[98-bis-e][211] NR_RRM_Enh_3_NWM - Version 0.0.6
RAN4

3GPP TSG-RAN4 Meeting
#98bis-e **R4-2105813**

Online, 12 – 20 April, 2021

Agenda item: 5.6

Source: Moderator (Apple)

Title: Email discussion summary for [98-bis-e][211] NR_RRM_Enh_3_NWM

Document for: Information

1 Introduction

This email discussion summary includes relevant papers in 5.6.1, and test cases in 5.6.2.2.2, 5.6.2.2.5, 5.6.2.2.7, and 5.6.2.2.9. The scope in this agenda includes followings:

- Multiple Scell activation/deactivation

- Inter-frequency measurement requirement without MG

- UE-specific CBW change

- Inter-band CA requirement for FR2 UE measurement capability of independent Rx beam

2 Topic #1: RRM core requirements maintenance (5.6.1)

2.1 Companies' contributions summary

Table 1: Companies' contributions

T-doc number	**Title**	**Company**
R4-2105137	draftCR on TS38.133 for inter-freq meas without gap	Ericsson, MediaTek
R4-2106933	CR on the measurement requirements of needforgap	Huawei, HiSilicon
R4-2107021	Discussion on remaining issues in multiple SCell activation	Huawei, HiSilicon

R4-2107022	CR on remaining issues in multiple SCell activation	Huawei, HiSilicon
R4-2107287	Maintenance on FR1 SCell Activation	Qualcomm Incorporated

2.2 Open issues summary

2.2.1 Sub-topic 1-1: Inter-frequency measurement without MG

Issue 1-1: add conditions for SSB-based inter-frequency measurement object with measurement gap

Proposals:

Option 1 (Ericsson, MediaTek): SSB-based inter-frequency measurement object with measurement gap in clause 9.3.4:

- Including inter-frequency measurement with no measurement gap, when all of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network.

- Including inter-frequency measurement with no measurement gap, when part of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network, but it is not a CA capable UE.

1st round Comment collection:

Feedback Form 1: 1st round Comment collection for Issue 1-1

Item	Company	Comments
1	Apple Poland Sp. z.o.o.	Following case is missing in option 1: • Including inter-frequency measurement with no measurement gap, when part of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* but the flag *interFrequencyConfig-NoGap-r16* is not configured by the network We propose an Option 1a: SSB-based inter-frequency measurement object with measurement gap in clause 9.3.4. • Including inter-frequency measurement with no measurement gap, when all of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network. • Including inter-frequency measurement with no measurement gap, when part of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network, but it is not a CA capable UE. • Including inter-frequency measurement with no measurement gap, when part of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* but the flag *interFrequencyConfig-NoGap-r16* is not configured by the network
2	Huawei Technologies France	We doult when all of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, whether the flag *interFrequencyConfig-NoGap-r16* is needed or not.
3	Qualcomm Incorporated	Support option 1 and apple's comment on missing case. When all of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, measurement gap is used regardless of *interFrequencyConfig-NoGap-r16* flag.

Item	Company	Comments
4	Nokia Corporation	Related to the 9.1.2.1a change we have 2 questions for clarification: Original text: 'when SMTC configured for inter-frequency measurement are fully overlapping with per-UE measurement gaps' New Text: 'when all of SMTC configured for inter-frequency measurement with no measurement gap are fully overlapping with per-UE measurement gaps' Question 1: Doesn't this change led to that the original requirements are changed (no longer present) and how is the original requirement now to be captured? (hence, original text which should cover when inter-f measurements are configured with gaps?) Question 2: why 'all' SMTC occasions condition?
5	Ericsson Japan K.K.	We're fine with Apple's suggestion. To HW, To consider forward compatibility, it's better to clarify the inter-freq wo gap scenario because we may introduce several gapless meas. soon, such as 'NeedForGap', 'NCSG' etc. To Nokia, Q1, all the legacy **inter-freq meas. with gap** had already captured in the wording: when UE requires measurement gaps to identify and measure cells on inter-frequency carriers for both SSB and CSI-RS based L3 measurement; 'when all of SMTC configured for inter-frequency measurement with no measurement gap are fully overlapping with per-UE measurement gaps' only capture for a specific scenario in '**inter-freq wo gap**'. Basically, inter-freq wo gap meas. won't need gap, but this is a special case which it still needs gap. So it shall be considered in gap sharing. Q2, This is a special case. If only partial of SMTC overlapping with gap, then inter-freq wo gap will be measured outside gap. Only all of SMTC are fully overlapped with gaps, inter-freq wo gap will be measured within the gap.
6	China Mobile Com. Corporation	OK with Apple's option 1a.
7	Guangdong OPPO Mobile Telecom.	OK with Apple's option 1a. But also think measurement gap is used regardless of *interFrequencyConfig-NoGap-r16* flag when all of the SMTC occasions are overlapped by the measurement gap.

2.2.2 Sub-topic 1-2: Maintenance of R16 multiple SCell activation requirement

Issue 1-2-1: Condition of SMTC configuration to apply multiple SCell activation requirement

Proposals:

Option 1 (Huawei): Multiple SCell activation requirements apply provided that SMTC offset is

same

- for all SCells activated by the same MAC CE if UE does not support per FR gap, or

- for all SCells activated by the same MAC CE in each FR if UE supports per FR gap

1st round Comment collection:

Feedback Form 2: 1st round Comment collection for Issue 1-2-1

Item	Company	Comments
1	Apple Poland Sp. z.o.o.	[Apple]: Support option 1.
2	Nokia Corporation	We do not see this CR needed and cannot agree to Option 1 (we assume based on proposal 1 in the discussion paper). The reason for this is that, the problems listed as reasoning for this network configuration restriction could be handled by good UE implementation as we see it. Additionally, we do not see this restriction as being necessary as a general restriction for any UE requirements to apply. The possible negative impact from such limitation compared to the potential additional delay in this one case scenario does not seem to justify the proposal. The SCells can be activated no matter the SMTC configuration without breaking the anything - although delay may be prolonged. Anyway – proposal is not clear based on the discussion paper. More discussion needed.
3	Ericsson Japan K.K.	We think this additional condition will overkill lots of valid scenarios. For example, in FR2, when there is an active serving cell, all the to-be-activated SCells doesn't need AGC, so there is no issue on interruption. Another example is even two SCells have different SMTC offset, they may still overlap in some SSB occasions, such as one SMTC {periodicity, offset} = {40, 20}, another is {160, 60}. Thus, we suggest to further discussion the possible conditions to solve the interruption and AGC issue.
4	MediaTek Inc.	Agree with Option 1 for the simplicity.

Item	Company	Comments
5	HuaWei Technologies Co., Ltd	We support option 1. To Nokia, it was agreed in R4-2008994 that Single interruption due to RF tuning/retuning shall be assumed when one single MAC CE command is received for multiple SCell activation, so we understand this should be taken as the assumptino for UE requirements. After UE turns on the RF on the to-be-activated SCells, when SMTC on those cells are not aligned, there will be interruption due to improper gain setting to the active serving cell in the same band as the to-be-activated SCell which requires AGC. So the problem not the longer activation delay, but the additonal interruptions which is not accounted in the current requirements. The current delay and interuption requirements are not consistent. To Ericsson, we are open to discuss the scenarios where SMTC alignment is not needed, and we look forward to better wordings to capture them. We think the first example you gave above (FR2 case) is valid, but the second example may not be alwasy valid as it depends on when NW sends the activation command.
6	Qualcomm Incorporated	Option 1.
7	NEC Corporation	We do not see the need for this restriction for the applicability of the requirements.
8	Guangdong OPPO Mobile Telecom.	Agree with Huawei's proposal in principle.

Issue 1-2-2: Condition of SSB offset to apply SCell activation requirement without cell detection

Proposals:

Option 1 (Huawei): For scenarios where UE is not assumed to perform cell detection on the target SCell, the SCell activation requirements apply provided that SSB is in the same half frame on the target SCell and the active or known serving cell.

1st round Comment collection:

Feedback Form 3: 1st round Comment collection for Issue 1-2-2

Item	Company	Comments
1	Apple Poland Sp. z.o.o.	[Apple]: Support option 1.

Item	Company	Comments
2	Nokia Corporation	Regarding the Option 1 proposal we have a question for clarification: if the SMTC is not in the same half frame, what would be the impact on the activation delay? In general RAN4 should define requirements and hence identify the additional impact/delay and define requirements for the case instead of continue to add network configuration restrictions. If RAN4 cannot define the requirements within Rel-16 it should just remain as unspecified without restrictions.
3	MediaTek Inc.	support option 1. If the offset beyond the same half frame, than longer delay is expected.
4	HuaWei Technologies Co., Ltd	We support option 1. To Nokia, based on current requirements, UE is assumed to perform fine time tracking on the SSB after receving the activation command. If SSB is not in the same half frame, UE will fail the fine time tracking, and depending on UE implementation it may start detecting the SSB again, or it may just abort the activation, or it can do something else. We think this should be considered as an error case, since UE is just following the requirements (to do fine time tracking), and as such no requirements should be defined.
5	Qualcomm Incorporated	Option 1.
6	Guangdong OPPO Mobile Telecom.	Option 1 is fine. If SSB is not in the same half frame, then up to UE implementation and no requirements are required for UE.

Issue 1-2-3: FR1 SSB-less SCell activation

Proposals

Option 1 (QC): For FR1 SSB-less single SCell activation, RAN4 to adopt the following requirement and implement it in Rel-16 spec and the requirement will be propagated to multiple FR1 SCell activation case:

-If the SCell being activated belongs to FR1 and if there is at least one active serving cell contiguous to the SCell on that FR1 band, if the UE supporting *scellWithoutSSB* is not provided with any SSB configuration (*absoluteFrequencySSB*) nor SMTC for the target SCell, $T_{activation_time}$ is 3 ms, provided:

–the RS(s) of SCell being activated is (are) QCL-TypeA with TRS(s) of the SCell being activated and the TRS(s) is (are) QCL-TypeC with SSB(s) of one active serving cell contiguous to the SCell being activated on that FR1 band, and

–its RTD with the contiguous active serving cell is smaller than or equal to 260ns, and

–its reception power difference with the contiguous active serving cell is smaller than or equal to 6dB.

Recommended WF:

Moderator suggestion: this is an issue from last meeting discussion in R15 maintenance but not in the scope of R16 eRRM WI. It's better to discuss it in TEI-16 next meeting and then extend to multiple SCell activation scenario. But companies' views/comments are still welcome in this meeting.

1st round Comment collection:

Feedback Form 4: 1st round Comment collection for Issue 1-2-3

Item	Company	Comments
1	Apple Poland Sp. z.o.o.	[Apple]: Agree with recommended WF. Technically, we think it's sufficient to only specify this by-default assumption in RAN4, but we are open to further discuss.
2	Apple Poland Sp. z.o.o.	[Apple -2]: the 1st comment from Apple is mis-placed, following is the comments to this issue: Agree with recommended WF.
3	Nokia Corporation	We can initiate discussion among companies as time allows (which may be limited). As a start we have 2 clarifying questions: • We are a bit wondering how the condition on RTD is to be understood? • Additionally, the power offset is more an RF requirements than RRM requirement?
4	Ericsson Japan K.K.	Agree with recommended WF. Technically, we're fine with this proposal.
5	MediaTek Inc.	Agree with recommended WF.
6	HuaWei Technologies Co., Ltd	Agree with recommended WF. The proposal is aligned with the disucssion in last meeting. We will take it into account for disucssion in the next meeting.
7	Qualcomm Incorporated	To Nokia: RTD and power difference were agreed in the last RAN4 meeting. Please see below: **Email discussion: [98e][201] NR*NewRAT*RRM_Core** **Issue 2-2-1: Condition and requirements for SSB-less SCell activation for FR1** Agreements • Reception power difference with the contiguous active serving cell is smaller than or equal to 6dB • RTD is smaller than or equal to 260ns

Item	Company	Comments
8	NEC Corporation	Agree with the recommended WF. Since this topic was discussed in last meeting under Rel-15 maintenance, and the same is not going to be treated in this meeting, companies may not have looked at it in this meeting. We prefer discussing this in next meting.
9	Guangdong OPPO Mobile Telecom.	Agree with the recommended WF.

Issue 1-2-4: FR1 SMTC-less SCell activation

Proposals

Option 1 (QC):

RAN4 to send an LS to RAN2 to request to add a default UE assumption on SMTC periodicity for the configured SCell that makes the following assumption captured only in RAN4 spec universal throughout all NR specifications.

"If the UE is not provided SMTC configuration or measurement object on this frequency, the requirement which involves Trs is applied with Trs = 5ms assuming the SSB transmission periodicity is 5ms."

Recommended WF

Moderator suggestion: this is an issue from last meeting discussion in R15 maintenance but not in the scope of R16 eRRM WI. It's better to discuss it in TEI-16 next meeting and then extend to multiple SCell activation scenario. But companies' views/comments are still welcome in this meeting.

1st round Comment collection:

Feedback Form 5: 1st round Comment collection for Issue 1-2-4

Item	Company	Comments
1	Apple Poland Sp. z.o.o.	[Apple]: Agree with recommended WF. Technically, we think it's sufficient to only specify this by-default assumption in RAN4, but we are open to further discuss.
2	Nokia Corporation	The 5ms SSB repetition assumption is from RAN1 and I believe already captured in RAN2 specification. Based on this it is not clear if an LS is needed.
3	Ericsson Japan K.K.	Agree with Apple and Nokia. It is not clear to send an LS.

Item	Company	Comments
4	MediaTek Inc.	Agree with recommended WF. Also the LS seems not necessary.
5	HuaWei Technologies Co., Ltd	Agree with recommended WF. Since the issue is about the applicable requirement and its condition but not the applicable configuration, should it be enough to keep it in RAN4? We are also open to hear other views.
6	Qualcomm Incorporated	Thanks Nokia. Would you please point us to the specific section where we can find the 5msec assumption in RAN2 spec? We're still a bit unsure then why the assumption is mentioned in RAN4 spec in the first place even though it is stated in RAN2 spec. If the assumption is clearly stated, we can of course withdraw the proposal.

Issue 1-2-5: TCI activation for unknown SCell in FR1

Proposals

Option 1 (QC):

For FR1 unknown SCell activation, RAN4 to adopt the following requirement in principle and the detailed wording can be further refined in corresponding Rel-16 CR. And the corresponding requirements for multiple FR1 SCell activation will be developed based on the same principle:

For FR1 unknown SCell activation, when 'ssb-PositionInBurst' indicates multiple SSBs and TCI indication is not provided in same MAC PDU with SCell activation,

- If semi-persistent CSI-RS is used for CSI reporting

$$T_{activation_time} = 6ms + T_{FirstSSB_MAX} + T_{SMTC_MAX} + T_{rs} + T_{L1-RSRP,measure} + T_{L1-RSRP,report} + T_{HARQ} + \max\left(T_{u}\right.$$

Formula 1: If semi-persistent CSI-RS is used for CSI reporting

- If periodic CSI-RS is used for CSI reporting

$$T_{activation_time} = 3ms + T_{FirstSSB_MAX} + T_{SMTC_MAX} + T_{rs} + T_{L1-RSRP,measure} + T_{L1-RSRP,report} + T_{HARQ} + \max\left[T_{u}\right.$$

Formula 2: If periodic CSI-RS is used for CSI reporting

Recommended WF

Moderator suggestion: this issue is a single SCell activation clarification but not a topic in the scope

of R16 eRRM WI. It's better to discuss it in TEI-16 next meeting and then extend to multiple SCell activation scenario. But companies' views/comments are still welcome in this meeting.

1st round Comment collection:

Feedback Form 6: 1st round Comment collection for issue 1-2-5

Item	Company	Comments
1	Apple Poland Sp. z.o.o.	[Apple]: Agree with recommended WF. Technically we may need to clarify that network configures/triggers this SSB or CSI-RS based L1-RSRP to UE before or during the activation.
2	Nokia Corporation	One initial comment from our side: Currently the UE requirements are defined as: The requirements for FR1 unknown SCell activation specified in this clause apply when one of the following conditions is met - 'ssb-PositionInBurst' indicates only one SSB is being actually transmitted, or - 'ssb-PositionInBurst' indicates multiple SSBs and TCI indication is provided in same MAC PDU with SCell activation. As NR FR1 is based on the assumption that UE is receiving in an omni-directional manner there should be no need for UE to perform additional L1-RSRP measurements as in FR2.
3	Ericsson Japan K.K.	Agree with recommended WF. We can discuss it in R15. Technically, we're fine with this proposal.
4	MediaTek Inc.	This TCI would be needed not for RX beam but for TX beam (ssb coverage). E.g. NW may select on SSB to transmit but actually UE is not of the coverage. Fine with recommended WF.
5	HuaWei Technologies Co., Ltd	Agree with recommended WF. In general, it is fine to define requirements for case mentioned, but we would need more time to check as this proposal has implications to both NW and UE.
6	Qualcomm Incorporated	To Nokia, the question about "omni-directional" is I think answered by MTK above. UE still needs TCI association between signals and channels even in FR1. To Apple, in our understanding, the proposal is not really different from how it is defined for FR2. Would you please be more specific?
7	NEC Corporation	We can discuss this in next meeting as companies may not have looked at it in this meeting.
8	Apple Poland Sp. z.o.o.	To Qualcomm, yes, that's a common point for both FR1 and FR2. the configuration of L1-RSRP measurement/report and the L1-RSRP RS is not clear in the spec yet, technically we think the measurement/reporting/RS-type shall be configured during the SCell addition before the activation, but may need to check with other companies.

2.3 Companies views' collection on CRs for 1st round

R4-2105137: draftCR on TS38.133 for inter-freq meas without gap (Ericsson, MediaTek)

1st round Comment collection:

Feedback Form 7: 1st round Comment collection for CR R4-2105137

Item	Company	Comments
1	Nokia Corporation	Based on the comments to the discussion we would need further clarification to the wording of this CR.
2	Ericsson Japan K.K.	Already feedback in sub-topic 1-1

R4-2106933:CR on the measurement requirements of needforgap (Huawei, HiSilicon)

1st round Comment collection:

Feedback Form 8: 1st round Comment collection for CR R4-2106933

Item	Company	Comments
1	Qualcomm Incorporated	The interruption related to needforgap signaling should be discussed in R17 gap enhancement WI
2	Nokia Corporation	At least two aspects raise our concern on this CR: o Our understanding is that the if the UE indicates that it can perform the measurements without gaps this means no gaps and no interrupts. If this is not possible the UE shall just indicate that gaps are needed. o For the inter-frequency scenario, this now seem to introduce what is covered by NCSG discussion in Rel-17. The LTE NCSG was introduced to address these possible interrupts caused by the UE when using a 2nd receiver for performing the inter-frequency measurements. Based on these concerns we cannot currently agree to this CR.

Item	Company	Comments
3	Ericsson Japan K.K.	We share the same view as Nokia. • 'No gap' means no gap and no interruption; • 'NCSG' means no gap but with interruption From our understanding, 'NeedForGap' UE behaviour(use an additional RF chain) is different with inter-freq wo gap(meas. SSB in active BWP). 'NeedForGap' can support inter-band meas. wo gap but 'inter-freq wo gap' only support gapless meas. in the same band. RAN4 never discuss the detail UE behaviour for 'NeedForGap'. Thus, we suggest to discuss it in R16 TEI other than inter-freq wo gap.

R4-2107022: CR on remaining issues in multiple SCell activation (Huawei, HiSilicon)

1st round Comment collection:

Feedback Form 9: 1st round Comment collection for CR R4-2107022

Item	Company	Comments
1	Nokia Corporation	We have commented the discussion and this CR reflects the proposals in the discussion paper. Hence, this CR is not agreeable at this point.

2.4 Summary for 1st round

2.4.1 Sub-topic 1-1: Inter-frequency measurement without MG

Issue 1-1: add conditions for SSB-based inter-frequency measurement object with measurement gap

Tentative agreements:

Candidate options:

Option 1a (Apple, QC, Ericsson, CMCC, OPPO): SSB-based inter-frequency measurement object with measurement gap in clause 9.3.4:

-Including inter-frequency measurement with no measurement gap, when all of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network..

-Including inter-frequency measurement with no measurement gap, when part of the SMTC occasions of this inter-frequency measure-ment object are overlapped by the measurement gap, if UE

sup-ports *interFrequencyMeas-NoGap-r16* and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network, but it is not a CA capable UE.

-Including inter-frequency measurement with no measurement gap, when part of the SMTC occasions of this inter-frequency measure-ment object are overlapped by the measurement gap, if UE sup-ports *interFrequencyMeas-NoGap-r16* but the flag *interFrequencyConfig-NoGap-r16* is not configured by the network

Option 1b (Apple, QC, OPPO): SSB-based inter-frequency measurement object with measurement gap in clause 9.3.4:

-Including inter-frequency measurement with no measurement gap, when all of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* ~~and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network~~.

-Including inter-frequency measurement with no measurement gap, when part of the SMTC occasions of this inter-frequency measure-ment object are overlapped by the measurement gap, if UE sup-ports *interFrequencyMeas-NoGap-r16* and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network, but it is not a CA capable UE.

-Including inter-frequency measurement with no measurement gap, when part of the SMTC occasions of this inter-frequency measure-ment object are overlapped by the measurement gap, if UE sup-ports *interFrequencyMeas-NoGap-r16* but the flag *interFrequencyConfig-NoGap-r16* is not configured by the network

Recommendations for 2nd round:

Continue discussion if option 1a or 1b is agreeable. The agreement would be captured in revised MTK's CR.

2.4.2 Sub-topic 1-2: Maintenance of R16 multiple SCell activation requirement

Issue 1-2-1: Condition of SMTC configuration to apply multiple SCell activation requirement

Tentative agreements: *5 companies support option 1 but 3 companies have comments and question about option 1.*

Candidate options:

Option 1 (Huawei, Apple, MTK, QC, OPPO): Multiple SCell activation requirements apply provided that SMTC offset is same

- for all SCells activated by the same MAC CE if UE does not support per FR gap, or

- for all SCells activated by the same MAC CE in each FR if UE supports per FR gap

Recommendations for 2nd round:

Continue discussion if option 1 is agreeable. The agreement would be captured in revised Huawei's

CR

Issue 1-2-2: Condition of SSB offset to apply SCell activation requirement without cell detection

Tentative agreements: *5 companies support option 1 but 1 company has comments and question about option 1.*

Candidate options:

Option 1 (Huawei, Apple, MTK, QC, OPPO): For scenarios where UE is not assumed to perform cell detection on the target SCell, the SCell activation requirements apply provided that SSB is in the same half frame on the target SCell and the active or known serving cell.

Recommendations for 2nd round:

Continue discussion if option 1 is agreeable. The agreement would be captured in revised Huawei's CR

Issue 1-2-3: FR1 SSB-less SCell activation

Tentative agreements: this is an issue from last meeting discussion in R15 maintenance but not in the scope of R16 eRRM WI. If needed, RAN4 can discuss it in TEI-16 next meeting and then extend to multiple SCell activation scenario.

Candidate options:

Recommendations for 2nd round: This issue is closed

Issue 1-2-4: FR1 SMTC-less SCell activation

Tentative agreements: this is an issue from last meeting discussion in R15 maintenance but not in the scope of R16 eRRM WI. If needed, RAN4 can discuss it in TEI-16 next meeting and then extend to multiple SCell activation scenario.

Candidate options:

Recommendations for 2nd round: This issue is closed

Issue 1-2-5: TCI activation for unknown SCell in FR1

Tentative agreements: this issue is a single SCell activation clarification but not a topic in the scope of R16 eRRM WI. If needed, RAN4 can discuss it in TEI-16 next meeting and then extend to multiple SCell activation scenario.

Candidate options:

Recommendations for 2nd round: This issue is closed

2.5 Discussion on 2nd round (if applicable)

Issue 1-1: add conditions for SSB-based inter-frequency measurement object with measurement gap

Feedback Form 10: 2nd round comment for issue 1-1

Item	Company	Comments
1	Qualcomm Incorporated	Support option 1b, it covers all the cases.
2	Nokia Corporation	We support Option 1a. Thank you, Ericsson, for the further clarifications. We are fine with the original CR from MTK and Ericsson and we also agree that the additional clarification from Apple is needed to clarify the UE behaviour for when the *interFrequencyConfig-NoGap-r16* is not configured by the network but the UE support *interFrequencyMeas-NoGap-r16.* To address the removal of the underlined line further: Including inter-frequency measurement with no measurement gap, when all of the SMTC occasions of this inter-frequency measurement object are overlapped by the measurement gap, if UE supports *interFrequencyMeas-NoGap-r16* <u>and the flag *interFrequencyConfig-NoGap-r16* is configured by the Network</u>. We can agree to remove it, but we then suggest making a note which states that in this case the network indication has no impact and all the measurements related to inter- frequency measurements with no gaps are performed within the allocated measurement gaps because of the fully overlap. This would then help making the specification clearer for future reading.

Issue 1-2-1: Condition of SMTC configuration to apply multiple SCell activation requirement

Feedback Form 11: 2nd round comment for issue 1-2-1

Item	Company	Comments
1	Nokia Corporation	For this case we still need to discuss the detailed conditions. We agree with the comments from Ericsson as well and we need to make sure that we do not define minimum requirements based on corner cases. E.g. for the case described '*This means the RF is also re-tuned for SCell2, and if there exists an active serving cell in the same band as SCell2, that serving cell would be interrupted during the time period of T-delta, due to improper gain setting and no opportunity for AGC*' For FR2 CA we assume colocation and we do not expect any need for additional retuning due to AGC. Hence, we are maybe only looking at FR1 cases. Here we then need to consider CA assumptions for FR1 and how large DL power difference is assumed in RF. As for the related CR (7022) we believe the changes related to this discussion still needs to be discussed more in details.
2	HuaWei Technologies Co., Ltd	We can further discuss this issue in mext meeting.

Issue 1-2-2: Condition of SSB offset to apply SCell activation requirement without cell detection

Feedback Form 12: 2nd round comment for issue 1-2-2

Item	Company	Comments
1	Nokia Corporation	Thank you, Huawei, for the additional clarification. We understand the issue and we can agree to capture the UE requirements for this scenario. Looking at the revised CR we have a couple of clarifications: - Our understanding is that when there is already one active cell in the same band the activated SCell is known. - In the FR1 related text it states 'the contiguous FR1 known cell or contiguous FR1 active serving cell' it is not clear what the contiguous FR1 known cell covers. We can continue to discuss the detailed CR wording based on the revised version on the ftp server.
2	HuaWei Technologies Co., Ltd	We provided a revised CR on this issue

2.6 Summary on 2nd round (if applicable)

3 Topic #2: TCs of multiple Scell activation/deactivation (5.6.2.2.2)

3.1 Companies' contributions summary

Table 2: Companies' contributions

T-doc number	Title	Company
R4-2107288	Test cases with OTA testability	Qualcomm Incorporated

3.2 Open issues summary

3.2.1 Sub-topic 2-1 Test cases with OTA testability

Issue 2-1: Test cases with OTA testability

Proposals

Option 1 (QC): For the following RRM test cases, RAN4 to add a note that E-UTRAN and FR1 NR performance should not influence test results until the testability issue is addressed:

- The below LTE + FR2 test cases verify interruption requirements on E-UTRAN PCell

– A.5.5.2.3 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in synchronous EN-DC

– A.5.5.2.4 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC

– A.5.5.2.5 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC

– A.5.5.2.6 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC

– A.5.5.3.1 SCell Activation and deactivation of SCell in FR2 intra-band

– A.5.5.3.2 SCell Activation and deactivation of known SCell in FR1 for 160ms SCell measurement cycle

– A.5.5.3.5 SCell Activation and deactivation of SCell in FR2

– A.5.5.6.1.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC

– A.5.5.6.1.2 E-UTRAN – NR PSCell FR2 DL active BWP switch with FR2 SCell in non-DRX in synchronous EN-DC

- The below FR1 + FR2 test case verifies interruption requirement on FR1 Cell

– A.7.5.3.2 SCell Activation and deactivation for FR1+FR2 inter-band with target SCell in FR2

- The below FR1 + FR2 test case verifies latency requirement on FR1 Cell

– A.7.5.6.1.2 NR FR1-NR FR2 DL active BWP switch of PCell with non-DRX in SA

Recommended WF

Moderator suggestion: this is a generic testability issue for all related RRM scenarios but not for multiple SCell activation test only. It shall be discussed in a generic AI, e.g., TEI-16, in next meeting. But companies' views/comments are still welcome in this meeting.

1st round Comment collection:

Feedback Form 13: 1st round Comment collection for Issue 2-1

Item	Company	Comments
1	Apple Poland Sp. z.o.o.	[Apple]: Agree with recommended WF. Technically we are fine with the motivation.
2	Ericsson Japan K.K.	Agree with recommended WF. Technically we are fine with the motivation.
3	HuaWei Technologies Co., Ltd	Agree with recommended WF.
4	Qualcomm Incorporated	Thanks. We can bring a CR with the list of test cases above to May meeting. If there is any specific request/suggestion, it will be appreciated.

3.3 Companies views' collection on CRs for 1st round

3.4 Summary for 1st round

3.4.1 Sub-topic 2-1 Test cases with OTA testability

Issue 2-1: Test cases with OTA testability

Tentative agreements: this is a generic testability issue for all related RRM scenarios but not for multiple SCell activation test only. It shall be discussed in a generic AI, e.g., TEI-16, in next meeting.

Candidate options:

Recommendations for 2nd round: This issue is closed.

3.5 Discussion on 2nd round (if applicable)

3.6 Summary on 2nd round (if applicable)

4 Recommendations for Tdocs

4.1 1st round

New tdocs

Existing tdocs

Table 3: CR status after 1st round

Tdoc number	Title	Source	Recommendation	Comments
R4-2105137	draftCR on TS38.133 for inter-freq meas without gap	Ericsson, MediaTek	Revised	
R4-2106933	CR on the measurement requirements of needforgap	Huawei, HiSilicon	Revised	
R4-2107022	CR on remaining issues in multiple SCell activation	Huawei, HiSilicon	Revised	

4.2 2nd round

Table 4: CR status after 2nd round

Tdoc number	**Title**	**Source**	**Recommendation**	**Comments**
R4-2105766	draftCR on TS38.133 for inter-freq meas without gap	*Ericsson, MediaTek*	Agreeable	revised from R4-2105137

R4-2105767	CR on the measurement requirements of needforgap	*Huawei, HiSilicon*	Postponed	revised from R4-2106933
R4-2105768	CR on remaining issues in multiple SCell activation	*Huawei, HiSilicon*	Agreeable	revised from R4-2107022

Notes:

Please include the summary of recommendations for all tdocs across all sub-topics.

For the Recommendation column please include one of the following:

CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued

Other documents: Agreeable, Revised, Noted

Do not include hyper-links in the documents