3GPP TSG-RAN WG4 Meeting #116bis R4-251xxxx

**Prague, Czech Republic, Oct. 13-17, 2025**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **draftCR** | **rev** | **1** | **Current version:** | **19.2.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | draftCR 38.133 Measurement requirements with XR | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_XR\_Ph3-Core | | | | |  | ***Date:*** | | | 2025-10-03 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | Measurement requirements for XR need to be corrected. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Different corrections in measurement requirements for XR. 2. “UE supporting measurement gap cancellation” (which is currently undefined) is replaced with “UE configured with measurement gap concellation according to 9.1.14”, since for the requirements not only the capability but also being configured matters. Furthermore, with this approach, we avoid the undefined term without the reference in amny parts of the specification, and the capability can then be mentioned only in one place (9.1.14) where it can be non-ambiguously defined. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Measurement requirements for XR need to be corrected. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.1.14, 9.2.5, 9.2.6, 9.3.4, 9.3.5, 9.3.9 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | R4-2514305 | | | | | | | | |

### **--- start of Change 1 ---**

9.1.14 Measurement gap occasion cancellation

9.1.14.1 Introduction

This clause specifies the general requirements and applicability for UE supporting cancellation of measurement gap occasions as specified in TS 38.213 [3] and indicating its capability via *enableTx-RxDuringMeasGap* according to TS 38.331 [2].

9.1.14.2 Applicable measurement gap configurations

Measurement gaps configured by one of the below configurations are applicable for measurement gap occasion cancellation:

- *GapConfig* without suffix;

- *GapConfig-r17* with *gapPriority-r17* and without any of: *ncsgInd-r17* or *preConfigInd-r17* or *gapAssociationPRS;*

9.1.14.3 Applicability

The measurement gap cancellation requirements apply under the following conditions.

1> if an explicit indication is received via DCI according to TS 38.213 [3] to cancel a measurement gap occasion; and

1> if the UE is configured with NR SA (with or without CA) in FR1 or FR2-1; and

1> if the UE is not power class 6 UE in FR2-1; and

1> if the UE is not configured to do measurements for SRVCC according to clause 9.4.6; and

1> if the UE is not configured with any MUSIM measurement gap pattern via *MUSIM-GapConfig* [2]; and

1> if the UE is not configured with positioning measurements requiring measurement gaps; and

1> if the UE is configured with one of the measurement gap configurations listed in clause 9.1.14.2:

2> if the UE is configured with per-UE measurement gap pattern(s), the measurement gap occasion cancellation applies to both FR1 and FR2-1, and the requirements with measurement gap occasion cancellation in clause 9.1.14.4 apply;

2> Otherwise, if the UE is configured with per-FR measurement gap pattern(s), the measurement gap occasion cancellation only applies to the per-FR measurement gap on the same frequency range as the one or more scheduled cells associated with the DCI format and has no impacts on UE measurement behaviour in the other FR, and the requirements with measurement gap occasion cancellation in clause 9.1.14.4 apply;

9.1.14.4 Requirements for cancelling measurement gap occasions

For the measurement gap patterns configured via *gapPriority-r17* and without any of *ncsgInd-r17* or *preConfigInd-r17* or *gapAssociationPRS,* the measurement gap cancellation applies to measurement gap occasions after applying collision rules as defined in clause 9.1.8.3.

UE behaviour during cancelled measurement gap occasions is specified in TS 38.213 [3].

The UE shall cancel the gap provided that the time offset between the DCI indication of cancellation of measurement gap and the start of the measurement gap occasion including MGTA is smaller than X in table 9.1.14.4-1.

**Table 9.1.14.4-1: Time offset X between the indication of cancellation of measurement gap and the start of measurement gap occasions including MGTA**

|  |  |
| --- | --- |
| **Component 4 of FG 64-1** | **Time offset X** |
| 5 | 5 ms |
| 3 | 3 ms |

### **--- end of Change 1 ---**

### **--- start of Change 2 ---**

### 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 configured with measurement gap cancellation according to clause 9.1.14,provided that the configuration and conditions in clause 9.1.1.3 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 2 ---**

### **--- start of Change 3 ---**

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 + TSSB\_processing ms

Tidentify\_intra\_with\_index = TPSS/SSS\_sync\_ntra + TSSB\_measurement\_period\_intra + TSSB\_time\_index\_intra + TSSB\_processing 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 UEs supporting *Rel-19 L3 fast Rx beam sweeping*, when the conditions in clause 3.6.20 are fulfilled, TSSB\_processing = 2 ms; otherwise, TSSB\_processing = 0.

- 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 configured with measurement gap cancellation according to clause 9.1.14 provided that the configuration and conditions in clause 9.1.14.3 are met, the TPSS/SSS\_sync\_intra is given in table 9.2.6.2-13, 9.2.6.2-14, 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 configured with measurement gap cancellation according to clause 9.1.14 provided that the configuration and conditions in clause 9.1.14.3 are met, the TSSB\_time\_index\_intra is given in table 9.2.6.2-15 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 configured with measurement gap cancellation according to clause 9.1.14 provided that the configuration and conditions in clause 9.1.14.3 are met, the TSSB\_measurement\_period\_intra is given in table 9.2.6.3-5, 9.2.6.3-6, 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:

1. 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:
2. - 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
3. 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.
4. - 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.
5. When concurrent GAPs are configured, requirements in this clause do not apply if Navailable =0.
6. 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.

For a UE that supports *Rel-19 L3 fast Rx beam sweeping* when the conditions in clause 3.6.20 are fulfilled and when *highSpeedMeasFlagFR2-r17* is not configured, the following values shall apply for Mpss/sss\_sync\_with\_gaps and Mmeas\_period\_with\_gaps:

Mpss/sss\_sync\_with\_gaps: For a UE supporting FR2-1 power class 3, Mpss/sss\_sync\_with\_gaps =3\* Nreduced\_Rx\_BSF.

Mmeas\_period\_with\_gaps: For a UE supporting FR2-1 power class 3, Mmeas\_period\_with\_gaps =3\* Nreduced\_Rx\_BSF.

Where,

Nreduced\_Rx\_BSF is the reduced UE Rx beam sweeping factor reported by UE via *Rel-19 L3 fast Rx beam sweeping* .

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 9.2.6.2-3: 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, 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 9.2.6.2-13: 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 9.2.6.2-14: 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 9.2.6.2-15: 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.

For UE configured with measurement gap cancellation according to clause 9.1.14 meeting the conditions in clause 9.1.14.3, the UE physical layer shall be capable of reporting SS-RSRP, SS-RSRQ and SS-SINR measurements to higher layers with measurement accuracy as specified in clauses 10.1.2, 10.1.3, 10.1.7, 10.1.8, 10.1.12 and 10.1.13 for FR1 and FR2-1, respectively, while meeting the measurement period requirements for FR1 and FR2-1 specified in tables 9.2.6.3-5 and 9.2.6.3-6, respectively.

**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 9.2.6.3-5: 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 9.2.6.3-6: 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 3 ---**

### **--- start of Change 4 ---**

9.3.4 Inter-frequency measurement with measurement gaps

When measurement gaps are provided, or the UE supports capability of conducting such measurements without gaps, the UE shall be able to identify a new detectable inter-frequency cell within Tidentify\_inter\_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 *deriveSSB-IndexFromCellInter-r17* is configured for the FR1 and FR2-1 target frequency layers and UE supporting *deriveSSB-IndexFromCellInterNon-NCSG-r17*. Otherwise UE shall be able to identify a new detectable inter-frequency cell within Tidentify\_inter\_with\_index. The UE shall be able to identify a new detectable inter-frequency SS block of an already detected cell within Tidentify\_inter\_without\_index.

Tidentify\_inter\_without\_index = (TPSS/SSS\_sync\_inter + TSSB\_measurement\_period\_inter + TSSB\_processing) ms

Tidentify\_inter\_with\_index = (TPSS/SSS\_sync\_inter + TSSB\_measurement\_period\_inter + TSSB\_time\_index\_inter+ TSSB\_processing) ms

Where:

TPSS/SSS\_sync\_inter: it is the time period used in PSS/SSS detection given in table 9.3.4-1, table 9.3.4-2, table 9.3.4-5 when *highSpeedMeasInterFreq-r17* is configured and UE supports measurementEnhancementInterFreq-r17 and table 9.3.4-9 when *highSpeedMeasFlagFR2-r17* is configured and UE supports *measEnhCAInterFreqFR2-r18*. When the SCG is deactivated, table 9.3.4-7 applies for an inter-frequency carrier configured by SCG and not configured by MCG and table 9.3.4-2 applies for an inter-frequency carrier configured by both SCG and MCG. Regardless of whether the SCG is activated or deactivated, table 9.3.4-2 applies for an inter-frequency carrier configured only by MCG.

- For UE supporting power class 6 and *measEnhCAInterFreqFR2-r18* with *highSpeedMeasFlagFR2-r17* configured, if SMTC ≤ 40ms, TPSS/SSS\_sync\_inter is given in table 9.3.4-9; otherwise, TPSS/SSS\_sync\_inter is given in table 9.3.4-2.

- For UE configured with measurement gap cancellation according to clause 9.1.14, the TPSS/SSS\_sync\_inter is given in tables 9.3.4-12 and 9.3.4-13, for FR1 and FR2-1, respectively, provided the configurations and conditions in clause 9.1.14.3 are met.

TSSB\_time\_index\_inter: it is the time period used to acquire the index of the SSB being measured given in table 9.3.4-3, table 9.3.4-6 when *highSpeedMeasInterFreq* is configured and UE supports measurementEnhancementInterFreq-r17, and table 9.3.4-10 when *highSpeedMeasFlagFR2-r17* is configured and UE supports *measEnhCAInterFreqFR2-r18*. When the SCG is deactivated, table 9.3.4-8 applies for an inter-frequency carrier configured by SCG and not configured by MCG and table 9.3.4-4 applies for an inter-frequency carrier configured by both SCG and MCG. Regardless of whether the SCG is activated or deactivated, table 9.3.4-4 applies for an inter-frequency carrier configured only by MCG.

- For UE supporting power class 6 and *measEnhCAInterFreqFR2-r18* with *highSpeedMeasFlagFR2-r17* configured, if SMTC ≤ 40ms, TSSB\_measurement\_period\_inter is given in table 9.3.5-5; otherwise, TSSB\_measurement\_period\_inter is given in table 9.3.5-2.

- For UE configured with measurement gap cancellation according to clause 9.1.14, the TSSB\_time\_index\_inter is given in tables 9.3.4-14 and 9.3.4-15, for FR1 and FR2-1, respectively, provided the configurations and conditions in clause 9.1.14.3 are met.

TSSB\_measurement\_period\_inter: equal to a measurement period of SSB based measurement given in table 9.3.5-1, table 9.3.5-2, table 9.3.5-3 when *highSpeedMeasInterFreq* is configured and UE supports measurementEnhancementInterFreq-r17, and in table 9.3.5-5 when *highSpeedMeasFlagFR2-r17* is configured and UE supports *measEnhCAInterFreqFR2-r18*. When the SCG is deactivated, table 9.3.5-4 applies for an inter-frequency carrier configured by SCG and not configured by MCG and table 9.3.5-2 applies for an inter-frequency carrier configured by both SCG and MCG. Regardless of whether the SCG is activated or deactivated, table 9.3.5-2 applies for an inter-frequency carrier configured only by MCG.

TSSB\_processing: the time period used to process multiple beams received in one SMTC. TSSB\_processing = 2 ms for UE supporting *Rel-19 L3 fast Rx beam sweeping,* when the conditions in clause 3.6.20 are fulfilled. Otherwise, TSSB\_processing = 0.

- 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 9.3.4-11.

- For UE supporting power class 6 and *measEnhCAInterFreqFR2-r18* with *highSpeedMeasFlagFR2-r17* configured, TSSB\_measurement\_period\_inter is given in table 9.3.5-5; otherwise, TSSB\_measurement\_period\_inter is given in table 9.3.5-2.

- For UE configured with measurement gap cancellation according to clause 9.1.14, the TSSB\_measurement\_period\_inter is given in section 9.3.5, tables 9.3.5-6 and 9.3.5-7, for FR1 and FR2-1, respectively, provided the configurations and conditions in clause 9.1.14.3 are met.

Mpss/sss\_sync\_inter: For a UE supporting FR2-1 power class 1 or 5, Mpss/sss\_sync\_inter = 64 samples. For a UE supporting FR2-1 power class 2, Mpss/sss\_sync\_inter = 40 samples. For a UE supporting FR2-1 power class 3, Mpss/sss\_sync\_inter = 40 samples. For a UE supporting FR2-1 power class 4, Mpss/sss\_sync\_inter = 40 samples. For a UE supporting FR2-2 power class 1, Mpss/sss\_sync\_inter = 96. For a UE supporting FR2-2 power class 2, Mpss/sss\_sync\_inter = 60. For a UE supporting FR2-2 power class 3, Mpss/sss\_sync\_inter = 60.

MSSB\_index\_inter: For a UE supporting FR2-1 power class 1 or 5, MSSB\_index\_inter = 40 samples. For a UE supporting FR2 power class 2, MSSB\_index\_inter = 24 samples. For a UE supporting FR2-1 power class 3, MSSB\_index\_inter = 24 samples. For a UE supporting FR2-1 power class 4, MSSB\_index\_inter = 24 samples. For a UE supporting FR2-2 power class 2 or 3, MSSB\_index\_inter = 48 samples. For a UE supporting FR2 power class 1, MSSB\_index\_inter = 72 samples.

Mmeas\_period\_inter: For a UE supporting FR2-1 power class 1 or 5, Mmeas\_period\_inter =64. For a UE supporting FR2-1 power class 2, Mmeas\_period\_inter=40. For a UE supporting FR2-1 power class 3, Mmeas\_period\_inter =40. For a UE supporting FR2-1 power class 4, Mmeas\_period\_inter = 40. For a UE supporting FR2-2 power class 1, Mmeas\_period\_inter = 96. For a UE supporting FR2-2 power class 2, Mmeas\_period\_inter = 60. For a UE supporting FR2-2 power class 3, Mmeas\_period\_inter = 60.

For a UE that supports *Rel-19 L3 fast Rx beam sweeping*, when the conditions in clause 3.6.20 are fulfilled and when *highSpeedMeasFlagFR2-r17* is not configured, the following values shall apply for Mpss/sss\_sync\_inter, MSSB\_index\_inter and Mmeas\_period\_inter:

Mpss/sss\_sync\_inter: For a UE supporting FR2-1 power class 3, Mpss/sss\_sync\_inter =5\* Nreduced\_Rx\_BSF.

MSSB\_index\_inter: For a UE supporting FR2-1 power class 3, MSSB\_index\_inter = 3\* Nreduced\_Rx\_BSF.

Mmeas\_period\_inter: For a UE supporting FR2-1 power class 3, Mmeas\_period\_inter =5\* Nreduced\_Rx\_BSF.

Where,

Nreduced\_Rx\_BSF is the reduced UE Rx beam sweeping factor reported by UE via *Rel-19 L3 fast Rx beam sweeping*.

CSSFinter: 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 a 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 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 measurement GAPs, periodic MUSIM gaps, and/or per-FR measurement GAPs within the same FR, 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 occasions 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 measurement GAP and MUSIM gap collisions by applying the collision rules for the GAP and MUSIM gap in clauses 9.1.8.3, 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.

Kgap is only applicable for UE supporting concurrent GAPs or MUSIM gaps. When concurrent GAPs or MUSIM gaps are configured, requirements in this clause do not apply if Navailable =0.

When UE supports [*musim-GapPreference-r17*] and if 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 inter-frequency is expected.

**Table 9.3.4-1: Time period for PSS/SSS detection (FR1)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TPSS/SSS\_sync\_inter** |
| No DRX | Max(600 ms, Ceil(8 \* Kgap) × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(600 ms, Ceil(8\*1.5 \* Kgap) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(8 \* Kgap) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: For a UE supporting concurrent GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured. | |

**Table 9.3.4-2: Time period for PSS/SSS detection, (FR2)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TPSS/SSS\_sync\_inter** |
| No DRX | Max(600 ms, Ceil(Kgap × Mpss/sss\_sync\_inter x KFR) × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(600 ms, Ceil(1.5 \* Kgap × Mpss/sss\_sync\_inter x KFR) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(Kgap × Mpss/sss\_sync\_inter x KFR) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: For a UE supporting concurrent GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured.  NOTE 4: 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 9.3.4-3: Time period for time index detection (FR1)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_time\_index\_inter** |
| No DRX | Max(120 ms, Ceil(3 \* Kgap)× Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(120 ms, Ceil(3 × 1.5 \* Kgap) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(3 \* Kgap)× DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: For a UE supporting concurrent GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured. | |

**Table 9.3.4-4: Time period for time index detection (FR2)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_time\_index\_inter** |
| No DRX | Max(200 ms, Ceil(Kgap × MSSB\_index\_inter)× Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(200 ms, Ceil(1.5 \* Kgap × MSSB\_index\_inter) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(Kgap ×MSSB\_index\_inter) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: For a UE supporting concurrent GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured. | |

**Table 9.3.4-5: Time period for PSS/SSS detection when highSpeedMeasInterFreq-r17 is configured (FR1)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TPSS/SSS\_sync\_inter** |
| No DRX | max(600 ms, N1 × Max(MGRP, SMTC period)) × CSSFinter  N1 = 7 |
| DRX cycle ≤ 160 ms | max(600 ms, ceil(N2) x max(MGRP, SMTC period, DRX cycle)) x CSSFinter  N2 = 7 x M2 |
| 160 ms < DRX cycle ≤ 320 ms | ceil(N3) x DRX cycle x CSSFinter  N3 = 7 x M2 |
| DRX cycle>320 ms | N4 x DRX cycle x CSSFinter |
| 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: N4=6 if SMTC periodicity > 40 ms, otherwise N4=5 | |

**Table 9.3.4-6: Time period for time index detection when *highSpeedMeasInterFreq-r17* is configured (FR1)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_time\_index\_inter** |
| No DRX | Max(120 ms, 3 × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(120 ms, Ceil(3 × M2 NOTE3) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | 3 × DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: M2 = 1.5 if SMTC periodicity > 40 ms, otherwise M2=1. | |

**Table 9.3.4-7: Time period for PSS/SSS detection when the inter-frequency carrier is configured only by SCG and the SCG is deactivated (FR2)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TPSS/SSS\_sync\_inter** |
| No DRX | Max(600 ms, Ceil(Kgap × Mpss/sss\_sync\_inter) × Max(MGRP, measCyclePSCell)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(600 ms, Ceil(1.5 \* Kgap × Mpss/sss\_sync\_inter) × Max(MGRP, measCyclePSCell, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(Kgap × Mpss/sss\_sync\_inter) × Max(measCyclePSCell, DRX cycle) × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group.  NOTE 3: For a UE supporting concurrent GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured. | |

**Table 9.3.4-8: Time period for time index detection when inter-frequency carrier is configured only by SCG and the SCG is deactivated (FR2)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_time\_index\_inter** |
| No DRX | Max(200 ms, Ceil(Kgap × MSSB\_index\_inter)× Max(MGRP, measCyclePSCell)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(200 ms, Ceil(1.5 \* Kgap × MSSB\_index\_inter) × Max(MGRP, measCyclePSCell, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(Kgap ×MSSB\_index\_inter) × Max(measCyclePSCell, DRX cycle) × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1.  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: For a UE supporting concurrent GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured. | |

**Table 9.3.4-9: Time period for PSS/SSS detection when *highSpeedMeasFlagFR2-r17* is configured, (FR2-1) when SMTC period ≤40ms**

|  |  |
| --- | --- |
| **DRX cycle** | **TPSS/SSS\_sync\_inter** |
| No DRX | max(600 ms, M1Note 3 x Kgap x max(MGRP, SMTC period)) x CSSFinter |
| DRX cycle≤ 80 ms | max(600 ms, ceil(M1Note 3 x Kgap) x max(MGRP, SMTC period, DRX cycle))x CSSFinter |
| 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 CSSFinter |
| DRX cycle>320 ms | Ceil( Mpss/sss\_sync\_with\_gaps x Kgap ) x max(MGRP, DRX cycle) x CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: For a UE supporting concurrent GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured.  NOTE 3: For UE supporting power class 6 and *measEnhCAInterFreqFR2-r18*, M1= 6 if *highSpeedMeasFlagFR2-r17* = set1 or M1= 18 if *highSpeedMeasFlagFR2-r17* = set2 | |

**Table 9.3.4-10: Time period for time index detection when when *highSpeedMeasFlagFR2-r17* is configured (Frequency range FR2-1) when SMTC period <= 40 ms**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_time\_index\_inter** |
| No DRX | Max(200 ms, Ceil(Kgap × , M1Note 3)× Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle≤ 80 ms | Max(200 ms, Ceil(1.5 \* Kgap × M1Note 3) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| 80 ms< DRX cycle≤ 320 ms | Max(200 ms, Ceil(1.5 \* Kgap × MSSB\_index\_inter) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(Kgap ×MSSB\_index\_inter) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: For a UE supporting concurrent GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured.  NOTE 3: For UE supporting power class 6 and *measEnhCAInterFreqFR2-r18*, M1= 6 if *highSpeedMeasFlagFR2-r17* = set1 or M1= 18 if *highSpeedMeasFlagFR2-r17* = set2 | |

**Table 9.3.4-11: Time period for time index detection for a UE, target cell with 12 PRB SSB (FR1)**

|  |  |
| --- | --- |
| **Condition NOTE1** | **TSSB\_time\_index\_inter\_less\_than\_5Mhz** |
| No DRX | Max(120 ms, Ceil(6 \* Kgap)× Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(120ms, Ceil(6 × M2 \* Kgap) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(6\* Kgap)× DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: When *highSpeedMeasInterFreq-r17* is not configured, M2 = 1.5; When *highSpeedMeasInterFreq-r17* is configured, M2 = 1.5 if SMTC periodicity > 40 ms; otherwise M2 = 1.  NOTE 3: The requirements in this table apply provided that the Ês/Iot on the target cell SSB is ≥-4 dB. | |

**Table 9.3.4-12: Time period for PSS/SSS detection (FR1) for UE configured with MG cancellation**

|  |  |
| --- | --- |
| **Condition NOTE1** | **TPSS/SSS\_sync\_inter NOTE3** |
| No DRX | Max(600 ms, ceil((8+Lcancel,PSS/SSS) × Kgap) × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(600 ms, ceil((8+ Lcancel,PSS/SSS) × Kgap ×1.5) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | ceil((8+ Lcancel,PSS/SSS) × Kgap) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non-DRX requirements apply according to the conditions described in clause 3.6.1.  NOTE 2: For a UE supporting concurrent gaps, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent gaps are configured.  NOTE 3: Lcancel,PSS/SSS is the the number of measurement gap occasions with SSB not available at the UE due to measurement gap occasions cancelled during TPSS/SSS\_sync\_inter. When DRX is configured, Lcancel,PSS/SSS is the number of DRX cycles in which at least one measurement gap occasion with SSB is not available at the UE due to measurement gap occasions cancelled during TPSS/SSS\_sync\_inter. | |

**Table 9.3.4-13: Time period for PSS/SSS detection (FR2-1) for UE configured with MG cancellation**

|  |  |
| --- | --- |
| **Condition NOTE1** | **TPSS/SSS\_sync\_inter NOTE3** |
| No DRX | Max(600 ms, ceil((Mpss/sss\_sync\_inter + Lcancel,PSS/SSS) × Kgap) × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(600 ms, ceil((Mpss/sss\_sync\_inter + Lcancel,PSS/SSS) × 1.5 × Kgap) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | ceil((Mpss/sss\_sync\_inter+ Lcancel,PSS/SSS) × Kgap) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non-DRX requirements apply according to the conditions described in clause 3.6.1.  NOTE 2: For a UE supporting concurrent gaps, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent gaps are configured.  NOTE 3: Lcancel,PSS/SSS is the the number of measurement gap occasions with SSB not available at the UE due to measurement gap occasions cancelled during TPSS/SSS\_sync\_inter. When DRX is configured, Lcancel,PSS/SSS is the number of DRX cycles in which at least one measurement gap occasion with SSB is not available at the UE due to measurement gap occasions cancelled during TPSS/SSS\_sync\_inter. | |

**Table 9.3.4-14: Time period for time index detection (FR1) for UE configured with MG cancellation**

|  |  |
| --- | --- |
| **Condition NOTE1** | **TSSB\_time\_index\_inter NOTE3** |
| No DRX | Max(120 ms, ceil((3+ Lcancel,index) × Kgap) × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(120 ms, ceil((3+ Lcancel,index) × 1.5 × Kgap) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | ceil((3+ Lcancel,index) × Kgap) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non-DRX requirements apply according to the conditions described in clause 3.6.1.  NOTE 2: For a UE supporting concurrent gaps, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent gaps are configured.  NOTE 3: Lcancel,index is the the number of measurement gap occasions with SSB not available at the UE due to measurement gap occasions cancelled during TSSB\_time\_index\_inter. When DRX is configured, Lcancel,index is the number of DRX cycles in which at least one measurement gap occasion with SSB is not available at the UE due to measurement gap occasions cancelled during TSSB\_time\_index\_inter. | |

**Table 9.3.4-15: Time period for time index detection (FR2-1) for UE configured with MG cancellation**

|  |  |
| --- | --- |
| **Condition NOTE1** | **TSSB\_time\_index\_inter NOTE3** |
| No DRX | Max(200 ms, ceil((MSSB\_index\_inter + Lcancel,index) × Kgap)× Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(200 ms, ceil((MSSB\_index\_inter + Lcancel,index) × 1.5 × Kgap) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | ceil((MSSB\_index\_inter + Lcancel,index) × Kgap) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1.  NOTE 2: For a UE supporting concurrent gaps, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent gaps are configured.  NOTE 3: Lcancel,index is the the number of measurement gap occasions with SSB not available at the UE due to measurement gap occasions cancelled during TSSB\_time\_index\_inter. When DRX is configured, Lcancel,index is the number of DRX cycles in which at least one measurement gap occasion with SSB is not available at the UE due to measurement gap occasions cancelled during TSSB\_time\_index\_inter. | |

### **--- end of Change 4 ---**

### **--- start of Change 5 ---**

9.3.5 Inter-frequency measurements

When measurement gaps are provided for inter frequency measurements, or the UE supports capability of conducting such measurements without gaps, the UE physical layer shall be capable of reporting SS-RSRP, SS-RSRQ and SS-SINR measurements to higher layers with measurement accuracy as specified in clauses 10.1.4, 10.1.5, 10.1.9, 10.1.10, 10.1.14 and 10.1.15, respectively, as shown in table 9.3.5-1 and 9.3.5-2. When *highSpeedMeasInterFreq-r17* is configured, and UE supports *measurementEnhancementInterFreq-r17*, TSSB\_measurement\_period\_inter is specified in table 9.3.5-3. When SCG is deactivated, TSSB\_measurement\_period\_inter is specified in table 9.3.5-4 applies for inter-frequency carrier configured by SCG and not configured by MCG and table 9.3.5-2 applies for inter-frequency carrier configured by both SCG and MCG. Regardless of whether the SCG is activated or deactivated, table 9.3.5-2 applies for an inter-frequency carrier configured only by MCG.

For UE configured with measurement gap cancellation according to clause 9.1.14 meeting the conditions in clause 9.1.14.3, the UE physical layer shall be capable of reporting SS-RSRP, SS-RSRQ and SS-SINR measurements to higher layers with measurement accuracy as specified in clauses 10.1.4, 10.1.5, 10.1.9, 10.1.10, 10.1.14 and 10.1.15 for FR1 and FR2-1, respectively, while meeting the measurement period requirements for FR1 and FR2-1 specified in tables 9.3.5-6 and 9.3.5-7, respectively.

**Table 9.3.5-1: Measurement period for inter-frequency measurements with gaps (FR1)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_measurement\_period\_inter** |
| No DRX | Max(200 ms, Ceil(8 \* Kgap) × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(200 ms, Ceil(8 × 1.5 \* Kgap) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(8 \* Kgap) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: For a UE supporting concurrent measurement GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured. | |

**Table 9.3.5-2: Measurement period for inter-frequency measurements with gaps (FR2)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_measurement\_period\_inter** |
| No DRX | Max(400 ms, Ceil(Kgap × Mmeas\_period\_inter)× Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(400 ms, Ceil(1.5 \* Kgap × Mmeas\_period\_inter) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(Kgap × Mmeas\_period\_inter) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: For a UE supporting concurrent measurement GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured. | |

**Table 9.3.5-3: Measurement period for inter-frequency measurements with gaps when highSpeedMeasInterFreq-r17 is configured (FR1)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_measurement\_period\_inter** |
| No DRX | max(200 ms, 7 × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 160 ms | max(200 ms, ceil(7 x M2 NOTE3) x max(MGRP, SMTC period, DRX cycle)) x CSSFinter |
| 160 ms < DRX cycle ≤ 320 ms | ceil(7 x M2 NOTE3) x DRX cycle x CSSFinter |
| DRX cycle>320 ms | 4 x M2 NOTE3 x DRX cycle x CSSFinter |
| 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: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: M2 = 1.5 if SMTC periodicity > 40 ms, otherwise M2=1 | |

**Table 9.3.5-4: Measurement period for inter-frequency measurements with gaps when the inter-frequency carrier is configured only by SCG and the SCG is deactivated (FR2)**

|  |  |
| --- | --- |
| **Condition NOTE1,2** | **TSSB\_measurement\_period\_inter** |
| No DRX | Max(400 ms, Ceil(Kgap × Mmeas\_period\_inter)× Max(MGRP, measCyclePSCell)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(400 ms, Ceil(1.5 \* Kgap × Mmeas\_period\_inter) × Max(MGRP, measCyclePSCell, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | Ceil(Kgap × Mmeas\_period\_inter) × Max(measCyclePSCell, DRX cycle) × CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1.  NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group.  NOTE 3: For a UE supporting concurrent measurement GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured. | |

**Table 9.3.5-5: Measurement period for inter-frequency measurements with gaps when *highSpeedMeasFlagFR2-r17* is configured (FR2-1) when SMTC period≤40ms**

|  |  |
| --- | --- |
| **DRX cycle** | **T SSB\_measurement\_period\_inter** |
| No DRX | max(400 ms, ceil(M1Note 3 x Kgap ) x max(MGRP, SMTC period)) x CSSFinter |
| DRX cycle≤ 80 ms | max(400 ms, ceil(M1Note 3 x Kgap) x max(MGRP, SMTC period, DRX cycle)) Note 1 x CSSFinter |
| 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 CSSFinter |
| DRX cycle>320 ms | Ceil( Mmeas\_period with\_gaps x Kgap ) x max(MGRP, DRX cycle) x CSSFinter |
| NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1  NOTE 2: For a UE supporting concurrent measurement GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured.  NOTE 3: For UE supporting power class 6 and *measEnhCAInterFreqFR2-r18*, M1= 6 if *highSpeedMeasFlagFR2-r17* = set1 or M1= 18 if *highSpeedMeasFlagFR2-r17* = set2 | |

**Table 9.3.5-6: Measurement period for inter-frequency measurements with gaps (FR1) for UE configured with MG cancellation**

|  |  |
| --- | --- |
| **Condition NOTE1** | **TSSB\_measurement\_period\_inter NOTE3** |
| No DRX | Max(200 ms, ceil((8 + Lcancel,meas) × Kgap) × Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(200 ms, ceil((8 + Lcancel,meas) × 1.5 × Kgap) × Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | ceil((8 + Lcancel,meas) × Kgap) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non-DRX requirements apply according to the conditions described in clause 3.6.1.  NOTE 2: For a UE supporting concurrent measurement gaps, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent gaps are configured.NOTE 3: Lcancel,meas is the the number of measurement gap occasions with SSB not available at the UE due to measurement gap occasions cancelled during TSSB\_measurement\_period\_inter. When DRX is configured, Lcancel,meas is the number of DRX cycles in which at least one measurement gap occasion with SSB is not available at the UE due to measurement gap occasions cancelled during TSSB\_measurement\_period\_inter. | |

**Table 9.3.5-7: Measurement period for inter-frequency measurements with gaps (FR2-1) for UE configured with MG cancellation**

|  |  |
| --- | --- |
| **Condition NOTE1** | **TSSB\_measurement\_period\_inter NOTE3** |
| No DRX | Max(400 ms, ceil((Mmeas\_period\_inter + Lcancel,meas) × Kgap)× Max(MGRP, SMTC period)) × CSSFinter |
| DRX cycle ≤ 320 ms | Max(400 ms, ceil((Mmeas\_period\_inter + Lcancel,meas) × 1.5 × Kgap)× Max(MGRP, SMTC period, DRX cycle)) × CSSFinter |
| DRX cycle > 320 ms | ceil((Mmeas\_period\_inter + Lcancel,meas) × Kgap) × DRX cycle × CSSFinter |
| NOTE 1: DRX or non-DRX requirements apply according to the conditions described in clause 3.6.1.  NOTE 2: For a UE supporting concurrent measurement gaps, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent gaps are configured.  NOTE 3: Lcancel,meas is the the number of measurement gap occasions with SSB not available at the UE due to measurement gap occasions cancelled during TSSB\_measurement\_period\_inter. When DRX is configured, Lcancel,meas is the number of DRX cycles in which at least one measurement gap occasion with SSB is not available at the UE due to measurement gap occasions cancelled during TSSB\_measurement\_period\_inter. | |

### **--- end of Change 5 ---**

### **--- start of Change 6 ---**

### 9.3.9 Inter-frequency measurements without measurement gaps

**--- clauses without changes ---**

9.3.9.3 Scheduling availability of UE during inter-frequency measurements when the SSB is completely contained in the active BWP of the UE

If UE supports *interFrequencyMeas-NoGap-r16* and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network, UE is required to be capable of measuring without measurement gaps when the SSB is completely contained in the active bandwidth part of the UE. 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 to be measured in the following clauses are the SSB symbols indicated by *SSB-ToMeasure* [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 UE configured with measurement gap cancellation according to clause 9.1.14, for which the conditions in clause 9.1.14.3 are met, the UE is not required to perform measurements during the cancelled measurement gap occasions, and no restrictions on the scheduling availability during the cancelled gap occasions apply.

The scheduling availability requirements when UE performs inter-frequency measurements without measurement gaps in a TDD bands on FR1 and FR2 in clause 9.3.9.3.1~9.3.9.3.3 are valid under the following conditions:

- SFN and frame boundary across serving cell and inter-frequency neighbor cells is aligned

[For UE supporting MUSIM gaps, when MUSIM gaps are configured, the requirements in clause 9.3.9.3 are also applied to the slots that are not interrupted according to requirements in clause 9.1.10.x3.y2 and 9.1.10.x3.y3.]

### **--- end of Change 6 ---**