NES Comments file

Template:

# Xnnn

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Xnnn |  |  |  |  |  |  |  |  |

**[Description]**:

**[Proposed Change]**:

**[Comments]**:

Instructions:

1. Copy the template RIL comments fields above (including the Heading Xnnn)
2. Paste the RIL comments fields at its position while **respecting the order of the RILs in the Review file (i.e. keep the order of the spec).**
3. Fill in the fields, see R19 ASN.1 Guideline.
4. Companies may comment whether they agree or disagree.
5. Can copy spec text and use Word “Track changes”, etc.
6. Do not delete text added by other companies.

# O004

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O004 | NES, SLRelay | 1 | Applicability of PO bundling to SL Relay | R2-25xxxxx | OPPO (Qianxi) |  | V002 | ToDo |

**[Description]**: It is not clear whether the paging adapation (i.e., PO bundling) feature can be applied to SL Relay UE (first/last Relay) and Remote UE.

**[Proposed Change]**: R2 discuss and conclude the applicability of paging adapation (i.e., PO bundling) feature to SL Relay UE (first/last Relay) and Remote UE or not.

**[Comments]**:

# O005

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O005 | NES, LPWUS | 1 | Applicability of PO bundling to LP-SS | R2-25xxxxx | OPPO (Qianxi) |  | V002 | ToDo |

**[Description]**: It is not clear whether the paging adapation (i.e., PO bundling) feature can be enabled together with LP-SS feature or not.

**[Proposed Change]**: R2 discuss and conclude the applicability of co-configuring paging adaptation and LP-SS feature.

**[Comments]**:

# X200

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X200 | NES | 1 | SMTC handling for OD-SSB | R2-25xxxxx | Xiaomi (Li Zhao) |  | V003 | ToDo |

**[Description]**: The existing text in 5.5.2.10 still needs to be further polished to reflect the mapping between the SMTC and the OD-SSB periodicity

**[Proposed Change]**: RAN2 to discuss and agree the following text.

“If *smtcxlist* is present, when OD-SSB is activated and the serving cell is activated, the UE shall setup SMTC according to the first configured field in *smtcxlist* for serving cell measurements on the corresponding configured measurement object as specified in 5.5.3.1, ifthe SS/PBCH block reception periodicity is configured as the first OD-SSB periodicity value of *od-ssb-Periodicity-r19*; the UE shall setup SMTC according to the second configured field in *smtcxlist* for serving cell measurements on the corresponding configured measurement object as specified in 5.5.3.1,if the SS/PBCH block reception periodicity is configured as the second OD-SSB periodicity value of *od-ssb-Periodicity* and so on”

**[Comments]**: [OPPO] It is not super clear to us how to handle this. Specifically: 1) If there is a periodicity for which there is no corresponding OD-SSB periodicity, following this rule, the SMTC has to be configured within smtcxlist (e.g., if there are OD-SSB configuration for ms5 and ms20, but there is no OD-SSB configuration for ms10), leading to unnecessary signaling overhead?

[Sharp]: Agree with the comments from OPPO. We think for simplicity, configured SMTC number in smtcxlist can be same as configured OD-SSB periodicity value number. For example, 4 OD-SSB configurations with 5ms OD-SSB periodicity, and 4 OD-SSB configurations with 20ms OD-SSB periodicity, then there are 2 OD-SSB periodicity values and 2 SMTC in smtcxlist. The potential change is as below:

If *smtcxlist* is present, when OD-SSB is activated and the serving cell is activated, the UE shall setup SMTC according to the first configured field in *smtcxlist* for serving cell measurements on the corresponding configured measurement object as specified in 5.5.3.1, ifthe SS/PBCH block reception periodicity is configured as the first value among OD-SSB periodicity value(s) in OD-SSB configuration(s) for the serving cell

[Xiaomi]: We think both options can work, considering there are only six candidate periodicities, then six candidate SMTC, the signalling overhead is not a big issue? Not sure if the option proposed by Sharp can describe the intention clearly.

[ER] Agree with Oppo. The current text, or the proposed correction are not clear. It seems rather convoluted approach to try to map values in a list to something configured elsewhere. Typically this kind of associations are done via configIDs not by comparing field values.

Furthe, see N002 and other and ER response therein. It means also offset may vary with MAC CE and periodicity is not enough to map these. Further, offset is coded in different way in SSB-MTC and in OD-SSB.

SSB-MTC ::= SEQUENCE {

periodicityAndOffset CHOICE {

sf5 INTEGER (0..4),

sf10 INTEGER (0..9),

sf20 INTEGER (0..19),

sf40 INTEGER (0..39),

sf80 INTEGER (0..79),

sf160 INTEGER (0..159)

},

duration ENUMERATED { sf1, sf2, sf3, sf4, sf5 }

}

OD-SSB-r19 ::= SEQUENCE {

od-ssb-SFN-Offset-r19 INTEGER (0..15) OPTIONAL, -- Cond ODssbAOssb [RIL]: O007, NES[RIL]: L203, NES

od-ssb-halfFrameIndex-r19 ENUMERATED {zero, one} OPTIONAL, -- Cond ODssbAOssb [RIL]: O007, NES

N002, NES

# X201

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X201 | NES | 1 | Serving cell MO handling for OD-SSB | R2-25xxxxx | Xiaomi (Li Zhao) |  | V003 | ToDo |

**[Description]**: The existing text in 5.5.3.1 still needs to be further polished to make it more readable and solve the conflict between the level 2 “*absoluteFrequencySSB* is not configured” and level 3 “and *absoluteFrequencySSB* is configured in *ServingCellConfigCommon*”

**[Proposed Change]**: RAN2 to discuss and agree the following text.

The UE shall:

1> whenever the UE has a *measConfig*, perform RSRP and RSRQ measurements for each serving cell for which *servingCellMO* is configured as follows:

2> if the *OD-SSB-Config* is not configured:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*, and *absoluteFrequencySSB* is configured in *ServingCellConfigCommon*:

4> if the *reportConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

4> derive serving cell measurement results based on SS/PBCH block, as described in 5.5.3.3;

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*:

4> if the reportConfig contains a reportQuantityRS-Indexes and maxNrofRS-IndexesToReport:

5> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

4> derive serving cell measurement results based on CSI-RS, as described in 5.5.3.3;

2> if the *OD-SSB-Config* and *absoluteFrequencySSB* are configured and *od-ssb-absoluteFrequency* is not configured, or:

2> if the *OD-SSB-Config* is configured, *absoluteFrequencySSB* is not configured and OD-SSB transmission is activated, or:

2> if the *OD-SSB-Config*, *absoluteFrequencySSB* and *od-ssb-absoluteFrequency* are configured and OD-SSB transmission is not activated:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*:

4> if the *reportConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

4> derive serving cell measurement results based on SS/PBCH block, as described in 5.5.3.3;

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*:

4> if the reportConfig contains a reportQuantityRS-Indexes and maxNrofRS-IndexesToReport:

5> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

4> derive serving cell measurement results based on CSI-RS, as described in 5.5.3.3;

2> else if the *OD-SSB-Config*, *absoluteFrequencySSB* and *od-ssb-absoluteFrequency* are configured and OD-SSB transmission is activated:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *measObject* indicated by the *servingCellMO-OD*:

4> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* and contains an *rsType* set to *ssb*:

5> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

4> derive serving cell measurement results based on SS/PBCH block, as described in 5.5.3.3;

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *measObject* indicated by the *servingCellMO-OD*:

4> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* and contains an *rsType* set to *csi-rs*:

5> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

4> derive serving cell measurement results based on CSI-RS, as described in 5.5.3.3;

1> for each serving cell for which *servingCellMO* is configured, if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains SINR as trigger quantity and/or reporting quantity:

2> if the *OD-SSB-Config* is not configured:

3> if the *reportConfig* contains *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *servingCellMO*, and *absoluteFrequencySSB* is configured in *ServingCellConfigCommon*:

4> if the *reportConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> derive layer 3 filtered SINR per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

4> derive serving cell SINR based on SS/PBCH block, as described in 5.5.3.3;

3> if the *reportConfig* contains *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *servingCellMO*:

4> if the *reportConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> derive layer 3 filtered SINR per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

4> derive serving cell SINR based on CSI-RS, as described in 5.5.3.3;

2> if the *OD-SSB-Config* and *absoluteFrequencySSB* are configured and *od-ssb-absoluteFrequency* is not configured, or:

2> if the *OD-SSB-Config* is configured, *absoluteFrequencySSB* is not configured and OD-SSB transmission is activated, or:

2> if the *OD-SSB-Config*, *absoluteFrequencySSB* and *od-ssb-absoluteFrequency* are configured and OD-SSB transmission is not activated:

3> if the *reportConfig* contains *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *servingCellMO*:

4> if the *reportConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> derive layer 3 filtered SINR per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

4> derive serving cell SINR based on SS/PBCH block, as described in 5.5.3.3;

3> if the *reportConfig* contains *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *servingCellMO*:

4> if the *reportConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> derive layer 3 filtered SINR per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

4> derive serving cell SINR based on CSI-RS, as described in 5.5.3.3;

2> else if the *OD-SSB-Config*, *absoluteFrequencySSB* and *od-ssb-absoluteFrequency* are configured and OD-SSB transmission is activated:

3> if the *reportConfig* contains *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *servingCellMO-OD*:

4> if the *reportConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> derive layer 3 filtered SINR per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

4> derive serving cell SINR based on SS/PBCH block, as described in 5.5.3.3;

3> if the *reportConfig* contains *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *servingCellMO-OD*:

4> if the *reportConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> derive layer 3 filtered SINR per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

4> derive serving cell SINR based on CSI-RS, as described in 5.5.3.3;

**[Comments]**: [OPPO] if “and *absoluteFrequencySSB* is configured in *ServingCellConfigCommon*” is the main concern, it seems we should not relocate the bullets for “*absoluteFrequencySSB* are configured”, but just the one of “if the *OD-SSB-Config* is configured, *absoluteFrequencySSB* is not configured and OD-SSB transmission is activated” should be relocated, but that should rely on *servingCellMO-OD* so should combine with the branch of *servingCellMO-OD*? [OPPO2] After offline with Xiaomi, it seems the intention was to mandate using servingCellMO (rather than servingCellMO-OD) for the SSB-less case, i.e., does not pursue the case where the *ssbFrequency* in *servingCellMO* is different from *od-ssb-absoluteFrequency*. If so, OK to rely on *servingCellMO* for all SSB-less case, but good to clarify it using R2 conclusion to make it more explicit.

[Sharp]: “*absoluteFrequencySSB* is configured in *ServingCellConfigCommon*” and other conditions can be moved to the lower level to avoid too many duplicate texts:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*, and:

4> if the *OD-SSB-Config* is not configured and *absoluteFrequencySSB* is configured in *ServingCellConfigCommon*, or:

4> if the *OD-SSB-Config* and *absoluteFrequencySSB* are configured and *od-ssb-absoluteFrequency* is not configured, or:

4> if the *OD-SSB-Config* is configured, *absoluteFrequencySSB* is not configured and OD-SSB transmission is activated, or:

4> if the *OD-SSB-Config*, *absoluteFrequencySSB* and *od-ssb-absoluteFrequency* are configured and OD-SSB transmission is not activated:

*<Legacy behavior>*

*[Nokia] It seems procedural text does not work very well. So we would think we should have contributions from companies for coming meeting to consider how the procedural text should be written. It looks like the current text is missing the scenario when serving cell has only CSI-RS measurement in the MO and then we have also OD-SSB measurements.*

[Xiaomi]: Regarding OPPO’s comments, I think either relocate the bullets for “*absoluteFrequencySSB* are configured” or not can work, no strong view. Regarding the proposed change by Sharp, I think the conditions to utilize servingcellMO should be in an upper level instead of a lower level, otherwise, servingcellMO will always be utilized.

[Ericsson] Agree with Nokia. See also E023, E024, we need also RAN2 conlcusions related to Case1. Is it not so that od-ssb MO or od-ssb smtc is used only when od-ssb is activated? Would it not be simpler to have those configured in od-ssb and activated when od-ssb is active and that’s it? Which case is missing then?

# X202

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X202 | NES | 1 | Classify parameters of OD-SIB1 | R2-25xxxxx | Xiaomi (Li Zhao) |  | V003 | ToDo |

**[Description]**: According to the parameter list from RAN1, some parameters related to OD-SIB1 should be configured per od-sib1-Config instead of per SIB1-RequestConfig, e.g., sib1-rsrp-ThresholdSSB-r19, locationAndBandwidth-r19, absoluteFrequencyPointA-r19, ul-FrequencyBandList-r19, ul-SubCarrierSpacing-r19, etc.

**[Proposed Change]**: RAN2 to discuss to move those parameters not related to SIB1-RequestConfig from SIB1-RequestConfig to od-sib1-Config.

**[Comments]**:[Nokia] I’m not sure on this one. RAN1 xls seems to be bit vague on this. So far to use current asn.1 seems Ok anyway as the xls points out that all the parameters in frequenciInfoUL are per WUS config. So we would not do this change until it is confirmed with Ran

[Huawei]: Agree with Xiaomi. We understand that RRC parameters are up to RAN2 to specify but we did not see the motivation for deviating from the RAN1 parameter list, in particular what was the reasoning of the current parameter placement in OD-SIB1-Config-r19 and SIB1-RequestConfig-r19.

[vivo] Maybe it’s safer to keep them as it is now, like the sib1-rsrp-ThresholdSSB-r19 and ul-SubCarrierSpacing-r19, which is per Uplink configured (NUL or SUL)?

[Ericsson] It is this way dues to RAN2 SUL agreement. RAN1 did not consider SUL and hence this was not reflected in their parameter excel. There is no functional difference in RAN1 perepective with the existing order of parameters since all is there in the highest level IE.

# X203

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X203 | NES | 1 | Using NUL/SUL for OD-SIB1 request | R2-25xxxxx | Xiaomi (Haitao) |  | V003 | ToDo |

**[Description]**: Description on OD-SIB1 request for NUL and SUL repeat quite much and make spec messy.

**[Proposed Change]**: merge into a single procedure text for OD-SIB1 request on NUL and SUL.

**[Comments]**:Nokia: OK to merge but It would be good to see the proposal for this. IT does not seem to be trivial to do the merge

[vivo] *sib1-RequestConfigSUL* is optionally configured and thus it’s better not to merge them even it’s a little bit wordy. There are far more wordy procedural texts in RACH and Sidelink operation for instance...

[Ericsson] The implementation of this comes from Samsung and it is indeed for supporting SUL. If there is a need to simplify, please provide complete option that is error free.

# X204

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X203 | NES | 2 | sib1-PDCCH-RestrictionToPRACH-r19 | R2-25xxxxx | Xiaomi (Haitao) |  | V014 | ToDo |

**[Description]**: according to RAN1 agreement, this parameter should be optional. Currently it can only indicate TRUE.

**[Proposed Change]**: add OPTIONAL for this parameter.

**[Comments]**:

[Huawei]: Agree, this needs to be OPTIONAL, -- Need R

# X205

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X205 | NES | 1 | How to configure od-ssb-PositionsInBurst | R2-25xxxxx | Xiaomi (Li Zhao) |  | V015 | ToDo |

**[Description]**: according to RAN1 agreement and parameter list, this parameter should be mandatory present in case 1. For case 2, when OD-SSB and AO-SSB having same frequency, this parameter should be absent.

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| For Case #2 (i.e., Always-on SSB is periodically transmitted on the cell), if absent, od-ssb-PositionsInBurst is the same as ssb-PositionsInBurst provided in ServingCellConfigCommon. |

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| Agreement (RAN1#120bis)  For a cell supporting on-demand SSB SCell operation, at least for the following parameter(s) (in addition to agreed ones), multiple candidate values can be configured (includes the case where no candidate values are configured) by RRC and the applicable value can be indicated by MAC CE for on-demand SSB transmission indication for the cell.  • SSB positions within an on-demand SSB burst by using signaling similar to ssb-PositionsInBurst (i.e., od-ssb-PositionsInBurst) for the following cases  o The case where center frequency of AO-SSB and OD-SSB are different  o Case 1  • Number N of on-demand SSB bursts to be transmitted after on-demand SSB is indicated (i.e., od-ssb- nrofBurst)  FFS: Additional restrictions |

**[Proposed Change]**:

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| Conditional Presence | Explanation |
| *ODssbOnly* | The field is mandatory present, when *absoluteFrequencySSB* of the serving cell is absent. It is optionally present otherwise. |
| *MACCE* | The field is optionally present, Need R, when *od-ssb-ActivationStatus* is absent. It is absent otherwise. |

***od-ssb-PositionsInBurst***

Indicates the time domain positions of the transmitted SS-blocks for OD-SSB in a half frame with SS/PBCH blocks as defined in TS 38.213 [13], clause 4.1. If absent, UE applies the value *ssb-PositionsInBurst* provided in *ServingCellConfigCommon*. This field is absent in case the *od-ssb-absoluteFrequency* is not configured.

**[Comments]**:

# O006

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O006 | NES | 2 | How to handle the SSB-less case | R2-25xxxxx | OPPO (Qianxi) |  | V004 | ToDo |

**[Description]**: “This field is mandatory present if *od-ssb-absoluteFrequency* indicates different frequency than *absoluteFrequencySSB* of the serving cell.” It is not clear how to handle the case where *absoluteFrequencySSB* is not provided, i.e., SSB-less case.

**[Proposed Change]**: Extend the condition of servingCellMO-OD as “This field is mandatory present if od-ssb-absoluteFrequency indicates different frequency than ssbFrequency of the servingCellMO” to cover SSB-less SCell.

**[Comments]**:

[Ericsson] agree, please see also E023, E024

# O007

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O007 | NES | 2 | Optionality of fields for offset |  | OPPO (Qianxi) |  | V004 | ToDo |

**[Description]**: For the two fields *od-ssb-halfFrameIndex* and *od-ssb-SFN-Offset*, since it says “If the field is absent, the UE applies the value 0.” And since R1 RRC list does not say it has to be mandatory present, we wonder whether it is necessary to restrict that “The field is mandatory present, when *absoluteFrequencySSB* of the serving cell is absent.”

**[Proposed Change]**: We are fine with either way, yet good to have R2 conclusion on it since it was not from R1 RRC parameter list directly.

**[Comments]**:

[Ericsson] there is RAN1 agreement though:

**Agreement**

* For a cell supporting on-demand SSB SCell operation, support to configure time domain location of on-demand SSB per on-demand SSB periodicity by RRC for both Case #1 and Case #2.
  + For Case #1 (i.e., No always-on SSB on the cell),
    - Based on two parameters, where one is to indicate SFN offset from a reference point and the other is to indicate half frame index
      * The reference point is SFN which satisfies (SFN index \*10) modulo (OD-SSB periodicity) = 0
      * If SFN offset parameter is NOT configured, UE assumes SFN offset set to 0.
      * If half frame index parameter is NOT configured, UE assumes half frame index set to 0.
      * The value range of SFN offset is 0 to 15 unless longer periodicity for on-demand SSB than 160 ms is introduced.
      * The value range of half frame index is 0 or 1.
  + For Case #2 (i.e., Always-on SSB is periodically transmitted on the cell), down-select one of the following alternatives.
    - Alt A: Same as for Case #1
    - Alt B: Based on a single parameter which is to indicate the time offset between always-on SSB and on-demand SSB (e.g., similar to *ssb-TimeOffset*)

# J001

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| J001 | NES | 1 | Align smtc between MCG and SCG |  | Sharp (LIU Lei) |  | V00x | ToDo |

**[Description]**: When OD-SSB is activated, smtcx is used to setup SMTC and when adapt SSB is activated, smtcy is used to setup SMTC, i.e., *smtc1* is replaced. Thus *smtcx/smtcy* configured by the MCG should be aligned with *smtc1* configured by SCG for the same *ssbFrequency*.

**[Proposed Change]**: The text proposal is as below:

- to ensure that, if a measurement object associated with the MCG has the same *ssbFrequency* as a measurement object associated with the SCG:

- for that *ssbFrequency*, the measurement window according to the *smtc1/smtcx/smtcy* configured by the MCG includes the measurement window according to the *smtc1* configured by the SCG, or vice-versa, with an accuracy of the maximum receive timing difference specified in TS 38.133 [14].

**[Comments]:**

# J002

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| J002 | NES | 1 | Update field description of *absoluteFrequencySSB* |  | Sharp (LIU Lei) |  | V00x | ToDo |

**[Description]**: If *od-ssb* is configured, the field *od-ssb-absoluteFrequency-r19* is mandatory present when *absoluteFrequencySSB* of the serving cell is absent, and it makes the UE can obtain timing on this SCell. Thus, the field description of *absoluteFrequencySSB* needs to be updated.

**[Proposed Change]**: The text proposal is as below:

***absoluteFrequencySSB***

Frequency of the SSB to be used for this serving cell. SSB related parameters (e.g. SSB index) provided for a serving cell refer to this SSB frequency unless mentioned otherwise. The CD-SSB of the PCell is always on the sync raster. Frequencies are considered to be on the sync raster if they are also identifiable with a GSCN value (see TS 38.101-1 [15] or TS 38.101-5 [75]). If the field is absent, the SSB related parameters should be absent, e.g. *ssb-PositionsInBurst*, *ssb-periodicityServingCell* and *subcarrierSpacing* in *ServingCellConfigCommon* IE. If the field is absent and *od-ssb* is not configured for this serving cell, the UE obtains timing reference from the intra-band SpCell or intra-band SCell if applicable as described in TS 38.213 [13], clause 4.1, or from the SpCell or an SCell indicated by *referenceCell,* or from the reference serving cell defined in TS 38.133 [14]. This is supported in case the SCell for which the UE obtains the timing reference is in the same or different frequency band as the cell (i.e. the SpCell or the SCell, respectively) from which the UE obtains the timing reference.

**[Comments]:**

[vivo] We understand that this issue has been raised in RAN1 but yet without discussion and conclusion. Companies have diversed view on whether OD-SSB feature can be co-existent with SSB-less feature. If they can be co-existent, whether and how to modify this part of description requries further discussion. ‘OD-SSB is not configured’ is only one of the cases, others include ‘OD-SSB is configured but not activated’ and blahblah... Moreover, is there any ‘default cell’ like concept in Rel-18 inter-band SSB-less SCell feature for R19 OD-SSB in RAN4? If yes, the discussion should be up to RAN4 or RAN1, but never in RAN2. We propose this issue to be raised and discussed in other WGs.

[Ericsson] Since this very much is an issue in RRC we need to discuss also in RAN2. See E023, E024.

# C181

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C181 | NES | 1 | Cell selection case is missing in section 5.2.2.4.2x Actions upon reception of SIBxx |  | Rui  (CATT) |  | V008 |  |

**[Description]**: In section 5.2.2.4.2x Actions upon reception of SIBxx, Cell selection case is missing.

**[Proposed Change]**:

Upon receiving SIBxx, the UE shall:

1> store the SIBxx;

1> SIB1 request configuration in the SIBxx is valid for acquiring OD-SIB1 of this cell in accordance with clause 5.2.2.3.1;

1> SIB1 request configuration of another cell in this stored SIBxx is valid for acquiring OD-SIB during (re)selection to that cell, and after (re)selection to that cell if the stored SIBxx is a valid version for that cell in accordance with clause 5.2.2.2.1:

**[Comments]**: Nokia: looks valid proposal

[vivo] It’s not necessary. Both cell selection and cell reselection case has been embodied in 5.2.2.3.1, as the UE relies on kssb value to determine how it acquires SIB1, and thus ‘1> SIB1 request configuration in the SIBxx is valid for acquiring OD-SIB1 of this cell in accordance with clause 5.2.2.3.1;’ is sufficient.

[Ericsson] Either way is ok. Maybe not necessary but may not harm either.

# C182

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C182 | NES | 1 | Ambiguity on SFN of which cell is referring to by the filed od-ssb-SFN-Offset |  | Rui  (CATT) |  | V008 |  |

**[Description]**: In the field description of od-ssb-SFN-Offset, it is not clear SFN of which cell(e.g., SFN of pcell or SFN scell) is referred,there is a need to clarify it is the SFN of the scell.

**[Proposed Change]**:

***od-ssb-SFN-Offset***

Indicates SFN offset from the SFN which satisfies (SFN index \*10) modulo (OD-SSB periodicity) = 0, where SFN refers to the SFN of the NR serving cell. The network configures this field according to the field *od-ssb-Periodicity* such that the indicated system frame does not exceed the OD-SSB periodicity. If the field is absent, the UE applies the value 0.

**[Comments]**:

[Ericsson] ok but could say “this serving cell”

# C183

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C183 | NES | 1 | Incorrect description for the condition *ODssbOnly* |  | Rui  (CATT) |  | V008 |  |

**[Description]**: The condition *ODssbOnly* is used for field od-ssb-SubcarrierSpacing and od-ssb-PBCH-BlockPower.For case 1, od-ssb-SubcarrierSpacing and od-ssb-PBCH-BlockPower should be mandatory.so the description of *ODssbOnly* needs to be modified.

**[Proposed Change]**:

|  |  |
| --- | --- |
| *ODssbOnly* | The field is mandatorily present when *absoluteFrequencySSB* of the serving cell is absent. It is absent otherwise. |

**[Comments]**: [OPPO] “If the field is absent, the UE applies the value *subcarrierSpacing* configured in IE *BWP*.”, “If the field is absent, UE applies the value *PBCH-BlockPower* configured in IE *ServingCellConfigCommon*.”, so seems there is already a way to handle SSB-less case rather than mandating the presence?

[Ericsson] agree with Oppo

# C184

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C184 | NES | 1 | The needs of different ssb-ToMeasure configurations for OD-SSB |  | Rui  (CATT) |  | V008 |  |

**[Description]**: *Since the value of od-ssb-PositionsInBurst-r19* can be changed in different od-ssb-Config, it seems there is a need to configure different ssb-ToMeasure configurations correspondingly.

**[Proposed Change]**:

**[Comments]**:

# C185

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C185 | NES | 1 | The needs of the new field commonSearchSpaceListExt-r19 in *PDCCH-ConfigCommon* |  | Rui  (CATT) |  | V008 |  |

**[Description]**: It seems there is no need to have this new filed as it is exactly same as the legacy commonSearchSpaceListExt-r18,so the legacy field can be reused.It is suggested to remove commonSearchSpaceListExt-r19

**[Proposed Change]**:

**[Comments]**:

# N001

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| N001 | NES | 1 | Smtcy and smtcx description sseems to differ unnecessarily much. |  | Jarkko Koskela  (Nokia) |  | V009 |  |

**[Description]**: We should aim to align descriptions of smtcx/smtcy. For smtcy likely we do not need to talk how it is activated – that would simplify the text a lot. It seems obvious from elsewhere that DCI is used – no need to repeat that multiple times in the text.

**[Proposed Change]**: For example something like this (but we could contribute more proper TP to the meeting as this is not purely asn.1 problem):

If *smtcxlist* is present, when OD-SSB is activated and the serving cell is activated, the UE shall setup SMTC according to the first configured field in *smtcxlist* for serving cell measurements on the corresponding configured measurement object as specified in 5.5.3.1, ifthe SS/PBCH block reception periodicity is configured as SSB periodicity of the first OD-SSB configuration for the serving cell; the UE shall setup SMTC according to the second SMTC in *smtcx-list* for measurements on the corresponding *MeasObjectNR* if the SS/PBCH block reception periodicity is indicated as the second SSB periodicity in *od-ssb-Periodicity* and so on [RIL]: X200, NES.

If *smtcy-SSBAdapt* is present, when SSB adaptation is activated and the serving cell is activated, the UE shall setup SMTC according to the first configured field in *smtcy-SSBAdapt* for serving cell measurements on the corresponding configured measurement object as specified in 5.5.3.1, ifthe SS/PBCH block reception periodicity is configured as SSB periodicity of the first SSB adapatation configuration for the serving cell; the UE shall setup SMTC according to the second SMTC in *smtcy-SSBAdapt* for measurements on the corresponding *MeasObjectNR* if the SS/PBCH block reception periodicity is indicated as the second SSB periodicity in *adap-SSB-BurstPeriodicityList*

**[Comments]**:

[Ericsson] For smtcx, since N002 seems valid, it is not enough to map per periodicity and further changes are needed.

# N002

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| N002 | NES | 1 | Sfn offset and halfframeindex are now common for all od-ssb configs. This may be wrong |  | Jarkko Koskela  (Nokia) |  | V009 |  |

**[Description]**: SFN offset and half frame index parameters are now common for all SSB configs. This is opposite to SSB adaptation configuration. It seems also counter intuitive that one cannot have OD\_SSB specific time domain parameters as one can have different periodicity?.

**[Proposed Change]**: Consider moving these two parameters to Od-ssb-config-r19 We encourage people to check with their Ran1 delegates what is the intention from Ran1.

**[Comments]**: [OPPO] Same view.

[vivo] Agree with Nokia.

[LGE] Support Nokia’s proposal. For SFN offset for OD-SSB, we provide detailed comment in RIL:[L203], NES.

[Ericsson] Seems valid as per below RAN1 agreement

**Agreement**

* For a cell supporting on-demand SSB SCell operation, support to configure time domain location of on-demand SSB per on-demand SSB periodicity by RRC for both Case #1 and Case #2.
  + For Case #1 (i.e., No always-on SSB on the cell),
    - Based on two parameters, where one is to indicate SFN offset from a reference point and the other is to indicate half frame index
      * The reference point is SFN which satisfies (SFN index \*10) modulo (OD-SSB periodicity) = 0
      * If SFN offset parameter is NOT configured, UE assumes SFN offset set to 0.
      * If half frame index parameter is NOT configured, UE assumes half frame index set to 0.
      * The value range of SFN offset is 0 to 15 unless longer periodicity for on-demand SSB than 160 ms is introduced.
      * The value range of half frame index is 0 or 1.
  + For Case #2 (i.e., Always-on SSB is periodically transmitted on the cell), down-select one of the following alternatives.
    - Alt A: Same as for Case #1
    - Alt B: Based on a single parameter which is to indicate the time offset between always-on SSB and on-demand SSB (e.g., similar to *ssb-TimeOffset*)

# H125

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H125 | NES | 1 | Optionality of R19 PEI configurations |  | Huawei (Lili) |  | V012 |  |

**[Description]**: The R19 PEI configurations should be made optional.

**[Proposed Change]**:

PEI-Config-r17 ::= SEQUENCE {

po-NumPerPEI-r17 ENUMERATED {po1, po2, po4, po8},

payloadSizeDCI-2-7-r17 INTEGER (1..maxDCI-2-7-Size-r17),

pei-FrameOffset-r17 INTEGER (0..16),

subgroupConfig-r17 SubgroupConfig-r17,

lastUsedCellOnly-r17 ENUMERATED {true} OPTIONAL, -- Need R

...,

[[

po-NumPerPEI-r19 ENUMERATED {po1, po2, po4, po8} OPTIONAL, -- Need R

payloadSizeDCI-2-7-r19 INTEGER (1..maxDCI-2-7-Size-r17) OPTIONAL, -- Need R

pei-FrameOffset-r19 INTEGER (0..32) OPTIONAL -- Need R

]]

}

**[Comments]**: [OPPO] How to interpret the case where one specific parameter is absent (but the others are present?), considering [[]]] already provides optionality.

# H126

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H126 | NES | 1 | Serving cell OD-SSB measurements for deactivated SCell | R2-25xxxxx | Huawei (Lili) |  | V012 |  |

**[Description]**: According to RAN4 agreements, for deactivated SCell, during FMW, the OD-SSB measurement is based on the OD-SSB periodicity regardless of the configured *measCycleSCell*. In fact, we think RAN2 should go through all the cases (deactivated SCell, activated SCell) and make sure the RAN2 spec is aligned with RAN4 agreements (regarding OD-SSB measurements, AO-SSB measurements, neighbour cell measurements).

**[Proposed Change]**:

***measCycleSCell***

The parameter is used only when an SCell is configured on the frequency indicated by the measObjectNR and is in deactivated state, see TS 38.133 [14]. gNB configures the parameter whenever an SCell is configured on the frequency indicated by the *measObjectNR*, but the field may also be signalled when an SCell is not configured. Value *sf160* corresponds to 160 sub-frames, value *sf256* corresponds to 256 sub-frames and so on. This field is ignored for on-demand SSB measurements during fast measurement window.

**[Comments]**:

# H127

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H127 | NES | 1 | Which RA occasions to use when the configuration is absent in *RACH-ConfigDedicated* | R2-25xxxxx | Huawei (Lili) |  | V012 |  |

**[Description]**: In legacy spec, for CFRA, if *occasions* is absent, the corresponding field in *RACH-ConfigCommon* applies. With the introduction of additional RA resources, both legacy RA occasions and additional RA occasions can be configured in the *RACH-ConfigCommon*, it needs to be made clear which RA occasion is used when the field is absent in *RACH-ConfigDedicated*. Considering RAN2 has agreed that RACH adaptation is not applied for L3 HO command, the simplest way could be clarifying that legacy RA occasions (i.e. RA occasions not configured in *addlRACH-Config-Adaptation-r19*) are used when the field *occasions* is absent in *RACH-ConfigDedicated*.

**[Proposed Change]**:

***occasions***

RA occasions for contention free random access. If the field is absent, the UE uses the RA occasions configured in *RACH-ConfigCommon* (except the RA occasions configured in *addlRACH-Config-Adaptation* in *RACH-ConfigCommon*) in the first active UL BWP.

**[Comments]**:

# H100

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H100 | NES | 2 | frequencyBandList-r19 field |  | Huawei (Marcin) |  | V013 | ToDo |

**[Description]**:

This field should be mandatory for TDD based on Agreement (RAN1#121):

The frequencyBandList is mandatorily present in WUS configuration for TDD system, which refers to the IE within FrequencyInfoDL-SIB.

**[Proposed Change]**:

Add conditional mandatory presence for TDD.

**[Comments]**:

# H101

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H101 | NES | 2 | od-sib1-WindowDuration-r19 field |  | Huawei (Marcin) |  | V013 | ToDo |

**[Description]**:

this should be mandatory based on R1-2506622 and Agreement (RAN1#120bis)

From RAN1 perspective, for agreed UL WUS parameters, regarding their mandatory or optional presence and applicability to TDD and/or FDD, adopt the followings:

- PhysCellId and ARFCN-ValueNR are mandatory

- frequencyBandList and absoluteFrequencyPointA are present in IE FrequencyInfoUL for FDD (as in the legacy specification)

- K\_SSB is mandatory

- searchSpaceZero and controlResourceSetZero are mandatory

- ra-PreambleStartIndex, od-sib1-duration, offsetToTimeWindow are mandatory

**[Proposed Change]**:

Remove OPTIONAL, -- Need R

**[Comments]**:

# H102

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H102 | NES | 2 | locationAndBandwidth-r19 field |  | Huawei (Marcin) |  | V013 | ToDo |

**[Description]**:

This should be mandatory based on R1-2506622 and Agreement (RAN1#121):

The parameters ‘absoluteFrequencyPointA’, ‘offsetToCarrier’ and ‘locationAndBandwidth’ are mandatorily present in the UL-WUS configuration for both FDD and TDD system.

**[Proposed Change]**:

Remove OPTIONAL, -- Need R

**[Comments]**:

# H103

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H103 | NES | 2 | absoluteFrequencyPointA-r19 field |  | Huawei (Marcin) |  | V013 | ToDo |

**[Description]**:

This should be mandatory based on R1-2506622 and Agreement (RAN1#121):

The parameters ‘absoluteFrequencyPointA’, ‘offsetToCarrier’ and ‘locationAndBandwidth’ are mandatorily present in the UL-WUS configuration for both FDD and TDD system.

**[Proposed Change]**:

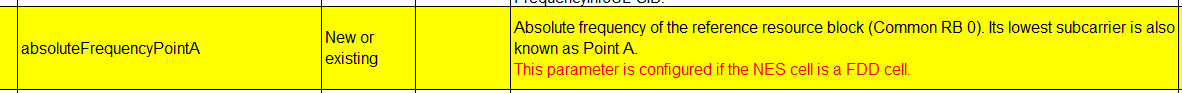
Remove OPTIONAL, -- Cond FDD

**[Comments]**:

[Xiaomi] based on the RAN1 agreement and the parameter list, ‘absoluteFrequencyPointA’ is not mandatory and only configured in FDD？

**Agreement**

The parameters ~~‘~~*~~absoluteFrequencyPointA’~~*~~,~~ ‘*offsetToCarrier’* and ‘*locationAndBandwidth’* are mandatorily present in the UL-WUS configuration for both FDD and TDD system.



# V500

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V500 | NES | 1 | OD-SIB1 related text for reception of SI change or PWS notification |  | vivo  (Jianhui) |  | V015 | ToDo |

**[Description]**:

For the following procedural text, the RRC state description of ‘4> if the UE is in RRC\_IDLE or in RRC\_INACTIVE; or’ and ‘if the UE is in RRC\_CONNECTED while T311 is running:’ should be ahead of reception of SI change or PWS notification, as a UE in general RRC\_CONNECTED mode may also receive SI change or PWS notification and apply the same procedure ‘6> acquire the *SIB1* (see clause 5.2.2.2.2)*,* which is scheduled as specified in TS 38.213 [13];’

2> else if *SIB1* acquisition is required for the UE and *ssb-SubcarrierOffset* indicates that *SIB1* is not scheduled in the cell: [RIL]: V500, NES

3> if the UE has a stored valid version of *od-sib1-Config* for this cell as specified in clause 5.2.2.4.2x:

4> if the UE is in RRC\_IDLE or in RRC\_INACTIVE; or

4> if the UE is in RRC\_CONNECTED while T311 is running:

5> if the SIB1 acquisition is upon receiving an indication that the system information has changed or upon receiving a PWS notification:

6> acquire the *SIB1* (see clause 5.2.2.2.2)*,* which is scheduled as specified in TS 38.213 [13];

5> else:

6> perform the actions as specified in clause 5.2.2.3.3x;

3> else:

4> perform the actions as specified in clause 5.2.2.5.

**[Proposed Change]**:

2> else if *SIB1* acquisition is required for the UE and *ssb-SubcarrierOffset* indicates that *SIB1* is not scheduled in the cell: [RIL]: V500, NES

3> if the UE has a stored valid version of *od-sib1-Config* for this cell as specified in clause 5.2.2.4.2x:

4> if the SIB1 acquisition is upon receiving an indication that the system information has changed or upon receiving a PWS notification:

5> acquire the *SIB1* (see clause 5.2.2.2.2)*,* which is scheduled as specified in TS 38.213 [13];

4> else:

5> if the UE is in RRC\_IDLE or in RRC\_INACTIVE; or

5> if the UE is in RRC\_CONNECTED while T311 is running:

6> perform the actions as specified in clause 5.2.2.3.3x;

3> else:

4> perform the actions as specified in clause 5.2.2.5.

**[Comments]**:

# V501

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V501 | NES | 1 | update field description for *od-ssb-absoluteFrequency* |  | vivo (Jianhui) |  | V015 | ToDo |

**[Description]**:

For the following FD:

|  |
| --- |
| OD-SSB field descriptions |
| ***od-ssb-absoluteFrequency***  Indicates the frequency of the OD-SSB when the frequency is different from *absoluteFrequencySSB* configured in IE *FrequencyInfoDL* for this serving cell. Additional restrictions as described in subclause 4.4. of TS 38.213. |

RAN1 once agreed that

**Agreement for RAN1 #120bis**

For a cell supporting on-demand SSB SCell operation,

* Frequency of the on-demand SSB (i.e., *od-ssb-absoluteFrequency*) can be absent for Case #2
  + If absent, the center frequency of on-demand SSB is the same as that of always-on SSB.

and now in TS 38.213, V19.0.0, the agreement is captured in related text as:

|  |
| --- |
| <irrelevant text omitted>  the frequency location of the second SS/PBCH blocks is indicated by *od-absoluteFrequencySSB*, if provided; otherwise, by *absoluteFrequencySSB* |

We understand that the correct comprehension for *od-ssb-absoluteFrequency* is that it can be the same or different from *absoluteFrequencySSB*. It is only when *od-ssb-absoluteFrequency* is the same as *absoluteFrequencySSB* that it can be absent.

However: 1) even if *od-ssb-absoluteFrequency* is the same as *absoluteFrequencySSB*, it can still be configured; 2) if *absoluteFrequencySSB* is not configured (SSB-less SCell), then *od-ssb-absoluteFrequency* must be present for OD-SSB configuration, and it has nothing to compare whether it is different from *absoluteFrequencySSB* or not.

Therefore, we think the current FD for *od-ssb-absoluteFrequency* needs to be modified as follows. Note that there are lots of field description in current RRC spec to use ‘If the field is absent, xxxxxxxx’ already.

**[Proposed Change]**:

|  |
| --- |
| OD-SSB field descriptions |
| ***od-ssb-absoluteFrequency***  Indicates the frequency of the OD-SSB. If the field is absent, the UE applies *absoluteFrequencySSB* indicated in *FrequencyInfoDL* for this serving cell, if configured. Additional restrictions as described in subclause 4.4. of TS 38.213. |

**[Comments]**:

[Ericsson] agree with the intention, Text looks ok as well at first glance.

# L201

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L201 | NES | 1 | SMTC configuration for OD-SSB |  | LGE (Han Cha) |  | V016 | ToDo |

**[Description]**: According to the section 5.5.2.10, UE setups a new SMTC for OD-SSB instead of maintaining the legacy SMTC. It means that UE performs measurements on the intra-frequency neighbour cell based on the new SMTC as well as on OD-SSB of the serving cell. This implementation violates RAN2 and RAN4 agreements. Related RAN2 and RAN4 agreements are listed as follows:

|  |
| --- |
| **RAN2#130**   * **(modified) The UE applies the OD-SSB specific SMTC when the OD-SSB is activated and SCell is activated.**   **RAN4#116**   * **For SCell measurement, UE shall follow the OD-SSB specific SMTC when OD-SSB is activated; For neighbor cell measurement, UE follows legacy SMTC regardless of status of OD-SSB.** |

According to the above agreements, UE shall setup an additional SMTC to perform measurements on OD-SSB and maintain the legacy SMTC to perform measurements on intra-frequency neighbour cell.

**[Proposed Change]**: SMTC for OD-SSB shall be an addtioanl SMTC. The text proposal is as below:

If *smtcxlist* is present, when OD-SSB is activated and the serving cell is activated, the UE shall setup an additional SMTC according to the first configured field in *smtcxlist* for serving cell measurements on the corresponding configured measurement object as specified in 5.5.3.1, ifthe SS/PBCH block reception periodicity is configured as SSB periodicity of the first OD-SSB configuration for the serving cell; the UE shall setup an additional SMTC according to the second SMTC in *smtcx-list* for measurements on the corresponding *MeasObjectNR* if the SS/PBCH block reception periodicity is indicated as the second SSB periodicity in *od-ssb-Periodicity* and so on.

**[Comments]:**

[Ericsson] This is for corresponding MO. The original servingcell MO and SMTC therein is used for neighborcell measurements and OD-SSB specific MO and or smtc is only used for this serving cell SSB measurements.

# L202

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L202 | NES | 1 | SMTC configuration for adapted SSB |  | LGE (Han Cha) |  | V016 | ToDo |

**[Description]**: According to the section 5.5.2.10, UE setups a new SMTC for adapted SSB instead of maintaining the legacy SMTC. It means that the UE performs measurements on the intra-frequency neighbour cell based on the new SMTC as well as on adapted SSB of the serving cell. This implementation violates RAN2 and RAN4 agreements. Related RAN2 and RAN4 agreements are listed as follows:

|  |
| --- |
| **RAN2#129**   * **RAN2 preference is to keep SMTC based L3 RRM framework and to introduce additional SMTC configuration according to SSB adaptation for L3 RRM measurement on SCell with SSB adaptation.**   **RAN4#114bis**   * **RAN4 to define requirements based legacy L3 measurement framework for SSB adaptation.**    + **For neighbour cell L3 measurement, legacy requirements apply.** |

According to the above agreements, UE shall setup an additional SMTC to perform measurements on adapted SSB and maintain the legacy SMTC to perform measurements on intra-frequency neighbour cell.

**[Proposed Change]**: SMTC for adapted SSB shall be an addtioanl SMTC. The text proposal is as below:

If *smtcy-SSBAdapt* is present, the UE shall setup an additional SS/PBCH block measurement timing configuration (SMTC) according to *smtc1* for serving cell measurements on the corresponding configured measurement object as specified in 5.5.3.1, if received DCI format 2\_9 with CRC scrambled by *adaptSSBPeriodInd-RNTI* indicates the SS/PBCH block reception periodicity provided by *ssb-periodicityServingCell*; the UE shall setup an additional SMTC according to the first SMTC in *smtcy-SSBAdapt* for measurements on the corresponding *MeasObjectNR* if the received DCI format 2\_9 with CRC scrambled by *adaptSSBPeriodInd-RNTI* indicates the SS/PBCH block reception periodicity provided by the first adaptive SSB periodicity in *adap-SSB-BurstPeriodicityList*; the UE shall setup an additional SMTC according to the second SMTC in *smtcy-SSBAdapt* for measurements on the corresponding *MeasObjectNR* if the received DCI format 2\_9 with CRC scrambled by *adaptSSBPeriodInd-RNTI* indicates the SS/PBCH block reception periodicity provided by the second adaptive SSB periodicity in *adap-SSB-BurstPeriodicityList*.

**[Comments]:**

[Ericsson] See comment to L201 and note that the text says for servingcell measurements.

# L203

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L203 | NES | 2 | Missing scenarios for OD-SSB transmission. |  | LGE (Han Cha) |  | V016 | ToDo |

**[Description]**: According to the current implementation of OD-SSB SFN offset, for example, following three cases cannot be supported illustrated in figure below. In the figure, each case has the same OD-SSB periodicity but has different OD-SSB SFN offset.



**[Proposed Change]**: Move *od-ssb-SFN-Offset-r19* to *OD-SSB-Config-r19* from *OD-SSB-r19*. The text proposal as follows:

OD-SSB-r19 ::= SEQUENCE {

od-ssb-halfFrameIndex-r19 ENUMERATED {zero, one} OPTIONAL, -- Cond ODssbAOssb

od-ssb-absoluteFrequency-r19 ARFCN-ValueNR OPTIONAL, -- Cond ODssbAOssb

od-ssb-SubcarrierSpacing-r19 SubcarrierSpacing OPTIONAL, -- Cond ODssbOnly

od-ssb-PBCH-BlockPower-r19 INTEGER (-60..50) OPTIONAL, -- Cond ODssbOnly

od-SSB-ConfigToAddModList-r19 SEQUENCE (SIZE (1.. maxNrofOD-SSB-r19)) OF OD-SSB-Config-r19 OPTIONAL, -- Need N

od-SSB-ConfigToReleaseList-r19 SEQUENCE (SIZE (1.. maxNrofOD-SSB-r19)) OF OD-SSB-ConfigId-r19 OPTIONAL -- Need N

}

[unchanged parts are omitted]

|  |
| --- |
| OD-SSB field descriptions |
| ***od-ssb-absoluteFrequency***  Indicates the frequency of the OD-SSB when the frequency is different from *absoluteFrequencySSB* configured in IE *FrequencyInfoDL* for this serving cell. Additional restrictions as described in subclause 4.4. of TS 38.213. |
| ***od-SSB-ConfigToAddModList***  List of OD-SSB configurations for this serving cell. Network configures maximum of one different OD-SSB frequency for the OD-SSB configurations which has than the serving cell SSB frequency. |
| ***od-ssb-halfFrameIndex***  Indicates whether OD-SSB is in the first half or the second half of the frame. If the field is absent, the UE applies the value 0. |
| ***od-ssb-PBCH-BlockPower***  Indicates average EPRE of the resources elements that carry secondary synchronization signals in dBm that the NW used for OD-SSB transmission, see TS 38.213 [13], clause 7. If the field is absent, UE applies the value *PBCH-BlockPower* configured in IE *ServingCellConfigCommon*. |
| ***od-ssb-SubcarrierSpacing***  Indicates subcarrier spacing of OD-SSB.  Only the following values are applicable depending on the used frequency:  FR1: 15 or 30 kHz  FR2-1/FR2-NTN: 120 or 240 kHz  FR2-2: 120, 480, or 960 kHz  If the field is absent, the UE applies the value *subcarrierSpacing* configured in IE *BWP*. |

[unchanged parts are omitted]

#### – *OD-SSB-Config*

The IE *OD-SSB-Config* is used to configure the OD-SSB activated by *od-ssb-ActivationStatus* or by a MAC CE see TS 38.321 [3], clause 6.1.3.x.

*OD-SSB-Config* information element

-- ASN1START

-- TAG-OD-SSB-CONFIG-START

OD-SSB-Config-r19 ::= SEQUENCE {

od-ssb-SFN-Offset-r19 INTEGER (0..15) OPTIONAL, -- Cond ODssbAOssb

od-ssb-ConfigId-r19 OD-SSB-ConfigId-r19,

od-ssb-ActivationStatus-r19 ENUMERATED {activated} OPTIONAL, -- Need S

od-ssb-Periodicity-r19 ENUMERATED { ms5, ms10, ms20, ms40, ms80, ms160, spare2, spare1 },

od-ssb-PositionsInBurst-r19 CHOICE {

shortBitmap BIT STRING (SIZE (4)),

mediumBitmap BIT STRING (SIZE (8)),

longBitmap BIT STRING (SIZE (64))

} OPTIONAL, -- Cond ODssbAOssb

od-ssb-NrofBursts-r19 ENUMERATED {n5, n10, n15, n20, n25, n30, n40, n50, n75, n100, n150, n200} OPTIONAL, -- Cond MACCE

...

}

OD-SSB-ConfigId-r19 ::= INTEGER (0.. maxNrofOD-SSB-1-r19)

-- TAG-OD-SSB-CONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *OD-SSB-Config* field descriptions |
| ***od-ssb-ActivationStatus***  Indicates the activation status of this OD-SSB pattern upon configuration. Only one OD-SSB pattern can be activated at one point of time. |
| ***od-ssb-NrofBursts***  Indicates the number of OD-SSB bursts to be transmitted after OD-SSB is activated. Network only configures this field when *od-ssb-ActivationStatus* is absent. For FR1, the value range is {5, 10, 15, 20, 25, 30, 40, 50}. For FR2, the value range is {25, 30, 40, 50, 75, 100, 150, 200}. |
| ***od-ssb-Periodicity***  The SSB periodicity in *ms*. |
| ***od-ssb-PositionsInBurst***  Indicates the time domain positions of the transmitted SS-blocks for OD-SSB in a half frame with SS/PBCH blocks as defined in TS 38.213 [13], clause 4.1. If absent, UE applies the value *ssb-PositionsInBurst* provided in *ServingCellConfigCommon*. |
| ***od-ssb-SFN-Offset***  Indicates SFN offset from the SFN which satisfies (SFN index \*10) modulo (*od-ssb-Periodicity*) = 0. The network configures this field according to the field *od-ssb-Periodicity* such that the indicated system frame does not exceed the OD-SSB periodicity. If the field is absent, the UE applies the value 0. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *ODssbAOssb* | The field is mandatory present, Need R, when *absoluteFrequencySSB* of the serving cell is absent. It is optionally present otherwise. |
| *MACCE* | The field is optionally present, Need R, when *od-ssb-ActivationStatus* is absent. It is absent otherwise. |

**[Comments]**:

[Ericsson]

Yes, see N001 and response there

# L204

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L204 | NES | 2 | Correction on maximum value range for *adap-ssb-Offset-r19* |  | LGE (Han Cha) |  | V016 | ToDo |

**[Description]**: According to the consolidated parameters list received from RAN1 after RAN1#121, the value range of *adap-ssb-Offset-r19* is INTEGER (0..15).

**[Proposed Change]**: The text proposal is as below:

Adap-SSB-BurstPeriodicity-r19 ::= SEQUENCE {

adap-ssb-Periodicity-r19 ENUMERATED { ms5, ms10, ms20, ms40, ms80, ms160, spare2, spare1 } OPTIONAL, -- Need S

adap-ssb-Offset-r19 INTEGER (0..15) OPTIONAL, -- Need N

adap-ssb-halfFrameIndex-r19 ENUMERATED { firsthalf, secondhalf } OPTIONAL -- Need N

}

-- TAG-CELLGROUPCONFIG-STOP

-- ASN1STOP

**[Comments]**:

# L205

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L205 | NES | 1 | Correction on the field description of *adap-ssb-Offset* |  | LGE (Han Cha) |  | V016 | ToDo |

**[Description]**: The sentence for *adap-ssb-Offset* is included in the field description of *adap-ssb-halfFrameIndex*.

**[Proposed Change]**: Move the sentence from the field description of *adap-ssb-halfFrameIndex* to the field description of *adap-ssb-Offset*. The text proposal is as below:

|  |
| --- |
| *SCellConfig* field descriptions |
| *adap-PosInDCI-ssbPeriodicityIndicationForScell*  The starting bit position of an information block of DCI format 2\_9 for SSB burst periodicity switching of this serving cell (see TS 38.212 [17], subclause 7.3.1.3.10). |
| *adap-ssb-halfFrameIndex*  Indicate whether SSB according to the adap-ssb-Periodicity is in the first half or the second half of the frame. |
| ***adap-ssb-Periodicity***  Additional SSB burst periodicity for the Scell. If the field is absent, the UE applies the value ms5. |
| ***adap-ssb-Offset***  Indicate SFN offset from the SFN which satisfies (SFN index \*10) modulo (*adap-ssb-Periodicity*) = 0. The network configures this field according to *adap-ssb-Periodicity* such that the indicated system frame does not exceed the corresponding adaptive SSB periodicity. |
| ***goodServingCellEvaluationBFD***  Indicates the criterion for a UE to detect the good serving cell quality for BFD relaxation in an SCell in RRC\_CONNECTED. This field is always configured when the network enables BFD relaxation for the UE in this SCell. This field is absent if *failureDetectionSetN* is present for the SCell. |
| ***preConfGapStatus***  Indicates whether the pre-configured measurement gaps (i.e. the gaps configured with *preConfigInd*) are activated or deactivated while this SCell is deactivated. If this field is configured, the UE shall apply network-controlled mechanism for activation and deactivation of the pre-configured measurement gaps, otherwise the UE shall apply the autonomous activation/deactivation mechanism, as specified in TS 38.133 [14]. The first/leftmost bit corresponds to the measurement gap with gap ID 1, the second bit corresponds to measurement gap with gap ID 2, and so on. Value 0 indicates that the corresponding pre-configured measurement gap is deactivated while value 1 indicates that the corresponding pre-configured measurement gap is activated. The UE shall ignore the bit if the corresponding measurement gap is not a pre-configured measurement gap. |
| ***sCellState***  Indicates whether the SCell shall be considered to be in activated state upon SCell configuration. If the field is included for an SCell configured with TRS for fast activation of the SCell, such TRS is not used for the corresponding SCell. |
| ***secondaryDRX-GroupConfig***  The field is used to indicate whether the SCell belongs to the secondary DRX group. All serving cells in the secondary DRX group shall belong to one Frequency Range and all serving cells in the default DRX group shall belong to another Frequency Range. If *drx-ConfigSecondaryGroup* is configured, the field is optionally present. The network always includes the field if the field was previously configured for this SCell and the SCell remains in the secondary DRX group. Removal of an individual SCell from the secondary DRX group is supported by using an SCell release and addition. Otherwise, if *drx-ConfigSecondaryGroup* is not configured, the field is absent and the UE shall release the field. The UE shall also release the field if *drx-ConfigSecondaryGroup* is released without including *sCellToAddModList*. |
| ***smtc***  The SSB periodicity/offset/duration configuration of target cell for NR SCell addition. The network sets the *periodicityAndOffset* to indicate the same periodicity as *ssb-periodicityServingCell* in *sCellConfigCommon*. The *smtc* is based on the timing of the SpCell of associated cell group. In case of inter-RAT handover to NR, the timing reference is the NR PCell. In case of intra-NR PCell change (standalone NR) or NR PSCell change (EN-DC), the timing reference is the target SpCell. If the field is absent and *absoluteFrequencySSB* is included, the UE uses the SMTC in the *measObjectNR* having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. If the SCell is an SSB-less SCell (i.e., the IE *absoluteFrequencySSB* in *ServingCellConfigCommon* is absent), this field is absent. |

**[Comments]**:

# L206

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L206 | NES | 1 | Clarification on field description of *adap-ssb-Periodicity-r19* |  | LGE (Han Cha) |  | V016 | ToDo |

**[Description]**: When the network configures SSB burst periodicity for SSB adaptation, the network shall ensure that the SSB occasions with larger periodicity are subset of the SSB occasions with shorter periodicity according to the RAN1 agreement. However, the current version does not reflect RAN1’s intension.

Related RAN1 working assumption and agreement are as follows:

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| --- |
| **RAN1#120bis**  **Working Assumption**  When a UE receives in slot on the active DL BWP of a first serving cell a PDCCH providing DCI format 2\_9 that indicates a change in SSB burst periodicity of the SSB transmission on a second serving cell, the UE assumes SSB is transmitted on the second serving cell according to the indicated SSB burst periodicity from the beginning of the first slot containing the first [actually] transmitted SSB within the first [possible] SSB burst according to the indicated SSB burst periodicity that is no earlier than the slot of the first serving cell where is a number of slots for the SCS of the active DL BWP of the first serving cell [in Table 11.5-1 of TS 38.213].   * FFS: how to determine the first [possible] SSB burst   **RAN1#121**  **Agreement**  When the SSB burst periodicity is switched from periodicity value P1 to periodicity value P2 based on DCI format 2\_9 indication,   * Alt 1: SFN offset (relative to SFN0) and half-frame index are configured per additional SSB periodicity value.   + the first SSB burst according to the periodicity value P2 is determined as the first SSB burst according to the SSB burst periodicity value P2 and associated SFN offset and half-frame index that is no earlier than slot m+d.   SSB occasions with larger periodicity are subset of the SSB occasions with shorter periodicity. |

**[Proposed Change]**: Add clarification on the field description of *adap-ssb-Periodicity*. The text proposal is as below:

|  |
| --- |
| *SCellConfig* field descriptions |
| *adap-PosInDCI-ssbPeriodicityIndicationForScell*  The starting bit position of an information block of DCI format 2\_9 for SSB burst periodicity switching of this serving cell (see TS 38.212 [17], subclause 7.3.1.3.10). |
| *adap-ssb-halfFrameIndex*  Indicate whether SSB according to the adap-ssb-Periodicity is in the first half or the second half of the frame. The network configures this field according to *adap-ssb-Periodicity* such that the indicated system frame does not exceed the corresponding adaptive SSB periodicity. |
| ***adap-ssb-Periodicity***  Additional SSB burst periodicity for the Scell. If the field is absent, the UE applies the value ms5. If the network configures *adap-ssb-Periodicity*, the network ensures that SSB occasions with larger periodicity are subset of the SSB occasions with shorter periodicity. |
| ***adap-ssb-Offset***  Indicate SFN offset from the SFN which satisfies (SFN index \*10) modulo (*adap-ssb-Periodicity*) = 0. |
| ***goodServingCellEvaluationBFD***  Indicates the criterion for a UE to detect the good serving cell quality for BFD relaxation in an SCell in RRC\_CONNECTED. This field is always configured when the network enables BFD relaxation for the UE in this SCell. This field is absent if *failureDetectionSetN* is present for the SCell. |
| ***preConfGapStatus***  Indicates whether the pre-configured measurement gaps (i.e. the gaps configured with *preConfigInd*) are activated or deactivated while this SCell is deactivated. If this field is configured, the UE shall apply network-controlled mechanism for activation and deactivation of the pre-configured measurement gaps, otherwise the UE shall apply the autonomous activation/deactivation mechanism, as specified in TS 38.133 [14]. The first/leftmost bit corresponds to the measurement gap with gap ID 1, the second bit corresponds to measurement gap with gap ID 2, and so on. Value 0 indicates that the corresponding pre-configured measurement gap is deactivated while value 1 indicates that the corresponding pre-configured measurement gap is activated. The UE shall ignore the bit if the corresponding measurement gap is not a pre-configured measurement gap. |
| ***sCellState***  Indicates whether the SCell shall be considered to be in activated state upon SCell configuration. If the field is included for an SCell configured with TRS for fast activation of the SCell, such TRS is not used for the corresponding SCell. |
| ***secondaryDRX-GroupConfig***  The field is used to indicate whether the SCell belongs to the secondary DRX group. All serving cells in the secondary DRX group shall belong to one Frequency Range and all serving cells in the default DRX group shall belong to another Frequency Range. If *drx-ConfigSecondaryGroup* is configured, the field is optionally present. The network always includes the field if the field was previously configured for this SCell and the SCell remains in the secondary DRX group. Removal of an individual SCell from the secondary DRX group is supported by using an SCell release and addition. Otherwise, if *drx-ConfigSecondaryGroup* is not configured, the field is absent and the UE shall release the field. The UE shall also release the field if *drx-ConfigSecondaryGroup* is released without including *sCellToAddModList*. |
| ***smtc***  The SSB periodicity/offset/duration configuration of target cell for NR SCell addition. The network sets the *periodicityAndOffset* to indicate the same periodicity as *ssb-periodicityServingCell* in *sCellConfigCommon*. The *smtc* is based on the timing of the SpCell of associated cell group. In case of inter-RAT handover to NR, the timing reference is the NR PCell. In case of intra-NR PCell change (standalone NR) or NR PSCell change (EN-DC), the timing reference is the target SpCell. If the field is absent and *absoluteFrequencySSB* is included, the UE uses the SMTC in the *measObjectNR* having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. If the SCell is an SSB-less SCell (i.e., the IE *absoluteFrequencySSB* in *ServingCellConfigCommon* is absent), this field is absent. |

**[Comments]**:

# L207

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L207 | NES | 1 | Optional configuration of *msg1-FDM-r19* in *RandomAccessAdaptConfig* |  | LGE(Hanseul Hong) |  | V016 | ToDo |

**[Description]**: In RAN1#120, it is agreed to allow the separated configuration of number of Msg1-FDM, but it was remained as FFS for the case when there is no configuration of Msg1-FDM for additional PRACH resources.

|  |
| --- |
| Agreement   * Separate configuration of Msg1-FDM for the additional PRACH resources at least for 4-step RACH is supported   + UE is not expected to be configured such that there are more than 8 FDM-ed valid ROs (legacy + additional ROs)   + FFS: When there is no configuration of Msg1-FDM * Separate configuration of number of SSB per RO is supported |

Regarding the FFS point for the case when there is no separated configuration of Msg1-FDM, there were several view on in RAN1#120bis meeting [R1-2503125], but it was not formally agree to mandatorily configure the Msg1-FDM for additional PRACH resources.

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| Discussion point 3.1.3 (Msg1-FDM)  Please provide your view on the FFS related to the Msg1-FDM.   |  |  | | --- | --- | | Company | Comment | | ZTE, Sanechips | We are open to discuss the FFS related to the Msg1-FDM. Setting a default value equal to 1 is much simpler for us. | | CATT | We prefer the Msg1-FDM always configure for the additional RACH resources which is same as legacy configuration. | | Sharp | Either option is OK though we slightly prefer to use the same value with legacy RO configuration as a default value to have SSB mapping alignment. | | Apple | Using the same value with legacy seems more reasonable. | | Fujitsu | We think either option is workable, and we slightly prefer using the same value for legacy RO configuration. | | LG | Use the corresponding value from legacy RO configuration when there is no configuration of Msg1-FDM for additional PRACH resources. | | CEWiT | We think both options are workable, and we slightly prefer using the default value. | |

Therefore, separated msg1-FDM-r19 should be optionally configured, and further discuss the default value for the case when there is no separated Msg1-FDM, e.g., reuse the same value with legacy RO configuration.

**[Proposed Change]**: Make *msg1-FrequencyStart-r19* in *RandomAccessAdaptConfig* as an optional field, with Need R.

RandomAccessAdaptConfig-r19 ::= SEQUENCE {

prach-ConfigurationIndex-r19 INTEGER (0..255),

msg1-FDM-r19 ENUMERATED {one, two, four, eight}, OPTIONAL, -- Need R

msg1-FrequencyStart-r19 INTEGER (0..maxNrofPhysicalResourceBlocks-1),

prach-SubsetMask-Index-Adaptation-r19 ENUMERATED {one, two, three, four},

ssb-perRACH-OccasionAndCB-PreamblesPerSSB-r19 CHOICE {

oneEighth ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

oneFourth ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

oneHalf ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

one ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

two ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32},

four INTEGER (1..16),

eight INTEGER (1..8),

sixteen INTEGER (1..4)

} OPTIONAL, -- Need M

validityDurationForAddlRACH-Adaptation-r19 ENUMERATED {n2, n4, n8, n16},

valueKforAssociationPatternPeriodsForPRACH-subsetMask-r19 ENUMERATED {n2, n4, n8, n16} OPTIONAL, -- Need S

...

}

**[Comments]**:

# L208

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L208 | NES | 1 | Optional configuration of *msg1-FrequencyStart-r19* in *RandomAccessAdaptConfig* |  | LGE (Hanseul Hong) |  | V016 | ToDo |

**[Description]**: According to RAN1#119, it is agreed that msg1-FrequencyStart can be separately configured for additional PRACH resources, but it is does not mean that separated msg1-FrequencyStart is always needed for the additional PRACH resource.

|  |
| --- |
| Agreement  At least msg1-FrequencyStart can be configured separately for the additional PRACH resources at least for 4-step RACH. |

Therefore, it would be better to optionally configure msg1-FrequencyStart for additional PRACH resources.

**[Proposed Change]**: Make *msg1-FrequencyStart-r19* in *RandomAccessAdaptConfig* as an optional field, with Need R.

RandomAccessAdaptConfig-r19 ::= SEQUENCE {

prach-ConfigurationIndex-r19 INTEGER (0..255),

msg1-FDM-r19 ENUMERATED {one, two, four, eight},

msg1-FrequencyStart-r19 INTEGER (0..maxNrofPhysicalResourceBlocks-1), OPTIONAL, -- Need R

prach-SubsetMask-Index-Adaptation-r19 ENUMERATED {one, two, three, four},

ssb-perRACH-OccasionAndCB-PreamblesPerSSB-r19 CHOICE {

oneEighth ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

oneFourth ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

oneHalf ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

one ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

two ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32},

four INTEGER (1..16),

eight INTEGER (1..8),

sixteen INTEGER (1..4)

} OPTIONAL, -- Need M

validityDurationForAddlRACH-Adaptation-r19 ENUMERATED {n2, n4, n8, n16},

valueKforAssociationPatternPeriodsForPRACH-subsetMask-r19 ENUMERATED {n2, n4, n8, n16} OPTIONAL, -- Need S

...

}

**[Comments]**:

# L209

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L209 | NES | 1 | Optional configuration of *prach-SubsetMask-Index-Adaptation-r19* in *RandomAccessAdaptConfig* |  | LGE (Hanseul Hong) |  | V016 | ToDo |

**[Description]**: *prach-SubsetMask-Index-Adaptation-r19* field is implemented in order to support the **optional** signaling of the subset of the additional PRACH resources, as agreed in RAN1#120.

|  |
| --- |
| Agreement  For DCI-based adaptation for additional PRACH resources, support **optional** semi-static signalling of a single PRACH mask to identify the subset of the additional PRACH resources   * The mask is applicable at unit of   + Alt 1: PRACH association period   + Alt 2: PRACH association pattern period   + Alt 3: SFN level * The PRACH association period is determined based on valid additional ROs only. * The mask is applied after valid RO determination and SSB-RO mapping. * Note: The existing behaviour in TS 38.213 "An association pattern period includes one or more association periods and is determined so that a pattern between PRACH occasions and SS/PBCH block indexes repeats at most every 160 msec." is not impacted due to application of the mask. * This is applicable at least for adaptation for DCI 1\_0 with P-RNTI * The DCI does not indicate PRACH mask selection * FFS: how the mask is identified   + Option 1: The PRACH mask is from a PRACH mask table     - Pre-defined table with N=[4 or 8 or 16] rows     - The semi-static signalling indicates a PRACH mask index   + Option 2: The PRACH mask is based on configuration parameters e.g. bitmap at SFN-level, periodic time domain window, … |

In other words, the network should be able to configure DCI-based adaptation to for all the additional PRACH resources configured in *RandomAccessAdaptConfig*, without singaling PRACH mask for additional PRACH resources.

In this sense, in clause 8.1 of TS 38.213 v19.0.0, it is specified as *prach-SubsetMask-Index-Adaptation* ‘can be additionally provided,’ which implies that *prach-SubsetMask-Index-Adaptation* is not be always provided from the network.

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| For valid PRACH occasions associated with *addl-RACH-Config-Adaptation* in *RACH-ConfigCommon*, the UE **can be additionally provided** a PRACH mask index, by *prach-SubsetMask-Index-Adaptation*, that indicates one or more association periods per association pattern periods according to Table 8.1-0, where is provided by *KforAPPForPRACHsubsetMask*.  Table 8.1-0: Mapping of mask index to association periods per *Kmask* association pattern periods   |  |  | | --- | --- | | **Mask Index** | **Association periods (APs) per association pattern periods (APPs)** | | 0 | First half of APs in APPs | | 1 | First quarter of APs in APPs | | 2 | First eighth of APs in APPs | | 3 | First sixteenth of APs in APPs |   Valid PRACH occasions associated with *addl-RACH-Config-Adaptation*, and additionally in association periods indicated by *prach-SubsetMask-Index-Adaptation*, **if provided**, are indicated as available for PRACH transmission based on an indication in a DCI format 1\_0 with CRC scrambled by a P-RNTI or a C-RNTI [5, TS 38.212]. For indication by DCI format 1\_0 with CRC scrambled by the P-RNTI, the PRACH occasions are available for a duration provided by *validity-DurationForAddlRACHAdaptation*, starting from the first frame of the SI modification period [12, TS 38.331] that includes a PDCCH monitoring occasion where the UE receives a PDCCH providing the DCI format 1\_0 with CRC scrambled by the P-RNTI. |

On the other hand, according to current ASN.1 signaling of *RandomAccessAdaptConfig*, *prach-SubsetMask-Index-Adaptation-r19* defined as **mandatory** field, which is not aligned with RAN1’s inctention in the above agreement and causes unnecessary network restriction. Therefore, it should be clarified that *prach-SubsetMask-Index-Adaptation-r19* can be optionally provided.

**[Proposed Change]**: Make *prach-SubsetMask-Index-Adaptation-r19* in *RandomAccessAdaptConfig* as an optional field, with Need R.

RandomAccessAdaptConfig-r19 ::= SEQUENCE {

prach-ConfigurationIndex-r19 INTEGER (0..255),

msg1-FDM-r19 ENUMERATED {one, two, four, eight},

msg1-FrequencyStart-r19 INTEGER (0..maxNrofPhysicalResourceBlocks-1),

prach-SubsetMask-Index-Adaptation-r19 ENUMERATED {one, two, three, four}, OPTIONAL, -- Need R

ssb-perRACH-OccasionAndCB-PreamblesPerSSB-r19 CHOICE {

oneEighth ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

oneFourth ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

oneHalf ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

one ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

two ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32},

four INTEGER (1..16),

eight INTEGER (1..8),

sixteen INTEGER (1..4)

} OPTIONAL, -- Need M

validityDurationForAddlRACH-Adaptation-r19 ENUMERATED {n2, n4, n8, n16},

valueKforAssociationPatternPeriodsForPRACH-subsetMask-r19 ENUMERATED {n2, n4, n8, n16} OPTIONAL, -- Need S

...

}

**[Comments]**:

# L210

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| L210 | NES | 1 | Need code of *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* in *RandomAccessAdaptConfig* |  | LGE (Hanseul Hong) |  | V016 | ToDo |

**[Description]**: In RAN1#120 and RAN1#120bis meetings, it is agreed to allow the separated configuration of number of SSB per RO and the number of CB preambles per SSB (i.e., *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* IE), but it does not agree to mandatorily configure the separated configuration of *ssb-perRACH-OccasionAndCB-PreamblesPerSSB*.

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| RAN#120  Agreement   * Separate configuration of Msg1-FDM for the additional PRACH resources at least for 4-step RACH is supported   + UE is not expected to be configured such that there are more than 8 FDM-ed valid ROs (legacy + additional ROs)   + FFS: When there is no configuration of Msg1-FDM * Separate configuration of number of SSB per RO is supported   RAN#120bis  Agreement  Separate configuration of the following parameters for the additional PRACH resources at least for 4-step RACH is supported   * CB-PreamblesPerSSB |

In addition, according to the current running MAC CR, it specifies that the UE selects the preamble corresponding to selected SSB based on the separated *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* in *addlRACH-Config-Adapt*, **if it is configured**.

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| NOTE X: If an RO selected for preamble transmission is configured by *addlRACH-Config-Adapt* and *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* is configured in *addlRACH-Config-Adapt*, UE selects preamble corresponding to selected SSB amongst the preambles determined according to *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* in *addlRACH-Config-Adapt*. |

In other words, *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* may not be always configured in *addlRACH-Config-Adapt*, and if the separated *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* is not configured, legacy *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* may be used to determine preamble range for the selected SSB.

However, if Need M code is used for *ssb-perRACH-OccasionAndCB-PreamblesPerSSB-r19*, when the SIB1 is updated to modify the configuration of additional PRACH resources, *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* value is maintained as a previous value. Therefore, *ssb-perRACH-OccasionAndCB-PreamblesPerSSB* should be **always** separately configured in *addlRACH-Config-Adapt* once it is provided in any SIB1 in previous value, since the UE will never release the value unless the configuration of additional PRACH resource is released.

Therefore, in order to support the optional configuration of *ssb-perRACH-OccasionAndCB-PreamblesPerSSB*, the need code should be modified to Need R

**[Proposed Change]**: Modify the Need code of *ssb-perRACH-OccasionAndCB-PreamblesPerSSB-r19* to Need R from Need M.

RandomAccessAdaptConfig-r19 ::= SEQUENCE {

prach-ConfigurationIndex-r19 INTEGER (0..255),

msg1-FDM-r19 ENUMERATED {one, two, four, eight},

msg1-FrequencyStart-r19 INTEGER (0..maxNrofPhysicalResourceBlocks-1),

prach-SubsetMask-Index-Adaptation-r19 ENUMERATED {one, two, three, four},

ssb-perRACH-OccasionAndCB-PreamblesPerSSB-r19 CHOICE {

oneEighth ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

oneFourth ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

oneHalf ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

one ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64},

two ENUMERATED {n4,n8,n12,n16,n20,n24,n28,n32},

four INTEGER (1..16),

eight INTEGER (1..8),

sixteen INTEGER (1..4)

} OPTIONAL, -- Need R

validityDurationForAddlRACH-Adaptation-r19 ENUMERATED {n2, n4, n8, n16},

valueKforAssociationPatternPeriodsForPRACH-subsetMask-r19 ENUMERATED {n2, n4, n8, n16} OPTIONAL, -- Need S

...

}

**[Comments]**:

# E023

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E023 | NES | 1 | It is unclear what is the Case1 with respect of the SSBless Scell. | yes | Helka-Liina Määttänen  (ER) |  | V019 |  |

**[Description]**: In IE FrequencyInfoDL

***absoluteFrequencySSB***

Frequency of the SSB to be used for this serving cell. SSB related parameters (e.g. SSB index) provided for a serving cell refer to this SSB frequency unless mentioned otherwise. The CD-SSB of the PCell is always on the sync raster. Frequencies are considered to be on the sync raster if they are also identifiable with a GSCN value (see TS 38.101-1 [15] or TS 38.101-5 [75]). If the field is absent, the SSB related parameters should be absent, e.g. *ssb-PositionsInBurst*, *ssb-periodicityServingCell* and *subcarrierSpacing* in *ServingCellConfigCommon* IE. If the field is absent, the UE obtains timing reference from the intra-band SpCell or intra-band SCell if applicable as described in TS 38.213 [13], clause 4.1, or from the SpCell or an SCell indicated by *referenceCell,* or from the reference serving cell defined in TS 38.133 [14]. This is supported in case the SCell for which the UE obtains the timing reference is in the same or different frequency band as the cell (i.e. the SpCell or the SCell, respectively) from which the UE obtains the timing reference.

Up until Release 19, a serving cell which is not associated with SSB is “SSB-less SCell”. This term is used in RRC but it is not definined. However, it seems to point to a case where UE obtains timing reference in a defined way as seen from field dercription of the absoluteFrequencySSB. The servingcellMO may or may not be configured for this case.

For Rel-19, Case 1, the scell is not associated with legacy SSB but only OD-SSB and absoluteFrequencySSB should be absent.

**[Proposed Change]**:

***absoluteFrequencySSB***

Frequency of the SSB to be used for this serving cell. SSB related parameters (e.g. SSB index) provided for a serving cell refer to this SSB frequency unless mentioned otherwise. The CD-SSB of the PCell is always on the sync raster. Frequencies are considered to be on the sync raster if they are also identifiable with a GSCN value (see TS 38.101-1 [15] or TS 38.101-5 [75]). If the field is absent, the SSB related parameters should be absent, e.g. *ssb-PositionsInBurst*, *ssb-periodicityServingCell* and *subcarrierSpacing* in *ServingCellConfigCommon* IE. If the field is absent and od-ssb is absent in SCellConfig IE, the UE obtains timing reference from the intra-band SpCell or intra-band SCell if applicable as described in TS 38.213 [13], clause 4.1, or from the SpCell or an SCell indicated by *referenceCell,* or from the reference serving cell defined in TS 38.133 [14]. This is supported in case the SCell for which the UE obtains the timing reference is in the same or different frequency band as the cell (i.e. the SpCell or the SCell, respectively) from which the UE obtains the timing reference.

# E024

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E024 | NES, GEN | 1 | It is unclear what is the Case1 with respect of the SSBless Scell. | yes | Helka-Liina Määttänen  (ER) |  | V019 |  |

**[Description]**: In IE ServingCellConfig

***servingCellMO***

*measObjectId* of the *MeasObjectNR* in *MeasConfig* which is associated to the serving cell. If the serving cell is associated with SSB, the following relationship applies between the corresponding MeasObjectNR and *frequencyInfoDL* in *ServingCellConfigCommon/ServingCellConfigCommonSIB* of the serving cell: if *ssbFrequency* is configured, its value is the same as the *absoluteFrequencySSB* and if *csi-rs-ResourceConfigMobility* is configured, the value of its *subcarrierSpacing* is present in one entry of the *scs-SpecificCarrierList*, *csi-RS-CellListMobility* includes an entry corresponding to the serving cell (with *cellId* equal to *physCellId* in *ServingCellConfigCommon*) and the frequency range indicated by the *csi-rs-MeasurementBW* of the entry in *csi-RS-CellListMobility* is included in the frequency range indicated by in the entry of the *scs-SpecificCarrierList*.

If the serving cell is not associated with SSB (i.e. SSB-less SCell), the carrier frequency indicated by *ssbFrequency* of the corresponding *MeasObjectNR*, if configured, is within the frequency range indicated by any entry of the *scs-SpecificCarrierList*.

Up until Release 19, a serving cell which is not associated with SSB is “SSB-less SCell”. This term is used in RRC but it is not definined. However, it seems to point to a case where UE obtains timing reference in a defined way as seen from field dercription of the absoluteFrequencySSB. The servingcellMO may or may not be configured for this case.

For Rel-19, Case 1, the scell is not associated with legacy SSB but only OD-SSB and absoluteFrequencySSB should be absent. Presence of servingcell MO is unclear in this case.

**[Proposed Change]**:

field descriptions need to be updated for servingCellMO but needs RAN2 conclusion first.

Also definition for “SSB-less SCell” is needed but it it is unclear where this is discussed, hence GEN added.

# E025

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E025 | NES | 1 | It is unclear what is the Case1 with respect of the SSBless Scell. | yes | Helka-Liina Määttänen  (ER) |  | V019 |  |

**[Description]**: In IE MeasObjectNR

ssbFrequency ARFCN-ValueNR OPTIONAL, -- Cond SSBorAssociatedSSB2

***ssbFrequency***Indicates the frequency of the SS associated to this *MeasObjectNR*. For operation with shared spectrum channel access, this field is a k\*30 kHz shift from the sync raster where k = 0,1,2, and so on if the *reportType* within the corresponding *ReportConfigNR* is set to reportCGI (see TS 38.211 [16], clause 7.4.3.1). Frequencies are considered to be on the sync raster if they are also identifiable with a GSCN value (see TS 38.101-1 [15], or TS 38.101-5 [75]).

|  |  |
| --- | --- |
| *SSBorAssociatedSSB2* | If the *measObject* is associated to an SCell with SSB, this field is mandatory present if *ssb-ConfigMobility* is configured or *associatedSSB* is configured in at least one cell.  If the *measObject* is associated to an SSB-less SCell, this field is optionally present, Need R, if *ssb-ConfigMobility* is configured or *associatedSSB* is configured in at least one cell.  If *ssb-ConfigMobility* is not configured and *associatedSSB* is not configured for any cell, the field is absent, Need R. |

Up until Release 19, a serving cell which is not associated with SSB is “SSB-less SCell”. This term is used in RRC but it is not definined. However, it seems to point to a case where UE obtains timing reference in a defined way as seen from field dercription of the absoluteFrequencySSB. The servingcellMO may or may not be configured for this case.

For Rel-19, Case 1, the scell is not associated with legacy SSB but only OD-SSB and absoluteFrequencySSB should be absent. Presence of servingcell MO is unclear in this case.

If servingcellMO is present, the condition *SSBorAssociatedSSB2*  need to be updated as there would not be SS associated to this MO.

**[Proposed Change]**:

Case1 relation to SSB-less needs to be clarified and the condition needs to be updated accordingly.