NR NTN Comments file

Template:

# Xnnn

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

**[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.

# V200

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V200 | NTN | 1 | Having a valid version of SIB2 when the CONNECTED UE is configured with location information reporting for assisted SMTC configuration | Yes, R2-250xxxx | vivo (Stephen) |  | v005 | ToDo |

**[Description]**: When the CONNECTED UE is configured with location information reporting for assisted SMTC configuration, the network may not configure *refLocList-r19* via dedicated RRC message (for overhead saving), the UE shall have a valid version of SIB2. Otherwise, the UE may not be able to report the nearest location in the RRC complete message.

**[Proposed Change]**: Clarify that the CONNECTED UE is configured with location information reporting for assisted SMTC configuration shall have a valid version of SIB2.

5.2.2.1 General UE requirements

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The UE capable of MBS broadcast which is receiving or interested to receive MBS broadcast service(s) via a broadcast MRB shall ensure having a valid version of *SIB20*, regardless of the RRC state the UE is in.

The UE configured to provide location information for assisted SMTC configuration in RRC\_CONNECTED state shall ensure having a valid version of *SIB2.*

The UE shall ensure having a valid version of the posSIB requested by upper layers.

**[Comments]**:

# V201

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V201 | NTN | 1 | PDCCH repetition impacts on SI acquisition | Yes, R2-250xxxxx | vivo (Stephen) |  | v005 | ToDo |

**[Description]**: With common PDCCH repetition, the UE not only monitors *searchSpaceOtherSystemInformation*, but also monitors *searchSpace* linked with *searchSpaceOtherSystemInformation*. Clarification is needed in sub-clause 5.2.2.3.2

**[Proposed Change]**: Clarify that PDCCH monitoring occasions for SI message are determined based on search space(s) indicated by *searchSpaceOtherSystemInformation* and its linked *searchSpace* (if any) in sub-clause 5.2.2.3.2.

5.2.2.3.2 Acquisition of an SI message

For SI message acquisition PDCCH monitoring occasion(s) are determined according to *searchSpaceOtherSystemInformation* and linked *searchSpace* (if any). If *searchSpaceOtherSystemInformation* or linked *searchSpace* is set to zero, PDCCH monitoring occasions for SI message reception in SI-window are same as PDCCH monitoring occasions for *SIB1* where the mapping between PDCCH monitoring occasions and SSBs is specified in TS 38.213[13]. If *searchSpaceOtherSystemInformation* or linked *searchSpace* (if any) is not set to zero, PDCCH monitoring occasions for SI message are determined based on search space(s) indicated by *searchSpaceOtherSystemInformation* and its linked *searchSpace* (if any). PDCCH monitoring occasions for SI message which are not overlapping with UL symbols (determined according to *tdd-UL-DL-ConfigurationCommon*) are sequentially numbered from one in the SI window. The [x×N+K]th PDCCH monitoring occasion (s) for SI message in SI-window corresponds to the Kth transmitted SSB, where x = 0, 1, ...X-1, K = 1, 2, …N, N is the number of actual transmitted SSBs determined according to *ssb-PositionsInBurst* in *SIB1* and X is equal to CEIL(number of PDCCH monitoring occasions in SI-window/N). The actual transmitted SSBs are sequentially numbered from one in ascending order of their SSB indexes. The UE assumes that, in the SI window, PDCCH for an SI message is transmitted in at least one PDCCH monitoring occasion corresponding to each transmitted SSB and thus the selection of SSB for the reception SI messages is up to UE implementation.

**[Comments]**:

# C002

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C002 | NTN | 1 | Missed geographical area coordinates in procedure of SIB7 reception | N | CATT (Da Wang) |  | v008 | ToDo |

**[Description]**:.

**[Proposed Change]**: Add geographical area coordinates as below.

1> else if all segments of a warning message and geographical area coordinates (if any) have been received:

2> assemble the warning message from the received *warningMessageSegment(s)*;

2> assemble the geographical area coordinates from the received *warningAreaCoordinatesSegment* (if any);

2> forward the received complete warning message, *messageIdentifier*, *serialNumber*, *dataCodingScheme* and geographical area coordinates (if any) to upper layers;

2> stop reception of *SIB7*;

2> discard the current values of *messageIdentifier* and *serialNumber* for *SIB7*;

**[Comments]**:

# C003

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C003 | NTN | 1 | clarify how UE determines the service area if the Target Service Area in the USD or the ISA in SIBXX are not totally aligned | Yes, R2-250xxxxx | CATT (Da Wang) |  | v008 | ToDo |

**[Description]**: We prefer to clarify how UE determines the service area if the Target Service Area in the USD or the ISA in SIBXX are not totally aligned. Since the UE is not expect to receive MBS service outside the service area, it would be better for the UE to get a precise service area scope.

**[Proposed Change]**: Add the following NOTE to clarify the relationship between the Target Service Area in the USD and the ISA in SIBXX.

NOTE: If the service area information is broadcast in an NTN cell, the UE ignores the service area information in USD

**[Comments]**:

# S024

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| S024 | NTN | 1 | UE optionally reports N closest reference locations via the RRCReconfigurationComplete message. | Yes, R2-250xxxxx | Samsung (Shiyang) |  | v011 | ToDo |

**[Description]**: RAN2 agreement is that

- The UE reports an indication of the N closest reference locations via UE assistance information, e.g. bitmap or list of indices of the locations.

The UE can report the N closest reference locations via the RRCReconfigurationComplete message.

“UE can ..” in our understanding means UE optionally reports in RRCReconfigurationComplete message. If we implement in the current way below, it enforces UE always reports in RRCReconfigurationComplete message, which obviously is not aligned with the agreement!

2> if the UE is configured in this *RRCReconfiguration* message to provide location information for assisted SMTC configuration in RRC\_CONNECTED state:

3> include *referenceLocationReport*;.

**[Proposed Change]**: Add “if available” at the end.

2> if the UE is configured in this *RRCReconfiguration* message to provide location information for assisted SMTC configuration in RRC\_CONNECTED state:

3> include *referenceLocationReport*, if available;

**[Comments]**:

[vivo]: The proposed change is fine to us

# H252

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H252 | NTN | 1 | Closest RL reporting in RRCConfigurationComplete | R2-25xxxxx | Huawei (Lili) |  | V014 | ToDo |

**[Description]**: According to the current CR, closest reference location can be reported in both *RRCConfigurationComplete* and UAI. The reported information is the same (i.e. *referenceLocationReport*), but the number of reference locations to be reported is only configured in OtherConfig, not in *RRCConfiguration* (while outside of *OtherConfig*).

In *RRCConfigurationComplete*:

2> if the UE is configured in this *RRCReconfiguration* message to provide location information for assisted SMTC configuration in RRC\_CONNECTED state:

3> include *referenceLocationReport*;

In UAI:

1> if transmission of the *UEAssistanceInformation* message is initiated to provide location information for assisted SMTC configuration in RRC\_CONNECTED state according to 5.7.4.2;

2> include the *referenceLocationReport* with a number of closest reference locations to the current UE’s position determined by *closestLocsToReport*;

**[Proposed Change]**:

Option1: Clarify that the *referenceLocationReport* in *RRCConfigurationComplete* only reports the single closest reference location, it cannot report multiple reference locations.

Option2: Add *closestLocsToReport* to *RRCConfiguration* (outside of *OtherConfig*)

Option3: Remove *referenceLocationReport* from *RRCConfigurationComplete* (in our understanding, this reporting is quite duplicated with reporting in UAI, it is less useful than having it in *RRCResume*)

**[Comments]**:

[Nokia] We agree to discussion either option, but would like to consider also that the UE may not support more than 2 parallel SMTCs, as noted in N085

# H250

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H250 | NTN | 1 | Descriptions of UAI | R2-25xxxxx | Huawei (Lili) |  | V006 | ToDo |

**[Description]**: The closest reference location information in the UAI can be used for both SMTC configuration and gap configuration. Besides, it is preferred that we use “reference location information reporting” because it is different from directly reporting UE location. Similar changes (referring to gap configuration) need to be made to multiple other places.

**[Proposed Change]**:

2> if the *assisted-SSB-MTC-Config* is set to *setup*:

3> consider itself to be configured to provide closest reference location information for assisting SMTC and measurement gap configuration in RRC\_CONNECTED state in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide closest reference location information for assisting SMTC and measurement gap configuration in RRC\_CONNECTED state.

**[Comments]**:

# V202

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V202 | NTN | 1 | Reference to 5.3.5.3 | N | vivo (Stephen) |  | v005 | ToDo |

**[Description]**: The *OtherConfig* setting up location information reporting also impacts sub-clause 5.3.5.3. A reference to sub-clause 5.3.5.3 should be added in sub-clause 5.3.5.9.

**[Proposed Change]**:

1> if the received *otherConfig* includes the *assisted-SSB-MTC-Config*:

2> if the *assisted-SSB-MTC-Config* is set to *setup*:

3> consider itself to be configured to provide location information for assisted SMTC configuration in RRC\_CONNECTED state in accordance with 5.3.5.3 and 5.7.4;

2> else:

3> consider itself not to be configured to provide location information for assisted SMTC configuration in RRC\_CONNECTED state.

**[Comments]**:

# C004

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C004 | NTN | 1 | clarify how UE determines the periodicity and offset of the SSB-MTC5 element | Yes, R2-250xxxxx | CATT (Da Wang) |  | v009 | ToDo |

**[Description]**: According to the field description of smtc5list, the pci-List, periodicity and/or offset fields can be absent, and if these field is absent for an entry, the UE applies the value of the corresponding field from the entry at the same position in smtc4list. However, in section 5.5.2.10, the situation of absent of pci-List, periodicity and/or offset fields is not reflected.

**[Proposed Change]**: modify “in” as “related to”.

If *smtc5list* is present, for cells indicated in the *pci-List* parameter related to each *SSB-MTC5* element of the list in the same *MeasObjectNR*, the UE shall setup an additional SS/PBCH block measurement timing configuration (SMTC) in accordance with the received *periodicity* and *offset* parameter related to each *SSB-MTC5* configuration and use the *duration* parameter from the *smtc1* configuration. The first subframe of each SMTC occasion occurs at an SFN and subframe of the NR serving cell meeting the above condition.

**[Comments]**:

# Z251

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z251 | NTN | 1 | Descriptions of UAI | No | ZTE (Zhihong) |  | v012 | ToDo |

**[Description]**: UE reported information is actually reference location information instead of location information

**[Proposed Change]**: Update the description as below:

- the information of the relay UE(s) with which it connects via a non-3GPP connection for MP; or

- configured grant assistance information for NR sidelink positioning.

- reference location information for assisted SMTC configuration in RRC\_CONNECTED state.

**[Comments]**:

# C005

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C005 | NTN | 1 | Clarify the meaning of “can” in the following agreement:  - The UE reports an indication of the N closest reference locations via UE assistance information, e.g. bitmap or list of indices of the locations.  - The UE can report the N closest reference locations via the RRCReconfigurationComplete message. | Yes, R2-250xxxxx | CATT (Da Wang) |  | v008 | ToDo |

**[Description]**: From our perspective, “can” means the UE does not have to report the reference location in the RRCReconfigurationComplete message. However, the following text implies that the UE shall report the N closest reference locations in the RRCReconfigurationComplete message for the first time.

1> set the content of the *RRCReconfigurationComplete* message as follows:

*[unreleated part is ommitted]*

2> if the UE is configured in this *RRCReconfiguration* message to provide location information for assisted SMTC configuration in RRC\_CONNECTED state:

3> include *referenceLocationReport*;.

We have two options to solve this issue:

Option 1: restrict the UE have to report the reference locations in the RRCReconfigurationComplete message for the first time, and remove the “upon being configured to do so” triggered condition under the UEAssistanceInformation message.

Option 2: make the UE report the reference locations in the RRCReconfigurationComplete message as an optional behaviour, and complete the UE behaviour of “upon being configured to do so” triggered condition under the UEAssistanceInformation message.

For simplicity, we can go with the option 1, i.e., restrict that the UE have to report the N closest reference locations in the RRCReconfigurationComplete message for the first time and the UEAssistanceInformation message can be used for the subsequent reports. The spec can be modified as following.

**[Proposed Change]**: Remove the “upon being configured to do so” for the condition of reporting N closest reference locations in the *UEAssistanceInformation* message.

A UE capable of providing location information for assisted SMTC configuration in RRC\_CONNECTED state shall initiate the procedure upon determining that the closest reference location(s) have changed compared with the last reported values.

**[Comments]**:

[Samsung]: we share the same view on the issue, as we already mentioned in the CR review but not addressed by the Rapporteur. In our understanding of the agreement, we think Option 2 should be the corresponding UE behaviour, i.e., reporting reference location in RRCReconfigurationComplete message is optional. We propose a change in RIL S024.

[vivo]: we also share a similar view on this issue. If the network may not configure refLocList-r19 via RRC configuration message, the UE may take some additional time to acquire the SIB2 meesage containing reference location list. To aviod delaying the transmission of the RRC reconfiguration complete message, the UE should be able to omit the location report in the RRC RRC reconfiguration complete message.

# Z252

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z252 | NTN | 1 | Triggering condition for reference location report in UAI | Yes, R2-250xxxxx | ZTE (Zhihong) |  | v012 | ToDo |

**[Description]**: When discussing the procedure, it is preferred by companies to report first report in RRCReconfigurationComplete message to save one more RRC message for reporting. However there could be the case when refLocList configuration is not provided in RRCReconfiguration but instead UE shall acquire this information from SIB2, which will cause additional delays for UE to compute the closest referenceLocation and put it in RRCReconfigurationComplete message. It is not desired to mandate such beahvior and delay the transmission of RRCReconfigurationComplete message, a compromised way could be leave it to UE implementation whether to report this information in RRCReconfigruationComplete message, if it is the common understanding then the trigger for reference location for UAI report would be update to when configured to do so and UE has not yet report, and upon determining that the closesr reference location(s) have changed...

**[Proposed Change]**: Update the description as below:

A UE capable of providing location information for assisted SMTC configuration in RRC\_CONNECTED state shall initiate the procedure upon being configured to do so and the first report has not been sent, and upon determining that the closest reference location(s) have changed compared with the last reported values

**[Comments]**:

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# S025

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| S025 | NTN | 1 | UE first time reports N closest reference locations using UAI. | Yes, R2-250xxxxx | Samsung (Shiyang) |  | v011 | ToDo |

**[Description]**: As agreed “The UE can report the N closest reference locations via the RRCReconfigurationComplete message.”, if UE has not reported in RRCReconfigurationComplete message or in UAI since it is configured to do so, UE shall report reference location via UAI for the first time. The condition for the first-time report is missing currently.

**[Proposed Change]**: add the condition for the first-time report.

1> if configured to provide location information for assisted SMTC configuration in RRC\_CONNECTED state:

2> if the UE did not include *referenceLocationReport* in a RRCReconfigurationComplete message or in a *UEAssistanceInformation* message since it has been configured to provide location information; or

2> if the current closest reference locations are different from the ones indicated in the last transmission including *referenceLocationReport*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide location information for assisted SMTC configuration;

**[Comments]**:

[vivo]: The proposed change is fine to us.

[Nokia]: Since we add the clause, we would still suggest to also consider “since last entering connected mode” just to cover all cases.

# E011

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E011 | NTN | 1 | Establishment/Release of MRBs following the ISA |  | Ericsson (Ignacio) |  | v001 | ToDo |

**[Description]**: Following RAN2 agreements, a UE may initiate the establishment or release when it enters/leaves the ISA of the MBS service in question. However, the text captured in 5.9.3.2 is not sufficient to ensure these limitations. For instance, there are some clauses such as “upon start of the MBS session” that would allow a UE to acquire establish the MRBs even outside the ISA..

**[Proposed Change]**: It is simpler to include the geofencing limitation in the general configuration of broadcast MRBs (section 5.9.3.1) so that it applies both to initial establishment/release but also to updates. Here an example:

#### 5.9.3.1 General

The broadcast MRB configuration procedure is used by the UE to configure PDCP, RLC, MAC and the physical layer upon starting and/or stopping to receive a broadcast MRB transmitted on MTCH, or upon modification of a configuration of a broadcast MRB received by the UE. The procedure applies to MBS capable UEs that are interested to receive or that are receiving an MBS broadcast service that are in RRC\_IDLE, RRC\_INACTIVE or RRC\_CONNECTED with an active BWP with common search space configured by *searchSpaceMTCH* or *searchSpaceMCCH* and are located within the Intended Service Area associated with the MBS service, if any.

**[Comments]**:

# E014

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E014 | NTN | 1 | Clarificatory NOTE for the use of ISA in both SIB and USD to establish MRBs |  | Ericsson (Ignacio) |  | v001 | ToDo |

**[Description]**: Last meeting, RAN2 agreed to consider the Target Service Area for the purpose of geofencing MBS broadcast services in NTN. Following previous agreements related to the ISA, this information in USD can also be used to establish/release MRBs depending on whether the UE is location within or outside the Target Service Area.

**[Proposed Change]**: Include a general NOTE so that the UE can consider both sources of information to establish/release MRB(s).

**[Comments]**: RAN2 to consider the following TP:

NOTE 2: It is up to UE implementation to use either the Target Service Area in the USD or the ISA(s) in *SIBXX*, if provided, for broadcast MRB configuration in NTN.

[vivo] We think the TSA is only needed for MCCH acquisition. The benefit of considering both resources for MRB management is unclear.

# Z253

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z253 | NTN | 2 | Add SIBxx as on demand SI in DedicatedSIBRequest | No | ZTE (Zhihong) |  | v012 | ToDo |

**[Description]**: SIB20/21 can be on demand requested by connected UEs in DedicatedSIBRequest message, since ISAs in SIBxx is also essential for a UE capable MBS in NTN to acquire broadcast service, it is suggested to also allows UE to request this SIB in dedicatedSIBRequest message.

**[Proposed Change]**: Include SIBxx in DedicatedSIBRequest as below:

SIB-ReqInfo-r16 ::= ENUMERATED { sib12, sib13, sib14, sib20-v1700, sib21-v1700, sib23-v1810, sibxx-V1900, spare1 }

**[Comments]**:

# Z254

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z254 | NTN | 1 | Missing on demand SIBXX in *dedicatedSystemInformationDelivery* | No | ZTE (Zhihong) |  | v012 | ToDo |

**[Description]**: Missing on demand SIBxx carrying ISA(s) in the field description of *dedicatedSystemInformationDelivery* in *RRCReconfiguration* message

**[Proposed Change]**: Update the description as below:

|  |
| --- |
| ***dedicatedSystemInformationDelivery***  This field is used to transfer *SIB6*, *SIB7*, *SIB8, SIB19, SIB20, SIB21, SIB25, SIBxx* to the UE with an active BWP with no common search space configured or the L2 U2N Remote UE in RRC\_CONNECTED. For UEs in RRC\_CONNECTED (including L2 U2N Remote UE), this field is also used to transfer the SIBs requested on-demand. |

**[Comments]**:

# V208

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V208 | NTN | 2 | Confirm that bitmap is used for UE reference location report | Yes, R2-250xxxx | vivo (Stephen) |  | v007 | ToDo |

**[Description]**: In the post email discussion, there is an argument on whether a bitmap or a reference location index should be used for the UE reference location report. With index indicating, the network can identify which one location is the nearest one or second-nearest one, based on the listed order in the reporting list. However, we don’t see index is beneficical. The network can configure the parameter *N* to control the number of locations that can be reported. Such information is sufficient for configuring *N* SMTCs for UE. The network doesn’t require which location is the nearest one.

**[Proposed Change]**: RAN2 confirms that bitmap of 6 bit is used for UE reference location report.

**[Comments]**:

ZTE: We still prefer to use index, and the reason is that even when NW configured UE to report 4, it is possible that NW can still have the possibility to configure UE with less SMTCs, e.g., 2 SMTCs. And report the reference Location in order in such scenarios is beneficial.

# E010

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E010 | NTN | 2 | Add possibility for*referenceLocationReport* in the *RRCResumeComplete* message | R2-25xxxxx | Ericsson (Philipp) |  | v001 | ToDo |

**[Description]**: The current solution for UE-assisted SMTC selection in RRC\_CONNECTED mode requires two RRC reconfigurations of the UE, for each UE upon each transition to RRC\_CONNECTED mode. This may cause significant signaling overhead and pose a scalability issue for NTN, where cells are large and radio resources are extremely scarce. The additional, second RRC reconfiguration is needed, because at the time when the usual, first RRC reconfiguration is performed, the network does not yet know which are the relevant SMTCs to be configured for the UE.

**[Proposed Change]**: The above problem can be avoided for UEs transitioning from RRC\_INACTIVE to RRC\_CONNECTED mode by allowing the UEs to report the N closest reference locations, i.e., by allowing them to add *referenceLocationReport*, in the *RRCResumeComplete* message based on prior UE configuration. For UEs transitioning from RRC\_INACTIVE to RRC\_CONNECTED mode, AS security is enabled after reception of the *RRCResumeRequest* message by the network. Hence, the *RRCResume* and *RRCResumeComplete* message are subject to the same protection (i.e., cyphering and integrity protection) as the *RRCReconfiguration* and *RRCReconfigurationComplete* message.

This change enables the network to efficiently resume RRC connections of UEs (without RRC reconfiguration).

**[Comments]**:

# X251

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X251 | NTN | 2 | Providing the closest reference location in a list instead of bitmap | R2-25XXXX | Xiaomi (Xiaowei Jiang) |  | v010 | ToDo |

**[Description]**: The current ASN.1 design of UE reported assisted closest reference locations (i.e. referenceLocationReport-r19) is a bitmap. It doesn't allow network to differentiate the reference locations in the order of closeness. As a result, network has to always configure all the SMTCs for all the reported reference locations.

**[Proposed Change]**: Provide closest reference locations in the form of a list, the order of the reference location indicates the closeness/UE preference.

**[Comments]**:

# H251

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H251 | NTN | 1 | SMTC for serving cell | R2-25xxxxx | Huawei (Lili) |  | V006 | ToDo |

**[Description]**: It was agreed to have 7 SMTCs altogether on a single frequency. Serving cell does not require a reference location, and in this case the legacy *smtc* is used for the serving cell measurement. However, this understanding is a bit different from legacy releases because *smtc* is now changed to a cell-specific SMTC rather than a frequency-specific SMTC. Also, the field description of *smtc* related to SMTC adjustment based on PDD needs to revised so that UE does not need to consider neighbour cell propagation delay.

**[Proposed Change]**: Measurement timing configuration for intra-frequency measurement. If this field is absent, the UE assumes that SSB periodicity is 5 ms for the intra-frequency cells. If the field is broadcast by an NTN cell and *smtc5list* is not configured, the *offset* (derived from parameter *periodicityAndOffset*) is based on the assumption that the gNB-UE propagation delay difference between the serving cell and neighbour cells equals to 0 ms, and UE can adjust the actual *offset* based on the actual propagation delay difference. If the field is broadcast by an NTN cell and *smtc5list* is configured, *smtc* is for serving cell measurements and the *offset* (derived from parameter *periodicityAndOffset*) is based on the assumption that the gNB-UE propagation delay difference equals to 0 ms.

**[Comments]**:

# E013

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E013 | NTN | 2 | Maximum amount of reference locations for location-based SMTC selection | R2-25XXXX | Ericsson (Ignacio) |  | v001 | ToDo |

**[Description]**: Last meeting, RAN2 took the following agreement: “The maximum number configured SMTCs for idle/inactive is 7 and it also includes the SMTC of the serving cell (This updates a previous decision to have a maximum of 6 STMCs)”. In our understanding, the overall sentiment in the last RAN2 meeting is that the network will configure 6 potential neighbour SMTCs and SMTC1 is used for the serving cell. Therefore, the network only needs to configure 6 reference locations, i.e., the serving cell does not need a reference location. RAN2 needs to decide whether a reference location for the serving cell is needed for the purpose of location-based SMTC selection feature.

**[Proposed Change]**: The maximum number of reference locations for location-based SMTC selection is 6. The serving cell, i.e., SMTC1, is excluded from SMTC selection.

**[Comments]**: We understand that the UE needs SMTC1 to keep track of the serving cell which always needs to be measured.

[vivo] We agree with 6 as the max size of the reference location list. In addition, the scenario where there are 7 detectable neighboring cells is not a common case in TN. And we believe this is even less common for the NTN scenario.

# X250

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X250 | NTN | 2 | Broadcast of distance threshold together with reference location for neighbor cells in SIB2 | R2-25XXXX | Xiaomi (Xiaowei Jiang) |  | v010 | ToDo |

**[Description]**: As the cell size of neighbor cells can be different according to TR38.821, UE cannot decide which SMTC to select purely based on the closeness of neighbour cells, as UE may be out of coverage of the closest neighbour cell if it happens to be with a small cell size.

**[Proposed Change]**: Broadcast a distance threshold together with the reference location.

**[Comments]**:

# V209

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V209 | NTN | 2 | Radius is also needed for UE-based SMTC selection | Yes, Re-250xxxx | vivo (Stephen) |  | v013 | ToDo |

**[Description]**: We think a radius field is needed for SMTC selection as it indicates the coverage area of the neighbouring cell..

**[Proposed Change]**: Introduce a radius field asspcaited with *refLocList-r19*.

**[Comments]**:

# V203

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V203 | NTN | 1 | Refine the mapping between reference location and smtc4 and smtc5 | No | vivo (Stephen) |  | v007 | ToDo |

**[Description]**: Currently, the refLocList can only be associated with smtc5. In our understanding, the reference location should be allowed to be associated with smtc4. For example, the network may configure 3 smtc4 and 3 smtc5 of different periodicity, with 6 reference locations. For Rel-19 UE, the UE should know the detailed association between smtc4/smtc5 and the reference location.

**[Proposed Change]**: Refine the mapping between reference location and smtc4 and smtc5

***refLocList***

Indicates a reference location associated to an SMTC configuration in *smtc5list*. If present, it includes the same number of entries as *smtc5list*. The first entry in this list corresponds to the first entry across *smtc4list* and *smtc5list*, the second entry corresponds to the seccond entry across *smtc4list* and *smtc5list*, and so on.

**[Comments]**:

# C006

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C006 | NTN | 1 | Clarify whether the R19 DL CE capable UEs perform measurement as configured in the SMTC4 | Yes, R2-250xxxxx | CATT (Da Wang) |  | v008 | ToDo |

**[Description]**: Based on the field description of smtc4list and smtc5list under SIB2, it is unclear whether the R19 DL CE capable UEs use the SMTC4 perform measurement as configured in the SMTC4.

We agreed that “The maximum number configured SMTCs for idle/inactive is 7 and it also includes the SMTC of the serving cell (This updates a previous decision to have a maximum of 6 STMCs)”. The yellow highlight text means the R19 DL CE capable UE takes into account all the SMTCs in smtc4list and smtc5list. While the green highlight text means the SMTC5 explict configure SMTCs not configured in SMTC4 and implicit configure SMTCs configured in SMTC4, that the UE only take the entries in SMTC5 into account. There is a contradiction here and the total number of configurable SMTCs across smtc4list and smtc5list may exceed 6.

For instance, SMTC4={a,b,c} SMTC5={-,d,e,f,g,h}, the total number of configurable SMTCs across smtc4list and smtc5list is 9, which is against with the yellow highlight part.

|  |
| --- |
| ***smtc4list, smtc5list***  Measurement timing configuration list for NTN deployments. The offset of each SSB-MTC4 in *smtc4list* and SSB-MTC5 in *smtc5list* is based on the assumption that the gNB-UE propagation delay difference between the serving cell and neighbour cells equals to 0 ms, and UE can adjust the actual *offset* based on the actual propagation delay difference. For a UE that supports less SMTCs than what is included in *smtc4list* and *smtc5list*, it is up to the UE to select which SMTCs to consider. The total number of configurable SMTCs across *smtc4list* and *smtc5list* is 6. The total number of different SMTC periodicities across *smtc*, *smct4list*, and *smtc5list* is 2. If an entry in *smtc5list* is present but the *pci-List, periodicity and/*or *offset* fields are absent, the UE applies the value of the corresponding field from the entry at the same position in *smtc4list*, if present. |

**[Proposed Change]**: remove the limitation of “The total number of configurable SMTCs across smtc4list and smtc5list is 6”. The maximum number configured SMTCs for idle/inactive is 7 can be restricted by the sequence length of SMTC5 naturally.

|  |
| --- |
| ***smtc4list, smtc5list***  Measurement timing configuration list for NTN deployments. The offset of each SSB-MTC4 in *smtc4list* and SSB-MTC5 in *smtc5list* is based on the assumption that the gNB-UE propagation delay difference between the serving cell and neighbour cells equals to 0 ms, and UE can adjust the actual *offset* based on the actual propagation delay difference. For a UE that supports less SMTCs than what is included in *smtc4list* and *smtc5list*, it is up to the UE to select which SMTCs to consider. The total number of different SMTC periodicities across *smtc*, *smct4list*, and *smtc5list* is 2. If an entry in *smtc5list* is present but the *pci-List, periodicity and/*or *offset* fields are absent, the UE applies the value of the corresponding field from the entry at the same position in *smtc4list*, if present. |

**[Comments]**:

[Samsung]: we share the same view that the current sentence “The total number of configurable SMTCs across *smtc4list* and *smtc5list* is 6.” is not correct and should be removed.

# V204

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V204 | NTN | 2 | SMTC5 and the reference location list can be configured for the inter-frequency case | Yes, R2-250xxxx | vivo (Stephen) |  | v005 | ToDo |

**[Description]**: There are use cases to include SMTC5 and reference location list in SIB4 for the inter-frequency case.

**[Proposed Change]**: Add *refLocList* and *smtc5list* in SIB4.

**[Comments]**:

[xiaomi] We agree with the proposal. For idle/inactive mode, there is no measurement gap. So there is no UE capability issue related to inter frequency measurement.

[Samsung] share same view

# H253

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H253 | NTN | 1 | Need code of *warningAreaCoordinates-r19* | R2-25xxxxx | Huawei (Lili) |  | V014 | ToDo |

**[Description]**: The need code of *warningAreaCoordinates-r19* is Need R, which means the UE releases this information if not included. However, this geographical area information corresponds to the warning message segments, how the UE handle the case where some of the segments are provided with the geographical area while other segments are not provided with such information?

SIB7 ::= SEQUENCE {

messageIdentifier BIT STRING (SIZE (16)),

serialNumber BIT STRING (SIZE (16)),

warningMessageSegmentType ENUMERATED {notLastSegment, lastSegment},

warningMessageSegmentNumber INTEGER (0..63),

warningMessageSegment OCTET STRING,

dataCodingScheme OCTET STRING (SIZE (1)) OPTIONAL, -- Cond Segment1

lateNonCriticalExtension OCTET STRING OPTIONAL,

...,

[[

warningAreaCoordinatesSegment-r19 OCTET STRING OPTIONAL -- Need R

]]

}

Based on the description in the procedure text, we think UE should store the geographical area for other segments as well (for instance, segment1 includes geographical area information while segment2 does not include such information, then the geographical area information from segement1 should not be released, it should be used for segment2 as well).

**[Proposed Change]**:

Change “Need R” to “Need S”, and clarify in the field description that if the field is missing, *warningAreaCoordinatesSegment* for other segments of the same warning message applies.

**[Comments]**:

# S026

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| S026 | NTN | 1 | Missing FD of radius-r19 in SIBXX |  | Samsung (Shiyang) |  | v011 | ToDo |

**[Description]**: The FD of radius-r19 is missing which is needed to describe the circle area and the unit of radius.

**[Proposed Change]**:

Add a field description for radius-r19

***Radius***

Indicates the radius of *circleArea*. Each step represents 1m.

**[Comments]**:

# Z255

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z255 | NTN | 2 | Signalling to indicate ISA the same as serving cell | R2-25xxxx | ZTE (Zhihong) |  | v012 | ToDo |

**[Description]**: When a ISA is the same as serving cell, NW can only include intendedServiceAreaId without including the areaCoordinates, this help saving unnecessary signalling overhead. Also it is more flexible for NW to signal ISA which is a combination of ISA the same as serving cell and other ISAs.

**[Proposed Change]**: Make areaCoordinates as optional, and clarify UE understanding in field description when it is absent.

***SIBXX* information element**

-- ASN1START

-- TAG-SIBXX-START

SIBXX-r19 ::= SEQUENCE {

intendedServiceAreaList-r19 IntendedServiceAreaList-r19 OPTIONAL, -- Need R

lateNonCriticalExtension OCTET STRING OPTIONAL,

...

}

IntendedServiceAreaList-r19 ::= SEQUENCE (SIZE (1..maxNrofMBS-Area-r19)) OF IntendedServiceAreaInfo-r19

IntendedServiceAreaInfo-r19 ::= SEQUENCE {

intendedServiceAreaId-r19 MBS-IntendedAreaID-r19,

areaCoordinates-r19 CHOICE {

polygonArea-r19 OCTET STRING,

circleArea-r19 SEQUENCE {

center-r19 ReferenceLocation-r17,

radius-r19 INTEGER(0..65535)

} OPTIONAL

}

}

| ***SIBXX* field descriptions** |
| --- |
| ***areaCoordinates***  Indicates the ISA as shape of circle or polygon. Absence of this field indicates the ISA has the same coverage as serving cell. |

**[Comments]**:

# S027

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| S027 | NTN | 1 | Incorrect FD of ***smtc5list*** in MO |  | Samsung (Shiyang) |  | v011 | ToDo |

**[Description]**: The FD of ***smtc5list*** in MO is incorrect. *smtc5list* will not be configured in MO if it is not to indicate an additional SMTC periodicity.

**[Proposed Change]**:

Update the FD of ***smtc5list*** in MO as follows.

***smtc4list, smtc5list***

Measurement timing configuration list for NTN deployments, see clause 5.5.2.10. *smtc5list* is configured to indicate an additional SMTC periodicity to the one indicated in *smtc1*.

**[Comments]**:

# Z256

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z256 | NTN | 2 | Missing linked SS in paging search space configuration | None | ZTE (Zhihong) |  | v012 | ToDo |

**[Description]**: SearchSpaceLinkingIdCE is only used to linked two SS, while searchSpaceId for the additional SS for pagingSearchSpace is still needed to be added in PDCCH-ConfigCommon

**[Proposed Change]**: Add pagingSearchSpaceExt in PDCCH-ConfigCommon per below:

*PDCCH-ConfigCommon* information element

-- ASN1START

-- TAG-PDCCH-CONFIGCOMMON-START

PDCCH-ConfigCommon ::= SEQUENCE {

controlResourceSetZero ControlResourceSetZero OPTIONAL, -- Cond InitialBWP-Only

commonControlResourceSet ControlResourceSet OPTIONAL, -- Need R

searchSpaceZero SearchSpaceZero OPTIONAL, -- Cond InitialBWP-Only

commonSearchSpaceList SEQUENCE (SIZE(1..4)) OF SearchSpace OPTIONAL, -- Need R

searchSpaceSIB1 SearchSpaceId OPTIONAL, -- Need S

searchSpaceOtherSystemInformation SearchSpaceId OPTIONAL, -- Need S

pagingSearchSpace SearchSpaceId OPTIONAL, -- Need S

ra-SearchSpace SearchSpaceId OPTIONAL, -- Need S

...,

[[

firstPDCCH-MonitoringOccasionOfPO CHOICE {

sCS15KHZoneT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..139),

sCS30KHZoneT-SCS15KHZhalfT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..279),

sCS60KHZoneT-SCS30KHZhalfT-SCS15KHZquarterT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..559),

sCS120KHZoneT-SCS60KHZhalfT-SCS30KHZquarterT-SCS15KHZoneEighthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..1119),

sCS120KHZhalfT-SCS60KHZquarterT-SCS30KHZoneEighthT-SCS15KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..2239),

sCS120KHZquarterT-SCS60KHZoneEighthT-SCS30KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..4479),

sCS120KHZoneEighthT-SCS60KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..8959),

sCS120KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..17919)

} OPTIONAL -- Cond OtherBWP

]],

*[partailly omitted]*

[[

applyIndicatedTCI-State-r18 ENUMERATED {first, second, both, none} OPTIONAL, -- Cond FollowUTCI

commonSearchSpaceListExt-r18 SEQUENCE (SIZE(1..4)) OF SearchSpaceExt-v1800 OPTIONAL, -- Need R

searchSpaceMulticastMCCH-r18 SearchSpaceId OPTIONAL, -- Need R

searchSpaceMulticastMTCH-r18 SearchSpaceId OPTIONAL -- Need S ]],

[[

pagingSearchSpaceExt SearchSpaceId OPTIONAL, -- Cond PagingSearchSpace

]]

}

-- TAG-PDCCH-CONFIGCOMMON-STOP

-- ASN1STOP

|  |
| --- |
| *PDCCH-ConfigCommon* field descriptions |
| ***applyIndicatedTCI-State***  This field indicates, for PDCCH reception in CORESET #0, if UE applies the first, the second, both or none of the "indicated" DL only TCI or joint TCI as specified in TS 38.213 [13], clause 10.1. Value *both* is not configured if the CORESET is associated with *searchSpaceZero* for Type 0/0A/2 common search space and can be configured only if *sfnSchemePDCCH* is configured in the serving cell. |
| ***commonControlResourceSet***  An additional common control resource set which may be configured and used for any common or UE-specific search space. If the network configures this field, it uses a *ControlResourceSetId* other than 0 for this *ControlResourceSet*. The network configures the *commonControlResourceSet* in *SIB1* so that it is contained in the bandwidth of CORESET#0. If the RedCap-specific initial downlink BWP does not contain the entire CORESET#0, the network configures the *commonControlResourceSet* in the RedCap-specific initial downlink BWP in *SIB1* for (e)RedCap such that it does not have to be contained in the bandwidth of CORESET#0. |
| ***commonSearchSpaceList, commonSearchSpaceListExt,*** ***commonSearchSpaceListExt2***  A list of additional common search spaces. If the network configures this field, it uses the *SearchSpaceId*s other than 0. If the field is included, it replaces any previous list, i.e. all the entries of the list are replaced and each of the *SearchSpace* entries is considered to be newly created and the conditions and Need codes for setup of the entry apply. If the network includes *commonSearchSpaceListExt/commonSearchSpaceListExt2*, it includes the same number of entries, and listed in the same order, as in *commonSearchSpaceList*. |
| ***controlResourceSetZero***  Parameters of the common CORESET#0 which can be used in any common or UE-specific search spaces. The values are interpreted like the corresponding bits in *MIB* *pdcch-ConfigSIB1*. Even though this field is only configured in the initial BWP (BWP#0) *controlResourceSetZero* can be used in search spaces configured in other DL BWP(s) than the initial DL BWP if the conditions defined in TS 38.213 [13], clause 10 are satisfied. |
| ***firstPDCCH-MonitoringOccasionOfPEI-O***  Offset, in number of symbols, from the start of the reference frame for PEI-O to the start of the first PDCCH monitoring occasion of PEI-O on this BWP, see TS 38.213 [13], clause 10.4A. For the case *po-NumPerPEI* is smaller than Ns, UE applies the (floor(i\_s/po-NumPerPEI)+1)-th value out of (N\_s/po-NumPerPEI) configured values in *firstPDCCH-MonitoringOccasionOfPEI-O* for the symbol-level offset. When *po-NumPerPEI* is one or multiple of Ns, UE applies the first configured value in *firstPDCCH-MonitoringOccasionOfPEI-O* for the symbol-level offset. |
| ***firstPDCCH-MonitoringOccasionOfPO***  Indicates the first PDCCH monitoring occasion of each PO of the PF on this BWP, see TS 38.304 [20]. The field *sCS120KHZquarterT-SCS60KHZoneEighthT-SCS30KHZoneSixteenthT*, *sCS120KHZoneEighthT-SCS60KHZoneSixteenthT* and *sCS120KHZoneSixteenthT* can be applied for SCS 480kHz, corresponding to *sCS480KHZoneT-SCS120KHZquarterT-SCS60KHZoneEighthT-SCS30KHZoneSixteenthT*, *sCS480KHZhalfT-SCS120KHZoneEighthT-SCS60KHZoneSixteenthT* and *sCS480KHZquarterT-SCS120KHZoneSixteenthT* in IE *DownlinkConfigCommonSIB* respectively. |
| ***followUnifiedTCI-State***  When set to enabled, for PDCCH reception in CORESET #0, the UE applies the "indicated" DL only TCI or joint TCI as specified in TS 38.214 [19], clause 5.1.5. |
| ***pagingSearchSpace, pagingSearchSpaceExt***  ID(s) of the search space(s) for paging (see TS 38.213 [13], clause 10.1). If the field is absent, the UE does not receive paging in this BWP (see TS 38.213 [13], clause 10). This field is absent for the RedCap-specific initial downlink BWP, if it does not include CD-SSB and the entire CORESET#0. In that case, an (e)RedCap UE in RRC\_INACTIVE while SDT procedure is ongoing and T319a is not running, if CG-SDT is selected and if extended CG-SDT periodicity is configured (i.e. *cg-SDT-PeriodicityExt* is configured), or an (e)RedCap UE in RRC\_IDLE or RRC\_INACTIVE while SDT procedure is not ongoing, shall monitor paging in the initial DL BWP that includes CORESET#0. |

**...**

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *FollowUTCI* | The field is absent if the field *followUnifiedTCI-State* is present or if more than one value for the field *coresetPoolIndex* is configured in *controlResourceSet* for the same bandwidthpart. Otherwise, it is optionally present, Need R. |
| *InitialBWP-Only* | If *SIB1* is broadcast the field is mandatory present in the *PDCCH-ConfigCommon* of the initial BWP (BWP#0) in *ServingCellConfigCommon* except it is the RedCap-specific initial BWP not including CD-SSB and the entire CORESET#0 in which case the field is absent, Need R; it is absent in other BWPs and when sent in system information. If SIB1 is not broadcast and there is an SSB associated to the cell, the field is optionally present, Need M, in the *PDCCH-ConfigCommon* of the initial BWP (BWP#0) in *ServingCellConfigCommon* (still with the same setting for all UEs). In other cases, the field is absent. |
| *InitialBWP-Paging* | This field is optionally present, Need R, if this BWP is the *initialDownlinkBWP* or *initialDownlinkBWP-RedCap* including CD-SSB and the entire CORESET#0, and *pei-Config* is configured in *DownlinkConfigCommonSIB*. Otherwise, this field is absent. |
| *OtherBWP* | This field is optionally present, Need R, if this BWP is not the initialDownlinkBWP and pagingSearchSpace is configured in this BWP. Otherwise this field is absent. |
| PagingSearchSpace | This field is optional present, need R, if *pagingSearchSpace* is present. Otherwise this field is absent. |

**[Comments]**:

# E012

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E012 | NTN | 2 | New RAN1 parameter on DL CE |  | Ericsson (Ignacio) |  | v001 | ToDo |

**[Description]**: RAN1 has updated its higher layer parameters list in . A new parameter for DL CE has been added: searchSpaceLinkingId-r19. Provided there exist an old parameter with the same name but different functionality, we suggest renaming it to *searchSpaceLinkingId-CE-r19.* Unlike RAN1’s proposal, this parameter should be included within SearchSpace IE within a new SearchSpaceExt-v19.

**[Proposed Change]**: Add the new RAN1 parameter with the following TP:

**[Comments]**:

searchSpaceLinkingId-CE-r19 INTEGER (0.. maxNrofSearchSpacesLinks-1-r17) OPTIONAL -- Need R

|  |
| --- |
| ***SearchSpaceLinkingIdCE***  This parameter is used to link two search spaces of same type in the same BWP. If two search spaces have the same *searchSpaceLinkingIdCE-r19* UE assumes these two search spaces are linked to PDCCH repetition. When PDCCH repetition is monitored in two linked search space (SS) sets, the UE does not expect a third monitored SS set to be linked with any of the two linked SS sets. The two linked SS sets have the same CSS set type other than Type-0 CSS and other than Type-3 CSS for common search spaces other than SearchSpaceZero. The two linked SS sets have the same DCI formats to monitor. For intra-slot PDCCH repetition: The two SS sets should have the same periodicity and offset (monitoringSlotPeriodicityAndOffset), and the same duration. The starting symbol of monitoring occasion of the second SS is located right after the ending symbol of monitoring occasion of the first SS. For linking monitoring occasions across the two SS sets that exist in the same slot: The two SS sets have the same number of monitoring occasions within a slot and n-th monitoring occasion of one SS set is linked to n-th monitoring occasion of the other SS set. |

[vivo] The field naming in the FD part should be ***SearchSpaceLinkingId-CE*.**

# C007

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| C007 | NTN | 2 | The introduced SIBxx need to be added in the *SI-SchedulingInfo* | N | CATT (Da Wang) |  | v008 | ToDo |

**[Description]**: The introduced SIBxx need to be added in the *SI-SchedulingInfo*

**[Proposed Change]**:

SIB-TypeInfo-v1700 ::= SEQUENCE {

sibType-r17 CHOICE {

type1-r17 ENUMERATED {sibType15, sibType16, sibType17, sibType18, sibType19, sibType20, sibType21,

sibType22-v1800, sibType23-v1800 ,sibType24-v1800, sibType25-v1800,

sibType17bis-v1820, sibTypexx-v1900, spare3, spare2, spare1,...},

type2-r17 SEQUENCE {

posSibType-r17 ENUMERATED {posSibType1-9, posSibType1-10, posSibType2-24, posSibType2-25,

posSibType6-4, posSibType6-5, posSibType6-6, posSibType2-17a-v1770,

posSibType2-18a-v1770, posSibType2-20a-v1770, posSibType1-11-v1800,

posSibType1-12-v1800, posSibType2-26-v1800, posSibType2-27-v1800,

posSibType6-7-v1800, posSibType7-1-v1800,...,

posSibType7-2-v1800, posSibType7-3-v1800, posSibType7-4-v1800},

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

gnss-id-r17 GNSS-ID-r16 OPTIONAL, -- Need R

sbas-id-r17 SBAS-ID-r16 OPTIONAL -- Cond GNSS-ID-SBAS

}

},

valueTag-r17 INTEGER (0..31) OPTIONAL, -- Cond NonPosSIB

areaScope-r17 ENUMERATED {true} OPTIONAL -- Need S

}

**[Comments]**:

# Z257

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z257 | NTN | 2 | Add conditional presence for offset and pci list in SSB-MTC5 | None | ZTE (Zhihong) |  | v012 | ToDo |

**[Description]**: Offset and pci-list is only present for SSB-MTC5 in SIB2 while it is absent for SSB-MTC included in MO, it shall be clear in the IE description.

**[Proposed Change]**: Add conditions for presence of pci-list and offset is optional presented when SSB-MTC5 is included in SIB2. SIB4 can be added if RAN2 agrees to extend the configuration for inter-frequency case.

*SSB-MTC* information element

-- ASN1START

-- TAG-SSB-MTC-START

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 }

}

SSB-MTC2 ::= SEQUENCE {

pci-List SEQUENCE (SIZE (1..maxNrofPCIsPerSMTC)) OF PhysCellId OPTIONAL, -- Need M

periodicity ENUMERATED {sf5, sf10, sf20, sf40, sf80, spare3, spare2, spare1}

}

SSB-MTC2-LP-r16 ::= SEQUENCE {

pci-List SEQUENCE (SIZE (1..maxNrofPCIsPerSMTC)) OF PhysCellId OPTIONAL, -- Need R

periodicity ENUMERATED {sf10, sf20, sf40, sf80, sf160, spare3, spare2, spare1}

}

SSB-MTC3-r16 ::= SEQUENCE {

periodicityAndOffset-r16 CHOICE {

sf5-r16 INTEGER (0..4),

sf10-r16 INTEGER (0..9),

sf20-r16 INTEGER (0..19),

sf40-r16 INTEGER (0..39),

sf80-r16 INTEGER (0..79),

sf160-r16 INTEGER (0..159),

sf320-r16 INTEGER (0..319),

sf640-r16 INTEGER (0..639),

sf1280-r16 INTEGER (0..1279)

},

duration-r16 ENUMERATED {sf1, sf2, sf3, sf4, sf5},

pci-List-r16 SEQUENCE (SIZE (1..maxNrofPCIsPerSMTC)) OF PhysCellId OPTIONAL, -- Need M

ssb-ToMeasure-r16 SetupRelease { SSB-ToMeasure } OPTIONAL -- Need M

}

SSB-MTC4-r17 ::= SEQUENCE {

pci-List-r17 SEQUENCE (SIZE (1..maxNrofPCIsPerSMTC)) OF PhysCellId OPTIONAL, -- Need M

offset-r17 INTEGER (0..159)

}

SSB-MTC5-r19 ::= SEQUENCE {

pci-List-r19 SEQUENCE (SIZE (1..maxNrofPCIsPerSMTC)) OF PhysCellId OPTIONAL, -- Cond SIB2

periodicity-r19 ENUMERATED {sf10, sf20, sf40, sf80, sf160, spare3, spare2, spare1} OPTIONAL, -- Need M

offset-r19 INTEGER (0..159) OPTIONAL -- Cond SIB2

*[partially omitted]*

-- TAG-PDCCH-CONFIGCOMMON-STOP

-- ASN1STOP

**...**

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| SIB2 | This field is optional present, need M, if it is included in *SIB2* . Otherwise this field is absent. |

**[Comments]**:

# V205

|  |  |  |  |  |  |  |  |  |
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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V205 | NTN | 2 | FFS whether also a distance threshold is indicated. | Yes, R2-250xxxx | vivo (Stephen) |  | v005 | ToDo |

**[Description]**: We think a distance threshold is needed for the CONNECTED UE. There is no need for UE to report its location if the distance to the nearest location remains large.

**[Proposed Change]**: Introduce a distance threshold in *Assisted-SSB-MTC-Config*. The UE only sets the reference location bit to 1 when the UE is within the associated threshold range.

**[Comments]**:

[Xiaomi] We agree with the proposal to introduce distance threshold based closest reference location report.

# H254

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H254 | NTN | 1 | Description of *refLocList* | R2-25xxxxx | Huawei (Lili) |  | V014 | ToDo |

**[Description]**: The description should also clarify that if the list is present, UE ignores the reference locations provided in SIB2 (to avoid any ambiguity if the information provided in dedicated signalling is different from that in SIB2).

**[Proposed Change]**:

***refLocList***

A list of reference locations for assisted SMTC configuration in RRC\_CONNECTED state. If this field is absent when *closestLocsToReport* is signalled, the UE shall use the *refLocList* associated to *smtc5list* provided in *SIB2*, if available. If this field is present, UE ignores the *refLocList* provided in *SIB2*.

**[Comments]**:

# V206

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V206 | NTN | 1 | Need code for *mbs-SessionAreaList-r19* should be Need S | Yes, R2-250xxxxx | vivo (Stephen) |  | v005 | ToDo |

**[Description]**: RAN2 confirms that if no intended area ID is explicitly indicated in MCCH for an MBS broadcast service the UE is interested in, the UE considers the service is applicable for reception within the entire cell area. So Need S is supposed to be used for *mbs-SessionAreaList-r19*

**[Proposed Change]**: Change Need R to Need S for *mbs-SessionAreaList-r19*

**[Comments]**:

# V207

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| V207 | NTN | 1 | Capture the following agreement.  RAN2 confirms that if no intended area ID is explicitly indicated in MCCH for an MBS broadcast service the UE is interested in, the UE considers the service is applicable for reception within the entire cell area, with legacy behavior applicable (FFS whether we capture this in the spec) | Yes, R2-250xxxxx | vivo (Stephen) |  | v003 | ToDo |

**[Description]**: The current specification only specifies the following cases: namely, cases where a service is not associated with an ISA entry, and cases where services are associated with an ISA entry with a specific area. The UE's behavior in the case where a service is associated with an empty ISA entry shall be further clarified.

**[Proposed Change]**: Capture the agreement in the FD of mbs-SessionAreaList.

***mbs-SessionAreaList***

Indicates the list of intended service areas associated with an MBS broadcast session in an NTN cell. If absent, UE considers the associated service can be received within the entire cell area.

**[Comments]**:

**[Comments]**:

# Z258

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z258 | NTN | 2 | Missing on demand SIBXX in SL-SIB-ReqInfo | No | ZTE (Zhihong) |  | v012 | ToDo |

**[Description]**: Current SL-SIB-ReqInfo allows request SIB19, SIB20 and SIB21which implies support of MBS and NTN for sidelink UEs. Based on which the ISA(s) enhancements could also be applicable for sidelink UE, therefore it is proposed to allow UE request the complete SIB sets for MBS service in NTN.

**[Proposed Change]**: Update the description as below:

SL-SIB-ReqInfo-r17 ::= ENUMERATED { sib1, sib2, sib3, sib4, sib5, sib6, sib7, sib8, sib9, sib10, sib11, sib12, sib13,

sib14, sib15, sib16, sib17, sib18, sib19, sib20, sib21, sibNotReq11, sibNotReq10,

sibNotReq9, sibNotReq8, sibNotReq7, sibNotReq6, sibNotReq5, sibNotReq4,

sibNotReq3, sibNotReq2, sibNotReq1, ..., sib17bis-v1820, sibxx-v1900 }

**[Comments]**:

# N081

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| N081 | NTN | 1 | Considerations on no UE requirements for GNSS | Yes, R2-25xxxxx | Nokia (Jakob) |  | v016 | ToDo |

**[Description]**: There are no requirements for the UE to obtain GNSS location at specific intervals, nor should there be a requirement for the UE to obtain a GNSS location simply for the location information reporting. However, currently, receiving *otherConfig* including *assisted-SSB-MTC-Config* implies that the UE is configured to do so.

**[Proposed Change]**: Add a note to section 5.3.5.9 related to other config to state that this does not imply a requirement to obtain location.

1> if the received *otherConfig* includes the *assisted-SSB-MTC-Config*:

2> if the *assisted-SSB-MTC-Config* is set to *setup*:

3> consider itself to be configured to provide location information for assisted SMTC configuration in RRC\_CONNECTED state in accordance with 5.7.4;

NOTE 2a: The UE is requested to attempt to have valid detailed location information available whenever sending location information for assisted SMTC. The UE may not succeed e.g. because the user manually disabled the GPS hardware, due to no/poor satellite coverage. Further details, e.g. regarding how to determine the location information is up to UE implementation.2> else:

3> consider itself not to be configured to provide location information for assisted SMTC configuration in RRC\_CONNECTED state.

**[Comments]**:

# N082

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| N082 | NTN | 1 | Considerations on no UE requirements for GNSS | Yes, R2-25xxxxx | Nokia (Jakob) |  | v016 | ToDo |

**[Description]**: Similar to N081, there are no requirements for the UE to obtain GNSS location at specific intervals, nor should there be a requirement for the UE to obtain a GNSS location simply to continuously test whether the location information has changed. However, current spec may indicate that this is required.

**[Proposed Change]**: Add a note to state that it is up to UE whether/how to test the change of location in section 5.7.4.2.

A UE capable of providing location information for assisted SMTC configuration in RRC\_CONNECTED state shall initiate the procedure upon being configured to do so, and upon determining that the closest reference location(s) have changed compared with the last reported values.

NOTE x: Further details, e.g. regarding how to determine the location information has changed is up to UE implementation since a UE may not be able to continuously obtain a valid GNSS location e.g. because the user manually disabled the GPS hardware, due to no/poor satellite coverage.

**[Comments]**:

# N083

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| N083 | NTN | 1 | Reference location mapping to SMTC configuration IE | R2-25xxxxx | Nokia (Jakob) |  | v016 | ToDo |

**[Description]**: *refLocList* indicates a reference location associated to an SMTC configuration in smtc5list, and it includes the same number of entries as smtc5list. However, the network might choose to cover different areas, with distinct traffic needs, with cells that are active more frequently than the others. These two cells can have SSBs with 160 ms periodicity for example, while the other cells might have 20 ms periodicity. If these cells belong to the same satellite, the UE can use the same SMTC to measure both of them.

**[Proposed Change]**: Define the refloc as a field in SMTC5 list. In case the SMTC is associated with different cells, the refloc contains multiple entries, and each entry maps to the neighbor cells in the order the PCI Is listed in the SMTC5 list.

**[Comments]**:

# N084

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| N084 | NTN | 1 | Determining the number of locations to report | No | Nokia (Jakob) |  | v016 | ToDo |

**[Description]**: Some UEs may only support up to 2 SMTCs, as indicated by *parallelSMTC-r17*, thus the number of SMTCs to report should be related also to the number of SMTCs supportes

**[Proposed Change]**: Add UE to consider also number of parallel SMTCs to consider in section 5.7.4.3;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide location information for assisted SMTC configuration in RRC\_CONNECTED state according to 5.7.4.2;

2> include the *referenceLocationReport* with a number of closest reference locations to the current UE’s position determined by *closestLocsToReport* or *parallelSMTC-r17*, which ever is the lowest;

**[Comments]**:

# N085

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| N085 | NTN | 1 | Selecting the number of SMTCs to consider | No | Nokia (Jakob) |  | v016 | ToDo |

**[Description]**: A UE may not only support less SMTCs than signalled in SMTC4 and SMTC5, but also only a single periodicity.

**[Proposed Change]**: Use “or” instead of and for SMTC4 and SMTC5 to be supported

|  |
| --- |
| ***smtc4list, smtc5list***  Measurement timing configuration list for NTN deployments. The offset of each SSB-MTC4 in *smtc4list* and SSB-MTC5 in *smtc5list* is based on the assumption that the gNB-UE propagation delay difference between the serving cell and neighbour cells equals to 0 ms, and UE can adjust the actual *offset* based on the actual propagation delay difference. For a UE that supports only a single periodicity or less SMTCs than what is included in *smtc4list* or *smtc5list*, it is up to the UE to select which SMTCs to consider. The total number of configurable SMTCs across *smtc4list* and *smtc5list* is 6. The total number of different SMTC periodicities across *smtc*, *smct4list*, and *smtc5list* is 2. If an entry in *smtc5list* is present but the *pci-List, periodicity and/*or *offset* fields are absent, the UE applies the value of the corresponding field from the entry at the same position in *smtc4list*, if present. |

**[Comments]**: