

[102-e][206] Maintenance_NR_CSIRS_L3meas_NWM - Version 0.0.3
RAN4

3GPP TSG-RAN WG4 Meeting # 102-e R4-2206749

Electronic Meeting, February 21 – March 3, 2022

Agenda item: 5.1.4

Source: Moderator (CATT)

Title: Email discussion summary for [102-e][206] Maintenance_NR_CSIRS_L3meas_NWM

Document for: Information

1 Introduction

The document includes the discussions in agenda item 5.1.4 which contains the following topic:

- Topic #1: CSI-RS based L3 RRM requirements maintenance

2 RRM requirements maintenance

2.1 Companies' contributions summary

Table 1: Companies' contributions summary

T-doc number	Company	Proposals / Observations
R4-2204708	Nokia, Nokia Shanghai Bell	Proposal 1: We support Option 1 but can compromise to Option 2. Proposal 2: Clarify the UE behavior in the specification e.g. capturing the agreeable option as a note in TS 38.133 section 9.10.2.4 and 9.10.3.4.
R4-2204709	Nokia, Nokia Shanghai Bell	Draft CR
R4-2204710	Nokia, Nokia Shanghai Bell	Cat A

R4-2205359	Huawei, HiSilicon	Proposal: If timing offset exceeds the single FFT threshold, UE is not required to report CSI-RS based L3 measurements. If UE reports CSI-RS based L3 measurement, then the UE may not meet CSI-RS based L3 measurement reporting requirements in TS 38.133 section 9.10.2.4 and 9.10.3.4 based on the accuracy requirements for the case when the timing offset is below the threshold with single FFT assumption.
R4-2205360	Huawei, HiSilicon	Draft CR
R4-2205361	Huawei, HiSilicon	Cat A
R4-2205655	Apple	CR on UE capability of CSI-SR L3 measurement
R4-2205656	Apple	Cat A

2.2 Open issues summary

2.2.1 UE behavior when the timing offset exceeds the threshold with single FFT

Issue 1-1-1 UE behavior when the timing offset exceeds the threshold with single FFT assumption

Proposals

- Option 1: (Nokia)
 - UE is not required to report CSI-RS based L3 measurements. If UE reports CSI-RS based L3 measurement, then the UE **shall meet** CSI-RS based L3 measurement reporting requirements in TS 38.133 section 9.10.2.4 and 9.10.3.4 based on the accuracy requirements for the case when the timing offset is below the threshold
 - Do not define test cases to verify UE behavior for the case when the timing offset is above the threshold
- Option 2: (Nokia, Huawei)
 - UE is not required to report CSI-RS based L3 measurements. If UE reports CSI-RS based L3 measurement, then the UE **may not meet** CSI-RS based L3 measurement reporting

requirements in TS 38.133 section 9.10.2.4 and 9.10.3.4 based on the accuracy requirements for the case when the timing offset is below the threshold

- Do not define test cases to verify UE behavior for the case when the timing offset is above the threshold

○ Recommended WF

- *Agree on option 2.*

2.3 Companies views' collection for 1st round

2.3.1 Open issues

Comments on issue 1-1-1 in feedback form 1 as below□

Feedback Form 1: Issue 1-1-1 UE behavior when the timing offset exceeds the threshold with single FFT

1 – MediaTek Inc. We agree with Option 2 and would like to thank proponent companies for their compromise.
2 – Qualcomm Incorporated We also support option 2. For the wording of the note in the specification, see our comment under 2.3.2.
3 – Nokia Korea Fine with the recommended WF.
4 – Apple AB fine with the recommended WF
5 – vivo Mobile Communication (S) Fine with the recommended WF.
6 – HuaWei Technologies Co. Fine with the recommended WF.
7 – CATT Fine with the recommended WF.

2.3.2 CRs/TPs comments collection

Comments on CR R4-2204709 (Nokia) in feedback form 2 as below

Feedback Form 2: Comments on CR R4-2204709 (Nokia)

<p>1 – MediaTek Inc.</p> <p>We did not think the note is needed, but now OK to compromise to add the note close the issue.</p>
<p>2 – Qualcomm Incorporated</p> <p>For the wording in the CR, we suggest the following revisions:</p> <p>Note: The UE is not required to report CSI-RS based L3 measurements when the timing offset between the reference measurement timing and the target CSI-RS in one layer is larger than one CP. When If the UE reports CSI-RS based L3 measurements when the timing offset exceeds the threshold of one CP, the UE may not meet the CSI-RS based L3 measurement reporting accuracy requirements for CSI-RSRP, CSI-RSRQ and CSI-SINR in TS 38.133 section 9.10.2.4 10.1, based on the accuracy requirements for the case which apply only when the timing offset is below the threshold.</p>
<p>3 – Nokia Korea</p> <p>Thanks for the compromise. We are also fine with QC's rewording.</p>
<p>4 – Apple AB</p> <p>ok with Qualcomm's wording</p>
<p>5 – vivo Mobile Communication (S)</p> <p>Fine with adding the note based on QC's wording to close the issue.</p>
<p>6 – HuaWei Technologies Co.</p> <p>We are fine with QC's wording.</p>
<p>7 – CATT</p> <p>fine with QC's wording</p>

Comments on CR R4-2205360 (Huawei) in feedback form 3 as below

Feedback Form 3: Comments on CR R4-2205360 (Huawei)

<p>1 – MediaTek Inc.</p> <p>OK</p>

2 – Qualcomm Incorporated

OK

3 – Nokia Korea

We agree the text is not clear in current spec, but the CR also not fully addresses the problem. The wording in CR defines TCSI-RS_SFN_intra for FR1 only, leaving FR2 out. This is not aligned with the first paragraph.

Would below text make things clear?

The time period used to acquire the SFN information is equal to 0 if the UE is indicated that the neighbour cell is synchronous with the serving cell (*deriveSSB-IndexFromCell* is enabled). Otherwise, the time period used to acquire the SFN information is TCSI-RS_SFN_intra as shown in Table 9.10.2.5-3. It is assumed that *deriveSSB-IndexFromCell* is always enabled for FR1 TDD and FR2.

4 – HuaWei Technologies Co.

Thanks Nokia for the comments. We are fine with the rewording which makes the whole paragraph more clear. We have a minor suggestion based on Nokia version (add "for FR1" as shown below).

The time period used to acquire the SFN information is equal to 0 if the UE is indicated that the neighbour cell is synchronous with the serving cell (*deriveSSB-IndexFromCell* is enabled). Otherwise, the time period used to acquire the SFN information is TCSI-RSSFNintra as shown in Table 9.10.2.5-3 **for FR1**. It is assumed that *deriveSSB-IndexFromCell* is always enabled for FR1 TDD and FR2.

5 – CATT

fine with Huawei's further revision

Comments on R4-2205655 (Apple) in feedback form 4 as below

Feedback Form 4: Comments on R4-2205655 (Apple)

1 – MediaTek Inc.

We think this is a valid point. The current 38.306 does not provide sufficient detail about how to handle different numerologies at the same time for the UE capability *maxNumberCSI-RS-RRM-RS-SINR*. However, because this UE capability was created by RAN1, it would be good to ask RAN1 to clarify it rather than RAN4 to make its own decision. It may be more reasonable to send an LS to RAN1, asking for clarification. RAN2 can be CC-ed, as they may need to update 38.306 correspondingly.

2 – Nokia Korea

Agree with MTK. It is RAN1/2 who shall have this clarified in the UE capability. There is no need to change texts in RAN4 spec.

3 – Apple AB

If the general principle, e.g. when there are mixed numerologies, the length of a slot is defined based on the smallest SCS, can be agreed from RAN4 perspective, we can prepare a draft LS to RAN1/2.

4 – HuaWei Technologies Co.

We support the general principle mentioned by Apple above, and we also support the CR.

We prefer to make this clarification in RAN4 spec rather than asking RAN1/2 to update their specs. It is true that the capability was introduced by RAN1, but since it is used in RAN4 requirements, we believe RAN4 can decide the principle for the mixed numerology case based on consensus in RAN4. In addition, this is a Rel-16 WI which was closed quite long time ago. We would prefer to limit the impacts to other WGs as much as possible.

5 – CATT

We are fine with the CR. And we agree with Huawei that it is better to make the clarification in RAN4. In our understanding, this clarification is for how to calculate the duration we used in the requirements, not for the capability.

6 – Qualcomm Incorporated

We support the CR. OK to send LS to RAN1 and RAN2.

2.4 Summary for 1st round

2.4.1 Open issues

Table 2: Summary for 1st round

	Status summary
Sub-topic #1-1	<p><u>Issue 1-1-1 UE behavior when the timing offset exceeds the threshold with single FFT assumption</u></p> <p><i>Tentative agreements:</i></p> <p>UE is not required to report CSI-RS based L3 measurements. If UE reports CSI-RS based L3 measurement, then the UE may not meet CSI-RS based L3 measurement reporting requirements in TS 38.133 section 9.10.2.4 and 9.10.3.4 based on the accuracy requirements for the case when the timing offset is below the threshold</p> <p>Do not define test cases to verify UE behavior for the case when the timing offset is above the threshold</p> <p><i>Candidate options: None.</i></p> <p><i>Recommendations for 2nd round: No more discussion.</i></p>

3 Recommendations for Tdocs

3.1 1st round

New tdocs

Table 3: New tdocs

Title	Source	Comments
WF on CSI-RS based L3 measurement requirements	CATT	
LS on the applicability of mixed numerology on UE capability <i>maxNumberCSI-RS-RRM-RS-SINR</i>	Apple	<i>To: RAN1, RAN2</i>

Existing tdocs

Table 4: Existing tdocs

Tdoc number	Title	Source	Recommendation	Comments
R4-2204709	38.133 draft CR on CSI-RS based measurements reporting requirements	Nokia	Revised	
R4-2205360	CR on CSI-RS measurement requirements R16	Huawei	Revised	
R4-2205655	Draft CR on CSI-RS L3 measurement capability for TS36.133 R16	Apple	Agreeable	