**3GPP TSG-RAN4 Meeting # 116 *R4-2510727***

**Bangalore, India, 25 Aug - 29 Aug, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **draftCR** | **rev** | **–** | **Current version:** | **19.1.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network |  |

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| ***Title:*** | Draft CR on measurement gap skipping in intra-frequency measurement with gaps for R19 XR | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE Corporation, Sanechips | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_XR\_Ph3-Core | | | | |  | ***Date:*** | | | 2025-08-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The requirements of the intra-frequency measurement with gap with measurement skipping has been determined. The impact of MG skipping on the intra-frequency measurement without gap has also been determined. All of these need to be captured into 38.133.   * Agreement(116 meeting ad hoc)   + For partially overlapped case     - Capture clarification on the scheduling restriction clauses for L3 measuemrent without gap that no scheduling restriction apply on the canceled gaps     - For L1 and L3 without gaps, clarification on the Kp that the calculation doesn’t include cancelled gaps on the Navailable | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Capture all relevant requirements and impacts of the intra-frequency measurement with/without gap by measurement skipping. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The requirements of the intra-frequency measurement with/without gap with measurement skipping is absent. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.2.5.3, 9.2.6.2, 9.2.6.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

# <Start of Change #1>

### 9.2.5 Intrafrequency measurements without measurement gaps

#### 9.2.5.3 Scheduling availability of UE during intra-frequency measurements

UE shall be capable of measuring without measurement gaps when the SSB is completely contained in the active bandwidth part of the UE, or the UE indicates *no-gap-no-interruption* for intra-frequency measurement, or the UE indicates *no-gap-with-interruption* for intra-frequency measurement. For UE capable of *Measurement gap occasion cancellation* provided that the configuration and conditions in clause 9.1.y.4 are met, the UE is not required to perform measurement during the cancelled gap occasions, and no restrictions on the scheduling availability at the cancelled gap occasions. When any of the conditions in the following clauses is met, there are restrictions on the scheduling availability; otherwise, there is no scheduling restriction. Note that the SSB symbols indicated by the union set of SSB-ToMeasure from all the configured measurement objects on the same serving carrier which can be merged[2], if it is configured; otherwise, all *L* SSB symbols within the SMTC window duration defined in clause 4.1 of TS 38.213 [3] are included.

For a UE that supports Pre-MG, the requirements in clause 9.2.5.3 also apply when a Pre-MG is deactivated.

For UE supporting concurrent measurement gaps, when concurrent gaps are configured, the requirements in clause 9.2.5.3 are also applied to the slots that are not interrupted according to requirements in clause 9.1.8.3.

[For UE supporting MUSIM gaps, when MUSIM gaps are configured, the requirements in clause 9.2.5.3 are also applied to the slots that are not interrupted according to requirements in clauses 9.1.10.5 and 9.1.10.6.]

# <End of Change #1>

# <Start of Change #2>

### 9.2.6 Intra-frequency measurements with measurement gaps

#### 9.2.6.1 Void

#### 9.2.6.2 Intra-frequency cell identification

When a measurement gap is provided or an activated Pre-MG is provided without any pre-MG status changed during the measurement period, the UE shall be able to identify a new detectable intra-frequency cell within Tidentify\_intra\_without\_index if 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 has been 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 + TSSB\_measurement\_period\_intra ms

Tidentify\_intra\_with\_index = TPSS/SSS\_sync\_ntra + TSSB\_measurement\_period\_intra + TSSB\_time\_index\_intra ms

Where:

TPSS/SSS\_sync\_intra: it is the time period used in PSS/SSS detection given in tables 9.2.6.2-1, 9.2.6.2-2 or 9.2.6.2-9.

- For UE supporting power class 6 with *highSpeedMeasFlagFR2-r17* configured, if SMTC ≤ 40ms, TPSS/SSS\_sync\_intra is given in table 9.2.6.2-9; otherwise, TPSS/SSS\_sync\_intra is given in table 9.2.6.2-2.

- For UE indicating [*Measurement gap occasion cancellation*] [2] provided that the configuration and conditions in clause 9.1.y.4 are met, the TPSS/SSS\_sync\_intra is given in table 9.2.6.2-x1, 9.2.6.2-x2, for FR1 and FR2-1 respectively.

TSSB\_time\_index\_intra: it is the time period used to acquire the index of the SSB being measured given in table 9.2.6.2-3 or 9.2.6.2-10 (for FR2-2).

- For UE indicating [*Measurement gap occasion cancellation*] [2] provided that the configuration and conditions in clause 9.1.y.4 are met, the TSSB\_time\_index\_intra is given in table 9.2.6.2-y1 for FR1.

- For UE indicating *support3MHz-ChannelBW-Symmetric-r18* and configured to operate on a target cell with 12 PRB SSB in FR1, TSSB\_time\_index\_intra\_less\_than\_5Mhz is given in table 9.2.6.2-12.

TSSB\_measurement\_period\_intra: equal to a measurement period of SSB based measurement given in table 9.2.6.3-1 or 9.2.6.3-2.

- For UE supporting power class 6 with *highSpeedMeasFlagFR2-r17* configured, if SMTC ≤ 40ms, TSSB\_measurement\_period\_intra is given in table 9.2.6.3-4; otherwise, T SSB\_measurement\_period\_intra is given in table 9.2.6.3-2.

- For power class 6 UE supporting *measEnhCAInterFreqFR2-r18* when *highSpeedMeasFlagFR2-r17* is configured, the TSSB\_measurement\_period\_intra given in table 9.2.6.3-4 (if SMTC ≤ 40ms) and table 9.2.6.3-2 (if SMTC > 40ms) shall apply for SCC.

- For UE indicating [*Measurement gap occasion cancellation*][2] provided that the configuration and conditions in clause 9.1.y.4 are met, the TSSB\_measurement\_period\_intra is given in table 9.2.6.3-z1, 9.2.6.3-z2, for FR1 and FR2-1 respectively.

CSSFintra: it is a carrier specific scaling factor and is determined according to CSSFwithin\_gap,i in clause 9.1.5.2 for measurement conducted within measurement gaps.

Kgap is the scaling factor for a SSB frequency layer to be measured within an associated measurement gap pattern. Kgap = 1 when the UE is not configured with or the UE does not support concurrent GAPs or MUSIM gaps. Otherwise, Kgap = 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 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 that are covered by instances of the associated measurement gap within the window W, including those overlapped with other GAP and MUSIM gap occasions within the window, and

Navailable is the number of SMTC occasions that are covered by instances of the non-dropped associated measurement gap within the window W after accounting for GAP and MUSIM gap collisions by applying the collision rules for GAP and MUSIM gap in clauses 9.1.8.3, 9.1.10.4, 9.1.10.5, 9.1.12.3, and 9.1.13.3, respectively.

- 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.

When concurrent GAPs are configured, requirements in this clause do not apply if Navailable =0.

When UE supports [*MUSIM-GapConfig-17*] and the configured aperiodic MUSIM gap collides with the measurement gap associated with the target frequency layer, where MUSIM gap collision rule in clause 9.1.10.4 is applied, longer cell identification period for the target intra-frequency is expected.

Mpss/sss\_sync\_with\_gaps : For a UE supporting FR2-1 power class 1 or 5, Mpss/sss\_sync with\_gaps=40. For a UE supporting FR2-1 power class 2, Mpss/sss\_sync with\_gaps =24. For a UE supporting FR2-1 power class 3, Mpss/sss\_sync with\_gaps =24. For a UE supporting FR2-1 power class 4, Mpss/sss\_sync with\_gaps =24. For a UE supporting FR2-1 power class 6, Mpss/sss\_sync with\_gaps =24. For a UE supporting FR2-2 power class 1, Mpss/sss\_sync with\_gaps = 60. For a UE supporting FR2-2 power class 2, Mpss/sss\_sync with\_gaps = 36. For a UE supporting FR2-2 power class 3, Mpss/sss\_sync with\_gaps = 36.

Mmeas\_period\_ with\_gaps: For a UE supporting FR2-1 power class 1 or 5, Mmeas\_period\_ with\_gaps =40. For a UE supporting FR2-1 power class 2, Mmeas\_period\_ with\_gaps =24. For a UE supporting FR2-1 power class 3, Mmeas\_period\_ with\_gaps =24. For a UE supporting FR2-1 power class 4, Mmeas\_period with\_gaps =24. For a UE supporting FR2-1 power class 6, Mmeas\_period with\_gaps =24. For a UE supporting FR2-2 power class 1, Mmeas\_period\_ with\_gaps = 60. For a UE supporting FR2-2 power class 2, Mmeas\_period\_ with\_gaps = 36. For a UE supporting FR2-2 power class 3, Mmeas\_period\_ with\_gaps = 36.

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

If the higher layer signaling in TS 38.331 [2] 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.

If MCG DRX is in use, cell identification requirements for intra-frequency measurement in MCG specified in table 9.2.6.2-1, table 9.2.6.2-2, and table 9.2.6.2-3 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 9.2.6.2-1, table 9.2.6.2-2, and table 9.2.6.2-3 shall depend on the SCG DRX cycle. Otherwise, the requirements for when DRX is not in use shall apply.

Table 9.2.6.2-1: Time period for PSS/SSS detection (FR1)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max(600 ms, 5 x Kgap x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(600 ms, ceil(M2Note 1x 5 x Kgap) x max(MGRP, SMTC period,DRX cycle)) x CSSFintra |
| DRX cycle>320 ms | Ceil( 5 x Kgap ) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: 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 2: 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 3: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  NOTE 4: When *highSpeedMeasCA-Scell-r17* is configured, the requirements apply to UE on measurements of secondary component carrier with active SCell. | |

**Table 9.2.6.2-2: Time period for PSS/SSS detection (FR2)**

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max(600 ms, Mpss/sss\_sync\_with\_gaps x KFR x Kgap x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(600 ms, ceil(1.5x Mpss/sss\_sync\_with\_gaps x KFR x Kgap) x max(MGRP, SMTC period, DRX cycle))x CSSFintra |
| DRX cycle>320 ms | Ceil(Mpss/sss\_sync\_with\_gaps x KFR x Kgap ) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  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 9.2.6.2-x1: Time period for PSS/SSS detection (FR1)

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max(600 ms, ceil((5+Lcancel) x Kgap) x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(600 ms, ceil(1.5 x (5+Lcancel) x Kgap) x max(MGRP, SMTC period,DRX cycle)) x CSSFintra |
| DRX cycle>320 ms | Ceil((5+Lcancel) x Kgap) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  NOTE 2: Lcancel is the number of cancelled gap occasions overlapping with SMTC in the measurement period. | |

**Table 9.2.6.2-x2: Time period for PSS/SSS detection (FR2-1)**

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max(600 ms, ceil((Mpss/sss\_sync\_with\_gaps+ Lcancel) x Kgap) x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(600 ms, ceil(1.5x (Mpss/sss\_sync\_with\_gaps+ Lcancel) x Kgap) x max(MGRP, SMTC period, DRX cycle))x CSSFintra |
| DRX cycle>320 ms | Ceil((Mpss/sss\_sync\_with\_gaps + Lcancel) x Kgap) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  NOTE 2: Lcancel is the number of cancelled gap occasions overlapping with SMTC in the measurement period. | |

Table 9.2.6.2-3: Time period for time index detection (FR1)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | max(120 ms, ceil(3 x Kgap ) x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(120 ms, ceil(M2Note 1x 3 x Kgap) x max(MGRP, SMTC period,DRX cycle) x CSSFintra) |
| DRX cycle>320 ms | Ceil(3 x Kgap )x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: 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 2: 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 3: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  NOTE 4: When *highSpeedMeasCA-Scell-r17* is configured, the requirements apply to UE on measurements of secondary component carrier with active SCell. | |

Table 9.2.6.2-7: Void

Table 9.2.6.2-8: Void

Table 9.2.6.2-8: Void

Table 9.2.6.2-9: Time period for PSS/SSS detection when *highSpeedMeasFlagFR2-r17* is configured, (FR2) when SMTC period ≤ 40ms

|  |  |
| --- | --- |
| DRX cycle | TPSS/SSS\_sync\_intra |
| No DRX | max(600 ms, M1Note 2 x Kgap x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 80 ms | max(600 ms, ceil(M1Note2 x Kgap) x max(MGRP, SMTC period, DRX cycle))x CSSFintra |
| 80 ms< DRX cycle≤ 320 ms | max(600 ms, ceil(Mpss/sss\_sync\_with\_gaps x Kgap) x max(MGRP, SMTC period, DRX cycle))x CSSFintra |
| DRX cycle>320 ms | Ceil( Mpss/sss\_sync\_with\_gaps x Kgap ) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  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 9.2.6.2-10: Time period for time index detection (FR2-2)

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

Table 9.2.6.2-11: Void

Table 9.2.6.2-12: Time period for time index detection for a UE operating on a target cell with 12 PRB SSB (FR1)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra\_less\_than\_5Mhz |
| No DRX | max(120 ms, 7 x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(120ms, ceil(M2 x 7) x max(MGRP, SMTC period,DRX cycle) x CSSFintra) |
| DRX cycle>320 ms | 7 x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: Void  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*.  NOTE 4: When *highSpeedMeasCA-Scell-r17* is configured, the requirements apply to UE on measurements of secondary component carrier with active SCell. | |

Table 9.2.6.2-y1: Time period for time index detection (FR1)

|  |  |
| --- | --- |
| DRX cycle | TSSB\_time\_index\_intra |
| No DRX | max(120 ms, ceil((3+Lcancel) x Kgap) x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(120 ms, ceil(1.5 x (3+Lcancel) x Kgap) x max(MGRP, SMTC period,DRX cycle) x CSSFintra) |
| DRX cycle>320 ms | Ceil(3+Lcancel) x Kgap x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the MG pattern associated to the intra-frequency layer.  NOTE 2: Lcancel is the number of cancelled gap occasions overlapping with SMTC in the measurement period. | |

#### 9.2.6.3 Intra-frequency Measurement Period

The requirements in this clause apply when a measurement gap is provided or when an activated Pre-MG is provided without any pre-MG status changed during the measurement period.

The measurement period for FR1 intra-frequency measurements with gaps is as shown in table 9.2.6.3-1.

The measurement period for FR2 intra-frequency measurements with gaps is as shown in table 9.2.6.3-2.

When *highSpeedMeasFlag-r16* is configured, T SSB\_measurement\_period\_intra is specified in table 9.2.6.3-3.

For UE supporting power class 6 with *highSpeedMeasFlagFR2-r17* configured, if SMTC ≤ 40ms, TSSB\_measurement\_period\_intra is given in table 9.2.6.3-4; otherwise, TSSB\_measurement\_period\_intra is given in table 9.2.6.3-2.

For power class 6 UE supporting *measEnhCAInterFreqFR2-r18* when *highSpeedMeasFlagFR2-r17* is configured, the TSSB\_measurement\_period\_intra is given in table 9.2.6.3-4 (if SMTC ≤ 40ms) and table 9.2.6.3-2 (if SMTC > 40ms) shall apply for SCC.

If MCG DRX is in use, measurement period requirements for intra-frequency measurement in MCG specified in table 9.2.6.3-1 and table 9.2.6.3-2, 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 9.2.6.3-1and table 9.2.6.3-2, shall depend on the SCG DRX cycle. Otherwise, the requirements for when DRX is not in use shall apply.

For either an FR1 or FR2 serving cell, longer measurement period would be expected during the period Tidentify\_CGI when the UE is requested to decode an NR CGI.

Table 9.2.6.3-1: Measurement period for intra-frequency measurements with gaps (FR1)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(200 ms, ceil(5 x Kgap )x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(200 ms, ceil(1.5x 5 x Kgap) x max(MGRP, SMTC period,DRX cycle))x CSSFintra |
| DRX cycle>320 ms | Ceil(5 x Kgap ) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer. | |

Table 9.2.6.3-2: Measurement period for intra-frequency measurements with gaps (FR2)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(400 ms, ceil(Mmeas\_period with\_gaps x Kgap ) x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(400 ms, ceil(1.5 x Mmeas\_period with\_gaps x Kgap) x max(MGRP, SMTC period, DRX cycle)) Note 1 x CSSFintra |
| DRX cycle>320 ms | Ceil( Mmeas\_period with\_gaps x Kgap ) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer. | |

Table 9.2.6.3-3: Measurement period When *highSpeedMeasFlag-r16* is configured (FR1)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(200 ms, ceil( 5 x Kgap ) x max(MGRP, SMTC period)) Note 1 x CSSFintra |
| DRX cycle≤ 160 ms | max(200 ms, ceil(M2Note 2 x 5 x Kgap) x max(MGRP, SMTC period,DRX cycle)) x CSSFintra |
| 160 ms < DRX cycle≤ 320 ms | max(200 ms, ceil(M2Note 2 x 4 x Kgap) x max(MGRP, DRX cycle)) x CSSFintra |
| DRX cycle>320 ms | Ceil(Y Note 3 x Kgap ) x max(MGRP, 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 periodicity > 40 ms, otherwise M2=1  NOTE 3: Y=3 when SMTC <= 40 ms, Y=5 when SMTC > 40 ms  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: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  NOTE 6: When *highSpeedMeasCA-Scell-r17* is configured, the requirements also apply to UE on measurements of secondary component carrier with active SCell. | |

Table 9.2.6.3-4: Measurement period for intra-frequency measurements with gaps when *highSpeedMeasFlagFR2-r17* is configured (FR2-1) when SMTC period≤40ms

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(400 ms, ceil(M1Note 2 x Kgap ) x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 80 ms | max(400 ms, ceil(M1Note 2 x Kgap) x max(MGRP, SMTC period, DRX cycle)) Note 1 x CSSFintra |
| 80 ms< DRX cycle≤ 320 ms | max(400 ms, ceil(Mmeas\_period with\_gaps x Kgap) x max(MGRP, SMTC period, DRX cycle)) Note 1 x CSSFintra |
| DRX cycle>320 ms | Ceil( Mmeas\_period with\_gaps x Kgap ) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  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 9.2.6.3-z1: Measurement period for intra-frequency measurements with gaps (FR1)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(200 ms, ceil((5+Lcancel) x Kgap) x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(200 ms, ceil(1.5x (5+Lcancel) x Kgap) x max(MGRP, SMTC period,DRX cycle))x CSSFintra |
| DRX cycle>320 ms | Ceil(5+Lcancel) x Kgap x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.  NOTE 2: Lcancel is the number of cancelled gap occasions overlapping with SMTC in the measurement period. | |

Table 9.2.6.3-z2: Measurement period for intra-frequency measurements with gaps (FR2-1)

|  |  |
| --- | --- |
| DRX cycle | T SSB\_measurement\_period\_intra |
| No DRX | max(400 ms, ceil((Mmeas\_period with\_gaps+Lcancel) x Kgap) x max(MGRP, SMTC period)) x CSSFintra |
| DRX cycle≤ 320 ms | max(400 ms, ceil((1.5 x (Mmeas\_period with\_gaps+Lcancel) x Kgap) x max(MGRP, SMTC period, DRX cycle)) Note 1 x CSSFintra |
| DRX cycle>320 ms | Ceil((Mmeas\_period with\_gaps+Lcancel) x Kgap) x max(MGRP, DRX cycle) x CSSFintra |
| NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the MG pattern associated to the intra-frequency layer.  NOTE 2: Lcancel is the number of cancelled gap occasions overlapping with SMTC in the measurement period. | |

# <End of Change #2>