3GPP TSG-RAN WG4 meeting #99-eR4-21xxxx

Electronic Meeting, 19th – 27th May 2021

**Agenda item:** 6.1.5

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for [99-e][209] NR\_unlic\_RRM\_1

**Document for:** Information

# Introduction

The discussion covers NR-U AIs within 6.1.5.

**When updating this document, please remember to:**

* **use track changes while adding your comments in this document (only updates marked with change marks will be taken into the next version),**
* **change the file name, adding your company name, according to the instructions from RAN4 chair:**
* **Length of file names shall be reduced, e.g.**
	+ **At the beginning of first round, moderators share / ftp / tsg\_ran / WG4\_Radio / TSGR4\_98\_e / Inbox / Drafts / [98e][101] NR\_NewRAT\_SysParameters\Summary\_101\_1st round\_v01.docx**
	+ **After update by company A: Summary\_101\_1st round\_v02\_companyA**
	+ **After update by company B: Summary\_101\_1st round\_v03\_companyA\_companyB**
	+ **After update by company C: Summary\_101\_1st round\_v04\_companyB\_companyC**

## 1st round

The following list of open issues was identified, based on the contributions, for the 1st round.

The following colour marking is used below:

* A topic/issue proposed for discussion in: GTW session 1
* No discussion in the 1st round
* **Topic #1: General (AI 6.1.5.1)**

Sub-topic 1-1: Availability of SSB occasions for CBD

Issue 1-1-1: Availability of SSB occasions for CBD

* **Topic #2: RRC connection mobility control (AI 6.1.5.2)**
* **Topic #3: SCell activation/deactivation (delay and interruption) (AI 6.1.5.3)**

Sub-topic 3-1: Interruptions

Issue 3-1-1: Intra-band CA

Issue 3-1-2: Inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown

Issue 3-1-3: Inter-band CA regardless of whether the victim cell is on an intra-band or inter-band CC and target SCell is known

* **Topic #4: Timing (AI 6.1.5.9)**

Sub-topic 4-1: DRX impact on timing

Issue 4-1-1: Definition of the reference cell which is not available, with respect to DRX

Sub-topic 4-2: Measurement gaps impact on timing

Issue 4-2-1: Definition of the reference cell which is not available, with respect to MGs

* **Topic #5: Endorsed CRs (AI 6.1.5 and AI 6.1.5.3)**

## 2nd round

TBD

# Topic #1: General

Contributions from AI 6.1.5.1 are discussed here.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2108759 | ZTE Corporation | **Observation 1:** The current requirement in TS 38.133 requires the UE to determine the availability of SSB more frequent than than once per P\*DRX cycle length when DRX cycle is larger than 320 ms.1. UE should determine the availability of SSB more frequent than than once per P\*DRX cycle length when DRX cycle is larger than 320 ms.
 |
|  | Nokia, Nokia Shanghai Bell | CR:  |
| R4-2110780 | Ericsson | **Proposal:** For CBD, the UE is not required to determine the availability of SSB occasions more frequent than:* Once per Max(25ms, DRX\_cycle\_length, TSSB) if DRX\_cycle\_length ≤ 320ms
* Once per DRX\_cycle\_length if DRX\_cycle\_length > 320ms.
 |
|  |  |  |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

Background:

The way forward from last meeting contains following open issue related CBD [R4-2105700]:

|  |
| --- |
| * For CBD
	+ FFS whether the UE is not required to determine the availability of SSB occasions more frequent than once per P\*DRX cycle length when configured with DRX.
 |

### Sub-topic 1-1: Availability of SSB occasions for CBD

**Issue 1-1-1: Availability of SSB occasions for CBD**

* Proposal 1 (ZTE Corporation):
	+ UE should determine the availability of SSB more frequent than than once per P\*DRX cycle length when DRX cycle is larger than 320 ms.
* Proposal 2 (Ericsson):
	+ For CBD, the UE is not required to determine the availability of SSB occasions more frequent than:
		- Once per Max(25ms, DRX\_cycle\_length, TSSB) if DRX\_cycle\_length ≤ 320ms
		- Once per DRX\_cycle\_length if DRX\_cycle\_length > 320ms.
* Recommended WF
	+ Discuss the proposal

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Company A | **Issue 1-1-1: Availability of SSB occasions for CBD**  |

### CRs/TPs comments collection

*For close-to-finalize WIs and maintenance work, comments collections can be arranged for TPs and CRs. For ongoing WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2109416 (Nokia, Nokia Shanghai Bell ) | Company A |
| Company B |
|  |
|  | Company A |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary**  |
| **Sub-topic 1-1, issue 1-1-1:** | **Issue 1-1-1: Availability of SSB occasions for CBD** *Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provides recommendation on CRs/TPs Status update*

*Note: The tdoc decisions shall be provided in Section 3 and this table is optional in case moderators would like to provide additional information.*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

# Topic #2: RRC connection mobility control

Contributions from AI 6.1.5.2 are discussed here.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4- 2111513 | Qualcomm Incorporated | CR: The CR updates clause 6.2.1A.2.1 based on agreements related to SI reading time  |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Company A |  |

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2111513(Qualcomm Incorporated) | Company A |
| Company B |
|  |
|  | Company A |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary**  |
| **Sub-topic 2-1, issue 2-1-1:** | *Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

*Moderator can provide summary of 2nd round here. Note that recommended decisions on tdocs should be provided in the section titled ”Recommendations for Tdocs”.*

# Topic #3: SCell activation/deactivation (delay and interruption)

Contributions from AI 6.1.5.3 are discussed here.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| T-doc number | Company | Proposals / Observations |
| R4-2108757 | ZTE Corporation | Proposal 1: Additional interruptions are needed for active cells outside the band with the SCell being activated. Proposal 2: For scenarios with victims on inter-band CCs and intra-band CCs: more than one interruption can be allowed. |
| R4-2109851 | MediaTek Inc. | **Proposal 1:** In Inter-band CA, when the target NR-U SCell is unknown, * more than one interruption can be allowed on the victims within the band with the SCell being activated
* a single interruption applies to any victim cell outside the band with the SCell being activated

**Proposal 2:** In Inter-band CA, when the target NR-U SCell is known with measureCycle > 160 ms, * more than one interruption can be allowed on the victims within the band with the SCell being activated
* a single interruption applies to any victim cell outside the band with the SCell being activated
 |
| R4-2110306 | Huawei, HiSilicon | **Proposal 1:** For intra-band CA, up to 1+L interruption windows are allowed during SCell activation. The length of up to L interruption windows shall be extended considering the RF tuning.**Proposal 2:** For inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown or when target SCell is known with measurement cycle larger greater than 160 ms, more than one interruptions are allowed. |
| R4-2110307 | Huawei, HiSilicon | CR: On SCell activation and deactivation NR-U R16 |
| R4-2111238 | Ericsson | **Proposal 1:** * For the known target SCell with measureCycle > 160:
	+ a single interruption applies, regardless of whether the victim cell is on an intra-band or inter-band CC
* For unknown target SCell:
	+ Scenario with victims on inter-band CCs and intra-band CCs: more than one interruption can be allowed

**Proposal 2:** * There is no need to extend the interruption time because of DL LBT failure during intra-band SCell activation. No further clarification needed in the spec-text.
 |
| R4-2111254 | Ericsson | CR: NR-U SCell activiation interruption requirements in 38.133 |
| R4- 2111511 | Qualcomm Inc. | CR: Interruption during Scell activation requirements for SCells operating with CCA |
| R4-2111515 | Qualcomm Inc. | **Observation 1.** When the SCell being activated is known with a measureCycle > 160ms, only fine AGC (DVGA) adjustment is needed. The performance degradation of the intra-band victim SCell is not significant and hence RF re-tuning is not justified at all.**Proposal 1.** A single interruption applies during inter-band CA regardless of whether the victim cell is on an intra-band or inter-band CC when the target SCell is known.**Observation 2.** When the SCell being activated is unknown and there is an intra-band victim SCell – * The performance degradation of the intra-band victim cell is receiver implementation dependent,
* A smart UE must not be penalized with throughput degradation, not just on intra-band cells but also on, potentially many, inter-band cells,
* The performance degradation of the intra-band victim cell also depends on its frequency separation from the target cell – non-contiguous cells should not encounter any performance degradation
* Any power savings due to RF re-tuning are transient and are not acceptable for the throughput degradation caused by multiple interruptions on potentially many (intra/inter-band) cells

**Proposal 2.** No need to consider RF retuning due to DL CCA failures in SCell activation/deactivation requirements.**Proposal 3**. A single interruption applies to any victim cell outside the band with the (known or unknown) SCell being activated, irrespective of whether any intra-band victim cell is present or not and. No further clarification is needed in the spec text. |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 3-1: Interruptions

**Issue 3-1-1: Intra-band CA**

* Proposals 1 (Huawei, HiSilicon, ZTE Corporation): More than one interruptions are allowed.
	+ 1a (Huawei, HiSilicon): For intra-band CA, up to 1+L interruption windows are allowed during SCell activation. The length of up to L interruption windows shall be extended considering the RF tuning.
	+ 1b(ZTE Corporation): For scenarios with victims on inter-band CCs and intra-band CCs: more than one interruption can be allowed.
* Proposal 2 (Qualcomm Incorporated, Ericsson):
	+ A single interruption applies during inter-band CA regardless of whether the victim cell is on an intra-band or inter-band CC when the target SCell is known.
	+ There is no need to extend the interruption time because of DL LBT failure during intra-band SCell activation. No further clarification needed in the spec-text.
* Recommended WF
	+ Discuss the proposal

**Issue 3-1-2: Inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown**

* Proposals 1 (Huawei, HiSilicon, MediaTek Inc., ZTE Corporation) More than one interruptions are allowed.
	+ 1a: (Huawei, HiSilicon): For inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown or when target SCell is known with measurement cycle larger greater than 160 ms, more than one interruptions are allowed.
	+ 1b (MediaTek Inc.)
		- *more than one interruption can be allowed on the victims within the band with the SCell being activated*
		- *a single interruption applies to any victim cell outside the band with the SCell being activated*
	+ 1c (ZTE Corporation): For scenarios with victims on inter-band CCs and intra-band CCs: more than one interruption can be allowed.
* Proposal 2 (Qualcomm Incorporated, Ericsson):
	+ No need to consider RF retuning due to DL CCA failures in SCell activation/deactivation requirements.
	+ A single interruption applies to any victim cell outside the band with the (known or unknown) SCell being activated, irrespective of whether any intra-band victim cell is present or not and. No further clarification is needed in the spec text.
* Recommended WF
	+ Discuss the proposals

**Issue 3-1-3: Inter-band CA regardless of whether the victim cell is on an intra-band or inter-band CC and target SCell is known**

* Proposals 1 (Huawei, HiSilicon, MediaTek Inc, ZTE Corporation): More than one interruptions
	+ 1a: (Huawei, HiSilicon): For inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown or when target SCell is known with measurement cycle larger greater than 160 ms, more than one interruptions are allowed.
	+ 1b (MediaTek Inc.): In Inter-band CA, when the target NR-U SCell is known with measureCycle > 160 ms,
		- more than one interruption can be allowed on the victims within the band with the SCell being activated
		- a single interruption applies to any victim cell outside the band with the SCell being activated
	+ 1c(ZTE Corporation): For scenarios with victims on inter-band CCs and intra-band CCs: more than one interruption can be allowed.
* Proposal 2 (Qualcomm Incorporated, Ericsson):
	+ No need to consider RF retuning due to DL CCA failures in SCell activation/deactivation requirements.
	+ A single interruption applies to any victim cell outside the band with the (known or unknown) SCell being activated, irrespective of whether any intra-band victim cell is present or not and. No further clarification is needed in the spec text.
* Recommended WF
	+ Discuss the proposals

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Company A | **Issue 3-1-1: Intra-band CA****Issue 3-1-2: Inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown****Issue 3-1-3: Inter-band CA regardless of whether the victim cell is on an intra-band or inter-band CC and target SCell is known** |

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2110307 (Huawei, HiSilicon) | Company A |
| Company B |
|  |
| R4-2111254 (Ericsson) | Company A |
| Company B |
|  |
| R4- 2111511 (Qualcomm Inc.) | Company A |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary**  |
| **Sub-topic 3-1** | **Issue 3-1-1: Intra-band CA****Issue 3-1-2: Inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown****Issue 3-1-3: Inter-band CA regardless of whether the victim cell is on an intra-band or inter-band CC and target SCell is known***Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

*Moderator can provide summary of 2nd round here. Note that recommended decisions on tdocs should be provided in the section titled ”Recommendations for Tdocs”.*

# Topic #4: Timing

Contributions from AI 6.1.5.9 are discussed here.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2108758 | ZTE Corporation | Proposal 1: SSB does not have to be within ON duration in a reference cell subject to DL CCA in order to meet UE timing requirements. No clarification related to DRX is needed on the current definition of unavailability of a reference cell on a carrier frequency subject to CCA in section 7.1.1. Proposal 2: No clarification related to gap is needed on the current definition of unavailability of a reference cell on a carrier frequency subject to CCA in section 7.1.1.Proposal 3: Clarification can be captured in the WF if necessary. |
| R4-2109297 | Apple | Proposal 1: the reference cell availability shall be revised as below regardless of DRX status or MG status:In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.• X = 1280ms. |
| R4-2110310 | Huawei, HiSilicon | CR: on timing requirements for NR-U R16 |
| R4-2110309 | Huawei, HiSilicon | **Observation 1:** The 160 ms conditions work for not only the availability of the reference cell but also the Te requirements.**Proposal 1:** The availability of reference cell shall base on the SSB within the DL active BWP which is not overlapping with measurement gaps. |
| R4-2109298 | Apple, MediaTek, Ericsson | CR: CR on reference cell availability for NR-U R16 |
| R4-2111303 | Ericsson | * **Observation 1:** The necessary condition for meeting Te requirement is that the SSB should be available at the UE at least once every 160 ms.
* **Observation 2:** In legacy UE timing requirements the same condition on SSB availability (once every 160 ms) is applicable regardless of whether DRX and/or measurement gaps are configured.
* **Observation 3:** There is no technical reason to have different condition on SSB availability for meeting UE timing requirements when reference cell is subject to CCA.
* **Observation 4:** For the case when the UE is configured with DRX, in principle no further clarification is needed on the definition of unavailability of a reference cell on a carrier frequency subject to CCA.
* **Observation 5:** For the case when the UE is configured with measurement gaps, in principle no further clarification is needed on the definition of unavailability of a reference cell on a carrier frequency subject to CCA.
* **Proposal 1:** For the sake of progress we can support the following option [1]:
	+ *In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.*

*X is FFS, X>160ms.** **Proposal 2:** In proposal #1, we can support X =1280 ms.
 |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

Background:

The way forward from last meeting contains following open issue related timing [R4-2105700]:

|  |
| --- |
| **Timing: Definition of the reference cell which is not available, with respect to DRX*** Proposal 1 (Ericsson, Qualcomm Incorporated, Huawei, HiSilicon): SSB does not have to be within ON duration in a reference cell subject to DL CCA in order to meet UE timing requirements
	+ No clarification related to DRX is needed on the current definition of unavailability of a reference cell on a carrier frequency subject to CCA in section 7.1.1.
* Proposal 2: (Qualcomm, Apple, MTK):
	+ In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms**;** otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
		- X is FFS, X>160ms.

**Timing: Definition of the reference cell which is not available, with respect to MGs*** Proposal 1 (Ericsson, Qualcomm): SSB in a reference cell subject to DL CCA does not have to be outside the gaps in order to meet UE timing requirements
	1. No clarification related to gap is needed on the current definition of unavailability of a reference cell on a carrier frequency subject to CCA in section 7.1.1.

* Proposal 2 (Huawei, ZTE, MTK): The availability of reference cell shall base on the SSB within the DL active BWP which is not overlapping with measurement gaps.
* Proposal 3: (Qualcomm, Apple, MTK):
	1. In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms**;** otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
		+ 1. X is FFS, X>160ms.
 |

### Sub-topic 4-1: DRX impact on timing

**Issue 4-1-1: Definition of the reference cell which is not available, with respect to DRX**

Proposals

* Proposal 1 (ZTE Corporation): SSB does not have to be within ON duration in a reference cell subject to DL CCA in order to meet UE timing requirements. No clarification related to DRX is needed on the current definition of unavailability of a reference cell on a carrier frequency subject to CCA in section 7.1.1.
* Proposal 2 (Apple, Ericsson):
	+ In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
		- X = 1280ms.
* Proposal 4 (Ericsson):
	+ In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
		- X is FFS, X>160ms.

Recommended WF

* Discuss the proposals

### Sub-topic 4-2: Measurement gaps impact on timing

**Issue 4-2-1: Definition of the reference cell which is not available, with respect to MGs**

Proposals

* Proposal 1 (ZTE Corporation): No clarification related to gap is needed on the current definition of unavailability of a reference cell on a carrier frequency subject to CCA in section 7.1.1.
* Proposal 2 (Huawei, HiSilicon): The availability of reference cell shall base on the SSB within the DL active BWP which is not overlapping with measurement gaps.
* Proposal 2 (Apple, Ericsson):
	+ In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
		- X = 1280ms.
* Proposal 4 (Ericsson):
	+ In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
		- X is FFS, X>160ms.

Recommended WF

* Discuss the proposals

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  | **Issue 4-1-1: Definition of the reference cell which is not available, with respect to DRX****Issue 4-2-1: Definition of the reference cell which is not available, with respect to MGs** |

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2109298 (Apple, MediaTek, Ericsson) | Company A |
| Company B |
|  |
| R4-2110310 (Huawei, HiSilicon) | Company A |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary**  |
| **Sub-topic 4-1** | **Issue 4-1-1: Definition of the reference cell which is not available, with respect to DRX***Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |
| **Subtopic 4-2** | **Issue 4-2-1: Definition of the reference cell which is not available, with respect to MGs***Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

*Moderator can provide summary of 2nd round here. Note that recommended decisions on tdocs should be provided in the section titled ”Recommendations for Tdocs”.*

# Topic #5: Endorsed CRs

Contributions from AI 6.1.5 and AI 6.1.5.3 that contain CRs that were already endorsed at RAN4#98bis-e meeting but are resubmitted for formal approvals are listed here.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2110312 | Huawei, HiSilicon | CR on Active TCI state switching for NR-U R16 |
| R4-2110314 | Huawei, HiSilicon | CR on RLM requirements NR-U R16 |
| R4-2110316 | Huawei, HiSilicon | CR on beam management requirements for NR-U R16 |
| R4-2110318 | Huawei, HiSilicon | CR on measurement requirements for NR-U R16 |
| R4-2110320 | Huawei, HiSilicon | CR on CSSF for NR-U R16 |
| R4-2110322 | Huawei, HiSilicon | CR on core requirements maintenance of IDLE mode inter-RAT measurement for NR-U R16 |
| R4-2110324 | Huawei, HiSilicon | CR on PSCell Addition requirements for NR-U R16 |
| R4-2109300 | Apple | CR on SCell activation requirement for NR-U R16 |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2110312 | Company A |
| Company B |
|  |
| R4-2110314 | Company A |
| Company B |
|  |
| R4-2110316 | Company A |
| Company B |
|  |
| R4-2110318 | Company A |
| Company B |
|  |
| R4-2110320 | Company A |
| Company B |
| R4-2110322 | Company A |
| Company B |
| R4-2110324 | Company A |
| Company B |
| R4-2109300 | Company A |
| Company B |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary**  |
|  |  |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

*Moderator can provide summary of 2nd round here. Note that recommended decisions on tdocs should be provided in the section titled ”Recommendations for Tdocs”.*

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
| WF on … | YYY |  |
| LS on … | ZZZ | To: RAN\_X; Cc: RAN\_Y |
|  |  |  |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| R4-2109416 | Terminology update for NR-U | Nokia, Nokia Shanghai Bell |  |  |
| R4-2109274 | Terminology update for NR-U | Nokia, Nokia Shanghai Bell |  |  |
| R4-2111513 | SI reading time in RRC mobility control | Qualcomm Incorporated |  |  |
| R4-2111514 | SI reading time in RRC mobility control | Qualcomm Incorporated |  |  |
| R4-2110307 | CR on SCell activation and deactivation for NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110308 | CR on SCell activation and deactivation for NR-U R17 | Huawei, HiSilicon |  |  |
| R4-2111254 | NR-U SCell activiation interruption requirements in 38.133 | Ericsson |  |  |
| Cat-A missing ? | NR-U SCell activiation interruption requirements in 38.133 | Ericsson |  |  |
| R4-2111511 | Interruption during Scell activation requirements for SCells operating with CCA | Qualcomm Incorporated |  |  |
| R4-2111512 | Interruption during Scell activation requirements for SCells operating with CCA | Qualcomm Incorporated |  |  |
| R4-2109298 | CR on reference cell availability for NR-U R16 | Apple, MediaTek, Ericsson |  |  |
| R4-2109299 | CR on reference cell availability for NR-U R17 | Apple, MediaTek, Ericsson |  |  |
| R4-2110310 | CR on timing requirements for NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110311 | CR on timing requirements for NR-U R17 | Huawei, HiSilicon |  |  |
| R4-2109300 | CR on SCell activation requirement for NR-U R16 | Apple |  |  |
| R4-2109301 | CR on SCell activation requirement for NR-U R17 | Apple |  |  |
| R4-2110312 | CR on Active TCI state switching for NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110313 | CR on Active TCI state switching for NR-U R17 | Huawei, HiSilicon |  |  |
| R4-2110314 | CR on RLM requirements NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110315 | CR on RLM requirements NR-U R17 | Huawei, HiSilicon |  |  |
| R4-2110316 | CR on beam management requirements for NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110317 | CR on beam management requirements for NR-U R17 | Huawei, HiSilicon |  |  |
| R4-2110318 | CR on measurement requirements for NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110319 | CR on measurement requirements for NR-U R17 | Huawei, HiSilicon |  |  |
| R4-2110320 | CR on CSSF for NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110321 | CR on CSSF for NR-U R17 | Huawei, HiSilicon |  |  |
| R4-2110322 | CR on core requirements maintenance of IDLE mode inter-RAT measurement for NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110323 | CR on core requirements maintenance of IDLE mode inter-RAT measurement for NR-U R17 | Huawei, HiSilicon |  |  |
| R4-2110324 | CR on PSCell Addition requirements for NR-U R16 | Huawei, HiSilicon |  |  |
| R4-2110325 | CR on PSCell Addition requirements for NR-U R17 | Huawei, HiSilicon |  |  |
|  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics incl. existing and new tdocs.
2. For the Recommendation column please include one of the following:
	1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
	2. Other documents: Agreeable, Revised, Noted
3. For new LS documents, please include information on To/Cc WGs in the comments column
4. Do not include hyper-links in the documents

## 2nd round

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| R4-210xxxx | WF on … | YYY | Agreeable, Revised, Noted |  |
| R4-210xxxx | LS on … | ZZZ | Agreeable, Revised, Noted |  |
|  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics.
2. For the Recommendation column please include one of the following:
	1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
	2. Other documents: Agreeable, Revised, Noted
3. Do not include hyper-links in the documents