**3GPP TSG-RAN WG4 Meeting # 98-bis-e R4-210xxxx**

**Electronic Meeting, 12th – 20th April, 2021**

**Agenda item:** 5.4.1.2, 5.4.2.2

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for [98-bis-e][205] LTE\_NR\_DC\_CA\_RRM\_2

**Document for:** Information

# Introduction

This email discussion covers the following topics:

* 5.4.1.2 Efficient and low latency serving cell configuration, activation and setup [LTE\_NR\_DC\_CA\_enh-Core]
* 5.4.2.2 Efficient and low latency serving cell configuration, activation and setup [LTE\_NR\_DC\_CA\_enh-Perf]
  + 5.4.2.2.1 General
  + 5.4.2.2.2 Test cases for direct SCell activation
  + 5.4.2.2.3 Test case for SCell Dormancy

The following issues are to be discussed starting from first round:

* Topic #1: Core Requirement Maintenance
  + Sub-topic 1-1: Side condition for Direct SCell activation delay requirement
    - Issue 1-1-1: Principle for branching of requirement
    - Issue 1-1-2: Replacement of measCycleSCell
    - Issue 1-1-3: Definition of known cell in Direct SCell activation
  + Sub-topic 1-2: Applicability of Direct SCell activation delay requirement
    - Issue 1-2-1: Applicability of requirements for Direct SCell activation
* Topic #2: Test Cases
  + Sub-topic 2-1: Test cases for SCell Dormancy
    - Issue 2-1-1: BWP configuration for Dormant BWP
    - Issue 2-1-2: Scheduling/non-scheduling DCI in test cases
    - Issue 2-1-3: CORESET RMC with PDCCH after first 3 OFDM symbols

Please note the following guideline on reducing length of file name for email discussion documents.

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| Length of file names shall be reduced, e.g.   * At the beginning of first round, moderator shares 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 |

# Topic #1: Core Requirement Maintenance

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2104860 | Apple | «Core requirement maintenance on direct SCell activation»  **Proposal 1:** When discussing the replacement of measCycleSCell, the principle “if the target cell has been measured less than 160ms before the activation command, then no additional time for AGC is needed” should not be changed.  **Observation 1:** Option 1 is to replace measCycleSCell with correct sample interval, without changing the assumption that “if the target cell has been measured less than 160ms before the activation command, then no additional time for AGC is needed.  **Observation 2:** Mathematically, option 4 is identical to option 1. The difference is that in option 1 sample interval is used while in option 4 measurement period is used.  **Proposal 2:** RAN4 to down select from option 1 and option 4 in RAN4#98-bis-e:   * Option 1: Replace condition on measCycleSCell with Tsample\_interval defined as follows:   + If no DRX is configured or DRX cycle>320ms, Tsample\_interval = Max(MGRP, SMTC period, DRX cycle) × CSSFinter   + Otherwise, Tsample\_interval = 1.5 × Max(MGRP, SMTC period, DRX cycle) × CSSFinter * Option 4:   + TFirstSSB+ 5ms, if the SCell has been measured within measurement gap before activation and TSSB\_measurement\_period\_inter, as specified in Table 9.3.5-1, is equal to or smaller than 1280ms; or if the SCell has been measured without measurement gap before activation and TSSB\_measurement\_period\_intra, as specified in Table 9.3.9-1, is equal to or smaller than 800ms.   + TFirstSSB\_MAX + Trs + 5ms, if the SCell has been measured within measurement gap before activation and TSSB\_measurement\_period\_inter, as specified in Table 9.3.5-1, is larger than 1280ms; or if the SCell has been measured without measurement gap before activation and TSSB\_measurement\_period\_intra, as specified in Table 9.3.9-1, is larger than 800ms.   Associated Draft CR R4-2104861 |
| R4-2106387 | Nokia, Nokia Shanghai Bell | «Discussion on Tactivation\_time for Direct SCell activation»  **Proposal 1:** Use same definition, for known SCell conditions for the NR FR1 cell being directly activated, as in LTE.  **Observation 1:**  The activation delay for a direct activated SCell in FR1would be from acquiring the first SSB (TFirstSSB) plus 5ms.  Associated Draft CR R4-2106388 |
| R4-2106885 | Ericsson | «Core maintenance for Direct SCell activation»  **Proposal 1:** RAN4 to conclude that in Rel-16, activation delay requirements for direct activation of SCell in FR1 are applicable when the SCell is configured with single TCI state.  **Proposal 2:** Replace condition on measCycleSCell with time since last reporting of the cell. If the cell has been reported within last 1280ms, or alternatively, the measurement period is at most 1280ms, then TFirstSSB+ 5ms applies, otherwise TFirstSSB\_MAX + Trs + 5ms applies. |

Draft CRs

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2104861 | Apple | «CR for core requirement maintenance on direct SCell activation»  See R4-2104860 |
| R4-2106388 | Nokia, Nokia Shanghai Bell | «Draft CR Correction of activation delay for Direct activated Scell»  See R4-2106387 |
| R4-2106993 | Huawei, HiSilicon | «CR on direct SCell activation»  **Proposal 1:** Add the following condition: The requirements in this clause do not apply if the RRC reconfiguration message is configured for PSCell addition or PSCell change and SCell being directly activated belongs to the SCG. |
| R4-2106994 | Huawei, HiSilicon | «CR on SCell dormancy requirements»  **Proposal 1:** Remove note: *~~Editor’s Note: The requirements are defined in DCI-agnostic manner, if RAN1 defines something that makes Dormant switching time/interruption to always be absorbed into WUS gap, RAN4 can revise the specification text accordingly.~~* |

## 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 1-1: Side condition for Direct SCell activation delay requirement

*Sub-topic description:*

During RAN4#98e it was raised that activation delay requirements for Direct SCell activation indirectly depend on measCycleSCell since requirements are inherited from activation of deactivated SCell. However, a directly activated SCell has not previously been measured according to a measurement period that depends on measCycleSCell. Instead, the SCell may have been measured as an intra- or inter-frequency neighbour cell prior to being directly activated. RAN4 is now discussing how to replace the dependency on measCycleSCell for directly activated SCells.

One company is additionally pointing out that existing definition of known or unknown cell is inherited from requirements on activation of deactivated SCell, and therefore also depends on measCycleSCell. Thus the definition of known/unknown cell in Direct SCell activation may need to be updated.

*Open issues and candidate options before e-meeting:*

**Issue 1-1-1: Principle for branching of requirement**

* Proposals
  + Option 1 (Apple): When discussing the replacement of measCycleSCell, the principle “if the target cell has been measured less than X ms before the activation command, then no additional time for AGC is needed” should not be changed.
  + Option 2 (Nokia):Only split requirements based on known/unknown cell status. Do not further split requirements depending on measurement rate etc for known cells.
* Recommended WF
  + Discussion needed

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| **Company** | **Comments** |
| Nokia | When analyzing the current condition in 38.133 it seems clear that the issue raised in the last meeting relates to Direct SCell activation in FR1. In this case the conditions depend first of all on whether the SCell is known or not, in addition to that the activation latency then depend on known/unknown SCell status.  However, already the known/unknown condition depend on the measCycleSCell which is not defined/configured for a Direct activated SCell. Hence, RAN4 should first address known/unknown condition for the Direct SCell activation in FR1.  After that RAN4 can address what are the suitable activation delay for known/unknown Direct activated SCell in FR1.  We suggest defining the known/unknown condition for Direct SCell activation the same way as is done in LTE. |
| Ericsson | We support Option 1. If the SCell has been measured according to some measurement rate, or within some time, it shall be possible for UE to activate SCell without full gain search. |
| MTK | Prefer option 1 |
| Huawei | We support option 1, as it is aligned with the Rel-15 principle.  We agree that the known cell condition for direct SCell activation also needs to be adapted as Nokia commented above, but it is somehow a separate discussion. |
| Qualcomm | Share the same view as Huawei. As for the wording, “has been measured” may need to be clarified/rephrased because whether it is actually measured or not is up to UE implementation. |
| NEC | May be a clarification question. Does it mean in the *below* *requirement* following two (sub) conditions are not required and only one condition (top condition of known cell) is required?  *If the SCell is known and belongs to FR1, Tactivation\_time is:*  *- TFirstSSB+ 5ms, if the SCell measurement cycle is equal to or smaller than 160ms.*  *- TFirstSSB\_MAX + Trs + 5ms, if the SCell measurement cycle is larger than 160ms.* |
| Apple | Support option 1. Also agreed in GTW. |
| OPPO | Option 1. |
| Moderator | Option 1 was agreed in GTW, with the clarification that requirement will be based on measurement period rather than time since last measurement, since the latter cannot be known (up to UE implementation; addresses the comment by Qualcomm). No need to capture this agreement explicitly in specifications – will be covered by Issue 1-1-2.   * Principle in Option 1 is agreeable. Further discussion on exact text is required [and will be handled in Issue 1-1-2] |

**Issue 1-1-2: Replacement of measCycleSCell**

* Proposals
  + Option 1 (Apple): Replace condition on measCycleSCell with Tsample\_interval defined as follows:
    - If no DRX is configured or DRX cycle>320ms, Tsample\_interval = Max(MGRP, SMTC period, DRX cycle) × CSSFinter
    - Otherwise, Tsample\_interval = 1.5 × Max(MGRP, SMTC period, DRX cycle) × CSSFinter
  + Option 2a (Apple): Replace condition on measCycleSCell as follows:
    - TFirstSSB+ 5ms, if the SCell has been measured within measurement gap before activation and TSSB\_measurement\_period\_inter, as specified in Table 9.3.5-1, is equal to or smaller than 1280ms; or if the Scell has been measured without measurement gap before activation and TSSB\_measurement\_period\_intra, as specified in Table 9.3.9-1, is equal to or smaller than 800ms.
    - TFirstSSB\_MAX + Trs + 5ms, if the Scell has been measured within measurement gap before activation and TSSB\_measurement\_period\_inter, as specified in Table 9.3.5-1, is larger than 1280ms; or if the Scell has been measured without measurement gap before activation and TSSB\_measurement\_period\_intra, as specified in Table 9.3.9-1, is larger than 800ms.
  + Option 2b (Ericsson): Replace condition on measCycleSCell as follows:
    - TFirstSSB+ 5ms, if the measurement period is at most 1280ms,
    - TFirstSSB\_MAX + Trs + 5ms, if the measurement period is longer than 1280ms.
  + Option 3 (Ericsson): Replace condition on measCycleSCell as follows:
    - If the Scell is known and has been reported within last 1280ms, Tactivation\_time is TFirstSSB + 5ms,
    - If the Scell is known and has been reported outside last 1280ms, Tactivation\_time is TFirstSSB\_MAX + Trs + 5ms.
  + Option 4 (Nokia): Replace condition on measCycleSCell in NR FR1 as follows, i.e., only consider known/unknown cell status:
    - If the Scell is known and belongs to FR1, Tactivation\_time is TFirstSSB+ 5ms,
    - If the Scell is unknown and belongs to FR1, TFirstSSB\_MAX + TSMTC\_MAX + 2\*Trs + 5ms
* Recommended WF
  + Discussion needed

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| **Company** | **Comments** |
| Nokia | First of all, we believe RAN4 need to address when the Direct activated Scell is considered known. However, the Tactivation\_time depends on whether the Direct activated Scell is known or unknown and the condition for FR1 known Scell (which in our view is referring to the Scell being direct activated) depend on measCycleSCell as well.  Once the conditions for when a direct activated Scell are clear RAN4 can discuss what would be the appropriate Tactivation\_time for the known FR1 Scell.  Otherwise, RAN4 still have unclear requirements as the known conditions for the direct activated FR1 Scell are unclear.  Based on having a definition of the known and unknown status of the Scell being direct activated we propose to explicitly define Tactivation\_time for direct Scell activation not considering measCycleScell. |
| Ericsson | We prefer Option 2b. For Option 2a one gets the strange effect that inter-frequency measurements can be older than intra-frequency measurements, 1280ms vs 800ms, for the same UE behaviour i.e. Scell activation without full gain search. We do not find that logic, hence we propose to use the same threshold for both cases.  We can also consider Option 3, which instead of measurement period is focusing on time since last reporting of the cell, or Option 4, by which it is always assumed that the shorter activation time without full gain search applies for a known cell that is directly activated. |
| MTK | Option 2b is more reasonable (compare with 2a) because the target cell of inter-frequency measurement without gap should not be the Scell of CA Disagree with option 4. UE needs an extra SMTC occasion Trs to retune AGC gain if the timing gap between current and previous sample is greater than 160ms. However, it would be acceptable if  Tactivation\_time =TFirstSSB\_MAX + Trs + 5ms for all the known cell cases. |
| Huawei | We can support option 2b. |
| Qualcomm | Option 2b is okay. |
| NEC | Depends on previous issue and next issue conclusion? |
| Apple | Option 2b was agreed in GTW. |
| OPPO | Option 2b |
| Moderator | Option 2b was agreed in the GTW session, with the addition that the value shall be within brackets. Apple will provide revised draft CR capturing the following agreement.     * Replace condition on measCycleSCell as follows:   + TFirstSSB+ 5ms, if the measurement period is at most [1280]ms,   + TFirstSSB\_MAX + Trs + 5ms, if the measurement period is longer than [1280]ms. |

**Issue 1-1-3: Definition of known cell in Direct SCell activation**

* Proposals
  + Option 1 (Nokia): Use same definition, for known Scell conditions for the NR FR1 cell being directly activated, as in LTE.
    - [36.133:] The Scell is known provided the following conditions are met for the Scell:
      * During the last 5 seconds before the reception of the direct Scell configuration command:

the UE has sent a valid measurement report for the Scell being directly activated or directly hibernated, and

the Scell being directly activated or directly hibernated remains detectable according to the cell identification conditions specified in section 8.3.3.2,

Scell being directly activated or directly hibernated also remains detectable during the Scell activation delay according to the cell identification conditions specified in section 8.3.3.2

* + - * Otherwise, the Scell is unknown.
* Recommended WF
  + Discussion needed

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| **Company** | **Comments** |
| Nokia | This is the condition used in LTE. It should be possible to use also for NR FR1 Direct Scell activation. |
| Ericsson | Support Option 1. Current definition needs to be modified due to dependence on measCycleSCell. The corresponding definition from LTE can be used as starting point (some adaptation needed). |
| MTK | OK with option 1 |
| Ericsson | Support Option 1. Current definition needs to be modified due to dependence on measCycleSCell. The corresponding definition from LTE can be used as starting point (some adaptation needed). |
| Huawei | We are fine to use option 1 as a starting point.  We suggest to keep 5s in [], and it may be revisited if technical issue are identified. Also, the detectability of SSB needs to be added, as in current FR1 known condition in 8.3.2. |
| Qualcomm | Option 1. And okay with Huawei’s suggestion. |
| NEC | OK with option 1. |
| Apple | In principle option 1 is OK. Wording needs to be update to align with NR spec. |
| OPPO | Agree with option 1 in principle. |
| Moderator | Option 1 was agreed at the GTW, with the additions that the wording needs to be adapted to NR, and that the time shall be within brackets i.e. [5s]. Nokia will work with companies on revising the wording for the revised draft CR.   * The definition of know SCell in NR FR1 shall be based on the same definition in LTE:   + The Scell is known provided the following conditions are met for the Scell:     - During the last 5 seconds before the reception of the direct Scell configuration command:       * the UE has sent a valid measurement report for the Scell being directly activated or directly hibernated, and       * the Scell being directly activated or directly hibernated remains detectable according to the cell identification conditions specified in section 8.3.3.2,       * Scell being directly activated or directly hibernated also remains detectable during the Scell activation delay according to the cell identification conditions specified in section 8.3.3.2   + Otherwise, the Scell is unknown. * The wording shall be adapted to NR FR1. * The time during which conditions shall be fulfilled for cell to be considered to be known shall be left within brackets, e.g. [5] seconds. |

### Sub-topic 1-2: Applicability of Direct SCell activation delay requirement

*Sub-topic description:*

One company is raising that activation delay requirements for Direct Scell activation in SCG shall only apply when the RRC reconfiguration message does not include addition or change of PSCell. The coverage of RAN4 requirements for Direct Scell activation in Rel-16 is as follows:

* Direct Scell activation at Scell addition
* Direct Scell activation at handover
* Direct Scell activation at RRC resume

*Open issues and candidate options before e-meeting:*

**Issue 1-2-1: Applicability of requirements for Direct Scell activation**

* Proposals
  + Option 1 (Huawei): Add the following condition to Direct Scell activation clauses:
    - The requirements in this clause do not apply if the RRC reconfiguration message is configured for PSCell addition or PSCell change and Scell being directly activated belongs to the SCG.
* Recommended WF
  + Discussion needed

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| **Company** | **Comments** |
| Nokia | Just one clarifying question: Should RAN4 instead define requirements for this scenario if this scenario is seen feasible (as opposed to just stating that no requirements apply)? |
| Ericsson | Option 1 is fine, provided that it is limited to current release. Directs Scell activation at SCG configuration (PSCell addition) has not been considered in Rel-16 MR-DC. Suggest handling this in Rel-17 MR-DC WI which focuses on SCG optimizations. |
| MTK | Support option 1 |
| Huawei | Support option 1.  To Nokia, considering the timeline of Rel-16 we suggest to further consider defining requirements for this scenario in Rel-17 if seen necessary, and we are open to Ericsson’s suggestion above. |
| Qualcomm | Option 1. |
| NEC | OK with option 1 |
| Apple | Option 1 is ok. |
| OPPO | Support option 1 |
| Moderator | One company is asking for clarification, and seven companies are supportive of Option 1. In Rel-16 MR-DC we have focused on Direct SCell activation at PCell handover, RRC resume, and SCell addition. We have not covered the case with e.g. Direct SCell activation at PSCell addition. Hence it is justified to capture, is some manner, that the existing delay requirements do not apply for scenarios other than those originally considered.  From the comments on the related draft CR (R4-2106993), the following alternative wording has been proposed by the one company above asking for clarification, and the proposal has received support from other companies commenting the draft CR:   * Alternative is to make a note that the scenario may lead to longer delay without going into the details of how long delay.   Huawei to work with companies on the exact wording for the revised draft CR. |

## Companies views’ collection for 1st round

### Open issues

*Please provide comments in the Open issues summary above.*

### 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.*

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| **CR/TP number** | **Comments collection** |
| R4-2104861 | «CR for core requirement maintenance on direct SCell activation», Apple |
| Nokia: More discussion needed (pending ongoing discussion) |
| R4-2106388 | «Draft CR Correction of activation delay for Direct activated Scell», Nokia, Nokia Shanghai Bell |
| Ericsson: This is still under discussion. First need to settle subtopic 1-1. |
| R4-2106993 | «CR on direct SCell activation», Huawei, HiSilicon |
| Nokia: ‘The requirements in this clause do not apply if the RRC reconfiguration message is configured for PSCell addition or PSCell change and SCell being directly activated belongs to the SCG.’  This wording now implies that if the SCell being directly activated in the same RRC reconfiguration message does not belong to the SCG, the requirements apply. And would RAN4 then need to define such requirements?  Principle is ok to address the issue if scenario is valid. However, also pending our question above if RAN4 instead of stating that no requirements apply instead should define requirements for the scenario. Alternative is to make a note that the scenario may lead to longer delay without going into the details of how long delay. |
| Huawei: To Nokia,  On the first question, we think it is a good point. We are not sure if the requirements should apply or not for this case, as it means parallel PSCell addition/change and SCell activation, which has not been discussed in Rel-16. So maybe the highlighted part of the sentence should be removed just to be safe.  On the second question, please find our reply to Issue 1-2-1, and we are also fine with the suggested alternative (the scenario may lead to longer delay without going into the details of how long delay). |
| Qualcomm: Open to the suggested alternative from Nokia. Seems the alternative better reflects the concern raised by Huawei with which we agree. |
| R4-2106994 | «CR on SCell dormancy requirements», Huawei, HiSilicon |
| Nokia: Agreeable |
| Ericsson: OK |
| Qualcomm: Okay |

## 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.*

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|  | **Status summary** |
| **Issue 1-1-1** | **Principle for branching of requirement**  Principle for branching of requirement for direct activation of known SCell in NR FR1 when measCycleSCell is replaced by some other condition was discussed in the GTW session.  *Agreements:*   * Option 1: When discussing the replacement of measCycleSCell, the principle “if the target cell has been measured less than X ms before the activation command, then no additional time for AGC is needed” should not be changed.   Principle in Option 1 is agreeable. Further discussion on exact text is required [and will be handled in Issue 1-1-2]  The agreement will be implicitly captured by specification updates for Issue 1-1-2. |
| **Issue 1-1-2** | **Replacement of measCycleSCell**  What to replace measCycleSCell with in requirements for direct activation of known SCell in NR FR1 was discussed in the GTW session.  *Agreements:*   * Replace condition on measCycleSCell as follows:   + TFirstSSB+ 5ms, if the measurement period is at most [1280]ms,   + TFirstSSB\_MAX + Trs + 5ms, if the measurement period is longer than [1280]ms.   The agreement is to be captured in a revision of draft CR R4-2104861 (Apple). |
| **Issue 1-1-3** | **Definition of known cell in Direct SCell activation**  The definition of known SCell in NR FR1 was discussed in the GTW session.  *Agreements:*   * The definition of know SCell in NR FR1 shall be based on the same definition in LTE:   + The Scell is known provided the following conditions are met for the Scell:     - During the last 5 seconds before the reception of the direct Scell configuration command:       * the UE has sent a valid measurement report for the Scell being directly activated or directly hibernated, and       * the Scell being directly activated or directly hibernated remains detectable according to the cell identification conditions specified in section 8.3.3.2,       * Scell being directly activated or directly hibernated also remains detectable during the Scell activation delay according to the cell identification conditions specified in section 8.3.3.2   + Otherwise, the Scell is unknown. * The wording shall be adapted to NR FR1. * The time during which conditions shall be fulfilled for cell to be considered to be known shall be left within brackets, e.g. [5] seconds.   Nokia to work with companies to adapt the wording to NR FR1. The outcome is to be captured in a revision of draft CR R4-2106388 (Nokia). |
| **Issue 1-2-1** | **Applicability of requirements for Direct SCell activation**  Applicability of requirements for direct SCell activation were discussed in the first round. Eight companies commented, where seven companies supported Option 1, and one company suggested and alternative way of essentially addressing the same issue. The latter has been added below as Option 2. Option 2 has support from a number of companies including the proponent of Option 1.  *Candidate options:*   * Option 1 (Huawei): Add the following condition to Direct Scell activation clauses:  The requirements in this clause do not apply if the RRC reconfiguration message is configured for PSCell addition or PSCell change and Scell being directly activated belongs to the SCG. * Option 2 (Nokia): Add a note that the scenario may lead to longer delay without going into the details of how long delay [when the RRC reconfiguration message is configured for PSCell addition or PSCell change and Scell being directly activated belongs to the SCG].   *Recommendations for 2nd round:*  Huawei to work with companies to agree on final wording. The outcome is to be captured in a revision of draft CR R4-2106993 (Huawei). |

## Discussion on 2nd round (if applicable)

### Sub-topic 1-2: Applicability of Direct SCell activation delay requirement

*Sub-topic description:*

One company is raising that activation delay requirements for Direct Scell activation in SCG shall only apply when the RRC reconfiguration message does not include addition or change of PSCell. The coverage of RAN4 requirements for Direct Scell activation in Rel-16 is as follows:

* Direct Scell activation at Scell addition
* Direct Scell activation at handover
* Direct Scell activation at RRC resume

*Open issues and candidate options for second round:*

**Issue 1-2-1: Applicability of requirements for Direct Scell activation**

* Proposals
  + Option 1 (Huawei): Add the following condition to Direct Scell activation clauses:   
    The requirements in this clause do not apply if the RRC reconfiguration message is configured for PSCell addition or PSCell change and Scell being directly activated belongs to the SCG.
  + Option 2 (Nokia): Add a note that the scenario may lead to longer delay without going into the details of how long delay when the RRC reconfiguration message is configured for PSCell addition or PSCell change and Scell being directly activated belongs to the SCG.
* Recommended WF
  + [Moderator:] Option 2 seems to be acceptable to the proponent of Option 1, and also to other companies that commented on the associated draft CR in the first round. Huawei to work with companies on final wording.

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| **Company** | **Comments** |
| Huawei | As discussed in the first round, we are fine with the wording of option 2.  In addition, based on the CR discussion in the first round, we suggest to remove the last part of the sentence “Scell being directly activated belongs to the SCG”. The reason is that even the SCell is in MCG, the UE still needs to do two actions, i.e. direct SCell activation and PSCell addition/change.  Based on above, we propose the wording as follows:  “The direct SCell activation delay can be longer than the requirements defined in this clause if the RRC reconfiguration message for direct SCell activation also configures PSCell addition or PSCell change.” |
| Apple | No significant difference between option 1 and option 2. We are fine with either one. HW’s suggestion looks good to us. |
| Ericsson | We are fine with Huawei’s proposal. |

### CRs/TPs comments collection

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| **CR/TP number** | **Comments collection** |
| R4-210xxxx  (revision of R4-2104861) | «CR for core requirement maintenance on direct SCell activation», Apple |
| Company A |
| Company B |
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| R4-210xxxx  (revision of R4-2106388) | «Draft CR Correction of activation delay for Direct activated Scell», Nokia, Nokia Shanghai Bell |
| Company A |
| Company B |
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| R4-210xxxx  (revision of R4-2106993) | «CR on direct SCell activation», Huawei, HiSilicon |
| Company A |
| Company B |
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# Topic #2: Test Cases

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2106995 | Huawei, HiSilicon | «Discussion on remaining issues for SCell dormancy tests»  **Proposal 1:** No need to introduce a new BWP configuration for dormant BWP. In the tests,   * BWP#1 parametrized by DLBWP.1.1 could be the non-dormant BWP, and * BWP#2 parametrized by DLBWP.1.2 could be the dormant BWP   **Proposal 2:** Leave the choice of scheduling/non-scheduling DCI to RAN5 or TE implementation. If RAN4 has to specify it, scheduling DCI is used.  **Proposal 3:** Introduce new CORESET RMC for 15kHz and 30kHz with PDCCH after the first 3 OFDM symbol.  Associated Draft CR R4-2106996 |

Draft CRs

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2106884 | Ericsson | «Draft Big CR 38.133: Introduction of Rel-16 MR-DC Direct SCell activation and SCell dormancy RRM performance requirements» |
| R4-2106996 | Huawei, HiSilicon | «draftCR on SCell dormancy TC»  See R4-2106995 |

## 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 2-1: Test cases for SCell Dormancy

*Sub-topic description:*

One company is proposing parameter values and configurations to be used for test cases in SCell dormancy.

* Dormant BWP configuration
* Usage of scheduling/non-scheduling DCI
* Definition of CORESET RMC for PDCCH received after initial 3 OFDM symbols

*Open issues and candidate options before e-meeting:*

**Issue 2-1-1: BWP configuration for Dormant BWP**

* Proposals
  + Option 1 (Huawei): No need to introduce a new BWP configuration for dormant BWP. In the tests,
    - BWP#1 parametrized by DLBWP.1.1 could be the non-dormant BWP, and
    - BWP#2 parametrized by DLBWP.1.2 could be the dormant BWP
* Recommended WF
  + Agree on the proposal.

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| --- | --- |
| **Company** | **Comments** |
| Vivo | We are ok with option 1 |
| Ericsson | Agree that no new BWP configuration is needed for dormant BWP. However, it is not clear to us why one should use DLBWP.1.1 for non-dormant and DLBWP.1.2 for Dormant BWP in test cases. But maybe this is just isolated to the single test case in the associated CR? |
| MTK | Support option 1 |
| Huawei | Support option 1  To Ericsson, using DLBWP.1.1 for non-dormant and DLBWP.1.2 for Dormant BWP is just one example, and it can be the other way around. We just need to make sure Dormant BWP and non-dormant BWP are based on different BWP RMCs. |
| Qualcomm | Okay with Option 1. |
| NEC | OK with the proposal |
| OPPO | Support option 1 |
| Moderator | All companies support that no new BWP configuration is needed for dormant BWP. Proponent has explained the principle to be used in test cases, i.e., use existing BWP configurations for non-dormant and dormant BWPs, but use different ones if one want to check   * No need to introduce a new BWP configuration for dormant BWP. |

**Issue 2-1-2: Scheduling/non-scheduling DCI in test cases**

* Proposals
  + Option 1 (Huawei): Leave the choice of scheduling/non-scheduling DCI to RAN5 or TE implementation. If RAN4 has to specify it, scheduling DCI is used.
* Recommended WF
  + Agree on the proposal.

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| **Company** | **Comments** |
| vivo | Ok with option 1 |
| Ericsson | Agree that we can leave the issue about scheduling/non-scheduling DCI to RAN5. |
| Huawei | Support option 1 |
| Qualcomm | If there is no technical concern on “using scheduling DCI”, we prefer to make an agreement on “scheduling DCI” based test instead of leaving it to RAN5. |
| OPPO | Option 1 is fine. |
| Moderator | One company proposes that RAN4 shall specify that “scheduling DCI” shall be used, whereas four companies think we can leave this for RAN5 to decide.  We can discuss this further in second round. |

**Issue 2-1-3: CORESET RMC with PDCCH after first 3 OFDM symbols**

* Proposals
  + Option 1 (Huawei): Introduce new CORESET RMC for 15kHz and 30kHz with PDCCH after the first 3 OFDM symbol.
* Recommended WF
  + Agree on the proposal.

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| **Company** | **Comments** |
| vivo | Ok with option 1 |
| Ericsson | Agree with Option 1. My just need to double-check that no other test cases are using existing RMCs under assumption of flexible position within a slot. |
| Huawei | Support option 1  To Ericsson, this is a good point. We understand there is no existing FR1 test case that assumes DCI after first 3 OS. For FR2, there already exists CCR.3.5 with DCI after first 3 OS, so there should be no problem. But please let us know if we missed something here. |
| Qualcomm | Okay with Option 1. |
| OPPO | Option 1 is fine. |
| Moderator | All five companies that have provided comments are supportive of Option 1.   * Introduce new CORESET RMC for 15kHz and 30kHz with PDCCH after the first 3 OFDM symbol. |

## Companies views’ collection for 1st round

### Open issues

*Please provide comments in the Open issues summary above.*

### 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** |
| R4-2106884 | «Draft Big CR 38.133: Introduction of Rel-16 MR-DC Direct SCell activation and SCell dormancy RRM performance requirements», Ericsson |
|  |
| R4-2106996 | «draftCR on SCell dormancy TC», Huawei, HiSilicon |
| Ericsson: OK in principle. Please double-check some details related to RMC, if not already done. See Issue 2-1-3. |
| Huawei: Please refer to our reply for issue 2-1-3. |

## 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.*

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| --- | --- |
|  | **Status summary** |
| **Issue 2-1-1** | **BWP configuration for Dormant BWP**  Seven companies have commented, and all seven are supportive of Option 1.  *Agreements:*   * No need to introduce a new BWP configuration for dormant BWP.   *Recommendations for 2nd round:*  No action identified for second round. Proposal is already captured in draft CR R4-2106996. |
| **Issue 2-1-2** | **Scheduling/non-scheduling DCI in test cases**  Five companies have commented. Four are supportive of Option 1, and one company is suggesting an alternative that is added below by Moderator as Option 2.  *Candidate options:*   * Option 1 (Huawei): Leave the choice of scheduling/non-scheduling DCI to RAN5 or TE implementation. If RAN4 has to specify it, scheduling DCI is used. * Option 2 (Qualcomm): Specify that scheduling DCI shall be used in test cases.   *Recommendations for 2nd round:*  Further discuss the issue during second round. Conclusion, if any, to be capture in WF. Further actions, if any, to be deferred to RAN4#99-e. |
| **Issue 2-1-3** | **CORESET RMC with PDCCH after first 3 OFDM symbols**  Five companies have commented, and all five are supportive of Option 1.  *Agreements:*   * Introduce new CORESET RMC for 15kHz and 30kHz with PDCCH after the first 3 OFDM symbol.   *Recommendations for 2nd round:*  No action identified for second round. Proposal is already captured in draft CR R4-2106996. |

## Discussion on 2nd round (if applicable)

### Sub-topic 2-1: Test cases for SCell Dormancy

*Sub-topic description:*

One company is proposing parameter values and configurations to be used for test cases in SCell dormancy.

* Dormant BWP configuration
* Usage of scheduling/non-scheduling DCI
* Definition of CORESET RMC for PDCCH received after initial 3 OFDM symbols

*Open issues and candidate options for second round:*

**Issue 2-1-2: Scheduling/non-scheduling DCI in test cases**

* Proposals
  + Option 1 (Huawei): Leave the choice of scheduling/non-scheduling DCI to RAN5 or TE implementation. If RAN4 has to specify it, scheduling DCI is used.
  + Option 2 (Qualcomm): Specify that scheduling DCI shall be used in test cases.
* Recommended WF
  + [Moderator:] Discuss further during second round. Outcome to be captured in WF. Actions following upon the agreement, if any, to be deferred to RAN4#99-e.

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| **Company** | **Comments** |
| Huawei | We think it can be left to RAN5, but if other companies have strong preference to define it in RAN4, we are also fine to go with option 2. |
| Apple | No strong view. Both options can work. |
| Ericsson | We also think it can be left to RAN5, but we do not have a strong view. |
| vivo | We still prefer to left it to RAN5 although we don’t have a strong view either. |

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
| WF on maintenance of Direct SCell activation and SCell dormancy | Ericsson | For capturing outstanding issues, if any, for core and performance parts in LTE\_NR\_DC\_CA\_RRM\_2 |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-2104861 | CR for core requirement maintenance on direct SCell activation | Apple | ***Revised*** | Revise to take outcome of Issue 1-1-2 into account. |
| R4-2106388 | Draft CR Correction of activation delay for Direct activated Scell | Nokia, Nokia Shanghai Bell | ***Revised*** | Revise to take outcome of Issue 1-1-3 into account. |
| R4-2106993 | CR on direct SCell activation | Huawei, HiSilicon | ***Revised*** | Revise to take outcome of Issue 1-2-1 into account. |
| R4-2106994 | CR on SCell dormancy requirements | Huawei, HiSilicon | ***Agreeable*** |  |
| R4-2106884 | Draft Big CR 38.133: Introduction of Rel-16 MR-DC Direct SCell activation and SCell dormancy RRM performance requirements | Ericsson | ***Revised*** | Revise to take R4-2106996 into account |
| R4-2106996 | draftCR on SCell dormancy TC | Huawei, HiSilicon | ***Agreeable*** |  |

## 2nd round

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-210xxxx | WF on maintenance of Direct SCell activation and SCell dormancy | Ericsson |  |  |
| R4-210xxxx  (revision of R4-2104861) | CR for core requirement maintenance on direct SCell activation | Apple |  |  |
| R4-210xxxx  (revision of R4-2106388) | Draft CR Correction of activation delay for Direct activated Scell | Nokia, Nokia Shanghai Bell |  |  |
| R4-210xxxx  (revision of R4-2106993) | CR on direct SCell activation | Huawei, HiSilicon |  |  |
| R4-2106994 | CR on SCell dormancy requirements | Huawei, HiSilicon | ***Agreeable*** |  |
| R4-210xxxx  (revision of R4-2106884) | Draft Big CR 38.133: Introduction of Rel-16 MR-DC Direct SCell activation and SCell dormancy RRM performance requirements | Ericsson |  |  |
| R4-2106996 | draftCR on SCell dormancy TC | Huawei, HiSilicon | ***Agreeable*** |  |

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