When *highSpeedMeasFlag-r16* is not configured, M2 = 1.5  NOTE 3: void  NOTE 4: void  NOTE 5: Requirements only apply when measurement gap is not configured, or measurement gap is fully non-overlapped with SMTC on any carrier on which UE indicates [no gap with interruption]. | |

Editor’s note: RAN4 has to decide the UE behaviour when DRX is condifured whether interruptions are allowed.

Table 9.2.5.1-20: Time period for time index detection for UE indicating *no-gap-with-interruption* (Frequency range FR2-2)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | max(200ms, ceil(MSSB\_index\_intra x Kp x max(80ms, SMTC period )) x CSSFintra |
| DRX cycle≤ 320ms | max(200ms, ceil(1.5 x MSSB\_index\_intra x Kp) x max(80ms, SMTC period, DRX cycle) x CSSFintra) |
| DRX cycle>320ms | Ceil(MSSB\_index\_intra x Kp )x DRX cycle x CSSFintra |
| NOTE 1: Requirements only apply when measurement gap is not configured, or measurement gap is fully non-overlapped with SMTC on any carrier on which UE indicates [no gap with interruption]. | |

d.

Table 9.2.5.1-21: void



Table 9.2.5.1-22: Void

Table 9.2.5.1-23: Time period for time index detection for a UE operating on a target cell with 12 PRB SSB (Frequency range FR1)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra\_less\_than\_5Mhz |
| No DRX | max(120ms, 7 x max(MGRP, SMTC period)) x CSSFintra\_less\_than\_5Mhz |
| DRX cycle≤ 320ms | max(120ms, ceil(1.5 x 7) x max(MGRP, SMTC period,DRX cycle) x CSSFintra\_less\_than\_5Mhz) |
| DRX cycle>320ms | 7 x max(MGRP, DRX cycle) x CSSFintra\_less\_than\_5Mhz |
| NOTE 1: FFS When highSpeedMeasInterFreq-r17 | |

#### 9.2.5.2 Measurement period

The measurement period for intra-frequency measurements without gaps is as shown in table 9.2.5.2-1, 9.2.5.2-2, 9.2.5.2-3 (deactivated SCell), 9.2.5.2-4 (deactivated SCell), 9.2.5.2-8 (deactivated SCG applicable for PSCell) or 9.2.5.2-9 (deactivated SCG applicable for PSCell). When *highSpeedMeasFlag-r16* is configured, T SSB\_measurement\_period\_intra is specified in Table 9.2.5.2-5. When UE *highSpeedMeasFlagFR2-r17* is configured, if SMTC <= 40ms, TSSB\_measurement\_period\_intra is given in Table 9.2.5.2-7; otherwise, T SSB\_measurement\_period\_intra is given in Table 9.2.5.2-2. For power class 6 UE supporting [*measurementEnhancementCAInterFreqFR2-r18*] when [*highSpeedMeasFlagFR2]* is configured, the T SSB\_measurement\_period\_intra given in Table 9.2.5.2-7 (if SMTC <= 40ms) and Table 9.2.5.2-2 (if SMTC > 40ms) shall apply for SCC.

If the higher layer signaling in TS38.331 [2] signalling of *smtc2* is present and smtc1 is fully overlapping with measurement gaps and smtc2 is partially overlapping with measurement gaps, requirements are not specified for TSSB\_measurement\_period\_intra

For a UE that supports Pre-MG, an SMTC occasion is only considered to be overlapped by Pre-MG if the Pre-MG is activated.

If MCG DRX is in use, measurement period requirements for intra-frequency measurement in MCG specified in Table 9.2.5.2-1, Table 9.2.5.2-2, Table 9.2.5.2-3 and Table 9.2.5.2-4 shall depend on the MCG DRX cycle. If SCG DRX is in use, measurement period requirements for intra-frequency measurement in SCG specified in Table 9.2.5.2-1, Table 9.2.5.2-2, Table 9.2.5.2-3, Table 9.2.5.2-4, Table 9.2.5.2-8 and Table 9.2.5.2-9, shall depend on the SCG DRX cycle. Otherwise, the requirements for when DRX is not in use shall apply.

For FR2, a longer measurement period is allowed, if aperiodic CSI-RS resource is measured for L1-RSRP measurement on any FR2 serving frequency in the same band, and the CSI-RS resource is outside measurement gap and overlapped with any of the SSB symbols and the RSSI symbols, and 1 symbol before each consecutive SSB symbols and the RSSI symbols, and 1 symbol after each consecutive SSB symbols and the RSSI symbols. If *SSB-ToMeasure* or *SS-RSSI-Measurement* is configured, the SSB symbols are indicated by the union set of *SSB-ToMeasure* from all the configured measurement objects on the same band which can be merged and the RSSI symbols are indicated by *SS-RSSI-Measurement*.

Table 9.2.5.2-1: Measurement period for intra-frequency measurements without gaps (FR1)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(200ms, ceil( 5 x Kp) x SMTC period)Note 1 x CSSFintra |
| DRX cycle≤ 320ms | max(200ms, ceil(1.5x 5 x Kp) x max(SMTC period,DRX cycle)) x CSSFintra |
| DRX cycle>320ms | ceil( 5 x Kp ) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified | |

Table 9.2.5.2-2: Measurement period for intra-frequency measurements without gaps (FR2)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(400ms, ceil(Mmeas\_period\_w/o\_gaps x Kp x Klayer1\_measurement) x SMTC period)Note 1 x CSSFintra |
| DRX cycle≤ 320ms | max(400ms, ceil(1.5x Mmeas\_period\_w/o\_gaps x Kp x Klayer1\_measurement) x max(SMTC period,DRX cycle)) x CSSFintra |
| DRX cycle>320ms | ceil(Mmeas\_period\_w/o\_gaps xKp x Klayer1\_measurement ) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified | |

Table 9.2.5.2-3: Measurement period for intra-frequency measurements without gaps (deactivated SCell) (FR1)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | Ceil(5 x Kp) x measCycleSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(5 x Kp) x max(measCycleSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(5 x Kp) x max(measCycleSCell, DRX cycle) x CSSFintra |
| NOTE 1: The requirements also apply to deactivated SCG SCel | |

Table 9.2.5.2-4: Measurement period for intra-frequency measurements without gaps (deactivated SCell) (FR2)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | Ceil(Mmeas\_period\_w/o\_gaps x Kp) x measCycleSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(Mmeas\_period\_w/o\_gaps x Kp) x max(measCycleSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(Mmeas\_period\_w/o\_gaps x Kp) x max(measCycleSCell, DRX cycle) x CSSFintra |
| NOTE 1: The requirements also apply to deactivated SCG SCell. | |

Table 9.2.5.2-5: T SSB\_measurement\_period\_intra When *highSpeedMeasFlag-r16* and/or highSpeedMeasCA-Scell-r17 is configured (Frequency range FR1

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX Note 2 | max(200ms, ceil( 5 x Kp) x SMTC period)Note 1 x CSSFintra |
| DRX cycle≤ 160ms | max(200ms, ceil(5 x M2 Note 2 x Kp) x max(SMTC period,DRX cycle)) x CSSFintra |
| 160ms < DRX cycle≤ 320ms | ceil(4 x M2 Note 2 x Kp) x DRX cycle x CSSFintra |
| DRX cycle>320ms | ceil( Y Note 3 x Kp ) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: M2 = 1.5 if SMTC period > 40 ms, otherwise M2=1  NOTE 3: Y=3 when SMTC period <= 40ms, Y=5 when SMTC period > 40ms  NOTE 4: When *highSpeedMeasFlag-r16* is configured, the requirements apply only to UE supporting either *measurementEnhancement-r16* or *intraNR-MeasurementEnhancement-r16* on measurements of the primary component carrier and do not apply to measurements of a secondary component carrier with active SCell.  NOTE 5: When highSpeedMeasCA-Scell-r17 is configured, the requirements apply to measurements of secondary component carrier with active SCell. | |

Table 9.2.5.2-6: Measurement period for intra-frequency measurements without gaps (deactivated SCell) (FR1), when highSpeedMeasCA-Scell-r17 is configured

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | ceil( 5 x Kp) x measCycleSCell x CSSFintra |
| DRX cycle≤ 160ms | ceil(5 x Kp) x max(measCycleSCell, M2 Note 1 x DRX cycle) x CSSFintra |
| 160ms < DRX cycle≤ 320ms | ceil(4 x Kp) x max(measCycleSCell, M2 Note 1 x DRX cycle) |
| DRX cycle>320ms | ceil( Y Note 2 x Kp ) x max(measCycleSCell, DRX cycle) x CSSFintra |
| NOTE 1: M2 = 1.5 if SMTC periodicity > 40 ms, otherwise M2=1  NOTE 2: Y=3 when SMTC <= 40ms, Y=5 when SMTC > 40ms | |

Table 9.2.5.2-7: Measurement period for intra-frequency measurements without gaps when *highSpeedMeasFlagFR2-r17* is configured (FR2) when SMTC period <= 40ms

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(400ms, ceil(M1Note 2 x Kp x Klayer1\_measurement) x SMTC period)Note 1 x CSSFintra |
| DRX cycle≤ 80ms | max(400ms, ceil(M1Note 2 x Kp x Klayer1\_measurement) x max(SMTC period,DRX cycle)) x CSSFintra |
| 80ms< DRX cycle≤ 320ms | ceil(1.5x Mmeas\_period\_w/o\_gaps Note 3 x Kp x Klayer1\_measurement) x max(SMTC period,DRX cycle) x CSSFintra |
| DRX cycle>320ms | ceil(Mmeas\_period\_w/o\_gaps Note 3 xKp x Klayer1\_measurement ) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: For UE supporting power class 6, M1= 6 if *highSpeedMeasFlagFR2-r17* = set1 or M1= 18 if *highSpeedMeasFlagFR2-r17* = set2 | |

Table 9.2.5.2-8 Measurement period for intra-frequency measurements without gaps (deactivated SCG applicable for PSCell) (FR1)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | Ceil(5 x Kp) x measCyclePSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(5 x Kp) x max(measCyclePSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(5 x Kp) x max(measCyclePSCell, DRX cycle) x CSSFintra |

**Table 9.2.5.2-9: Measurement period for intra-frequency measurements without gaps (deactivated SCG applicable for PSCell) (FR2)**

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | Ceil(Mmeas\_period\_w/o\_gaps x Kp) x measCyclePSCell x CSSFintra |
| DRX cycle≤ 320ms | Ceil(Mmeas\_period\_w/o\_gaps x Kp) x max(measCyclePSCell, 1.5xDRX cycle) x CSSFintra |
| DRX cycle> 320ms | Ceil(Mmeas\_period\_w/o\_gaps x Kp) x max(measCyclePSCell, DRX cycle) x CSSFintra |

Table 9.2.5.2-10: Measurement period for intra-frequency measurements without gaps for UE indicating *no-gap-with-interruption* (FR1)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(200ms, 5 x (80ms, SMTC period ))Note 1 x CSSFintra |
| DRX cycle≤ 320ms | max(200ms, ceil(1.5x 5) x [max(80ms, SMTC period,DRX cycle)]) x CSSFintra |
| DRX cycle>320ms | 5 x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: Requirements only apply when measurement gap is not configured, or measurement gap is fully non-overlapped with SMTC on any carrier on which UE indicates ‘*no-gap-with-interruption*’ via *NeedForInterruptionInfoNR-r18*. | |

Table 9.2.5.2-11: Measurement period for intra-frequency measurements without gaps for UE indicating *no-gap-with-interruption* (FR2)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(400ms, ceil(Mmeas\_period\_w/o\_gaps x Klayer1\_measurement) x (80ms, SMTC period ))Note 1 x CSSFintra |
| DRX cycle≤ 320ms | max(400ms, ceil(1.5x Mmeas\_period\_w/o\_gaps x Klayer1\_measurement) x [max(80, SMTC period,DRX cycle)]) x CSSFintra |
| DRX cycle>320ms | ceil(Mmeas\_period\_w/o\_gaps x Klayer1\_measurement ) x DRX cycle x CSSFintra |
| NOTE 1: If different SMTC periodicities are configured for different cells, the SMTC period in the requirement is the one used by the cell being identified  NOTE 2: Requirements only apply when measurement gap is not configured, or measurement gap is fully non-overlapped with SMTC on any carrier on which UE indicates *no-gap-with-interruption* via *NeedForInterruptionInfoNR-r18*. | |

Table 9.2.5.2-12: void



Table 9.2.5.2-13: void



**--- End of change 2 ---**