

3GPP TSG RAN Meeting #95-e RP-220893

Electronic Meeting, March 17 - 23, 2022

Agenda Item: 9.5.2.2

Source: RAN Vice-Chair (AT&T)

Title: Moderator's summary for discussion [95e-33-R17-NR-NTN-WI]

Document Type: Report

Document for: Information & Decision

In this document, we will provide a summary for the email discussion [95e-33-R17-NR-NTN-WI] at RAN#95-e.

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## 1 Topic #1: Addition of MEO to TR 38.821

### 1.1 Proposed Objectives

Topic #1 will capture the outcome of the discussions on the following documents:

1) RP-220590 [1]

### 1.2 Initial Round

#### 1.2.1 Open Issues

The following covers the observation and proposals listed in [1].

Observation 1: Comparing with the Link Budget Results for NTN in R1-1913351 [3], the values are in line with the expectation that they are lower than LEO-1200 but higher than GEO.

Proposal 1: To add MEO as “scenario E” in Table 4.2-1 in TR 38.821.

Proposal 2: To add MEO NTN reference scenario parameters in Table 4.2-2 in TR 38.821.

Proposal 3: To add MEO characteristics, to Set 1 and Set 2 MEO characteristics.

Proposal 4: To include MEO parameters for link budget analysis in a new Table 6.1.1.1-1 and 6.1.1.1-2 in TR 38.821, as a representative characterization of NTN-NR scenarios with MEO altitude and characteristics.

Proposal 5: If calibration results for NTN MEO show equivalent (or lower) SINR and CL as for NTN LEO@1200 and NTN GEO, RAN4 may not need to consider performing NTN MEO coexistence analysis for deriving NTN requirements.

Proposal 6: RAN4 may consider only (Phase 0) calibration for MEO and not perform any coexistence analysis if calibration results show that MEO constellation requirement are within those of LEO and GEO.

The proposed changes for TR 38.821 are shown in clause 7 of [1]. Depending on the outcome of the discussion and the decisions on the proposals, the proposed changes may be acceptable or may need to be updated accordingly. In either case, the expectation is that a formal CR would need to be provided at a future WG meeting.

Concerning the set of proposals, the key ask of RAN Plenary is if MEO should be added to TR 38.821. If this proposal is agreed in principle, RAN Plenary could task RAN1/RAN4 with the technical review/work. Based on this simplified view of the need to reach a decision at RAN Plenary, the moderator has identified the following issue to resolve in the first round as identified in section 1.2.2. Agreement to add MEO scenario and baseline characteristics to TR 38.821 does not necessarily imply agreement with all of the technical aspects presented in the set of proposals in [1] as this would be further discussed at the WG level.

### 1.2.2 Collection of company views

Issue 1.2-1: Do you agree to add MEO scenario and baseline characteristics to TR 38.821? If not, please provide your opposing views and/or concerns.

#### **Feedback Form 1: Issue 1.2-1: Do you agree to add MEO scenario and baseline characteristics to TR 38.821?**

<p><b>1 – THALES</b></p> <p>Agree. We believe that it is valuable to add a reference scenario for MEO which can be considered for analysis by the companies and in the WG as needed</p>
<p><b>2 – Intelsat</b></p> <p>We Agree. The MEO scenario is unique and provides a useful reference for analysis.</p>
<p><b>3 – HUGHES Network Systems Ltd</b></p> <p>We agree. It is important to have a specific description of MEO baseline characteristics and parameters in the TR 38.821, as reference. The explicit reference to MEO scenarios and parameters will help us to ensure that the relevant NTN specifications be verified and will also help us determine if additional analyses need to be done, or not needed. For these reasons we must ensure TR 38.821 includes a proper reference to MEO scenario and characteristics.</p>
<p><b>4 – FirstNet</b></p> <p>We agree too. We must ensure that TR 38.821 does include proper reference to MEO scenario along with its related characteristics.</p>

<p><b>5 – Apple AB</b></p> <p>Agree</p>
<p><b>6 – Lockheed Martin</b></p> <p>We agree.</p>
<p><b>7 – Lenovo (Beijing) Ltd</b></p> <p>Lenovo:</p> <p>We agree to have the MEO scenario and characteristics to TR 38.821. In addition we wonder if there is any new potential issue for MEO from operator’s perspective, which could also be studied in Rel-18.</p>
<p><b>8 – Samsung Electronics Co.</b></p> <p>Agree to add MEO scenario and basic characteristics to TR38.821</p>
<p><b>9 – CATT</b></p> <p>Ok to add MEO scenarios into TR 38.821.</p>
<p><b>10 – HUAWEI TECHNOLOGIES Co. Ltd.</b></p> <p>38.821 is outcome of Rel-16 NTN study item (FS-NR-NTN-solutions). MEO is not in the scope of FS-NR-NTN-solutions and the SID clearly stated ”the scope of the release 16 study item will be limited to key issues and solutions associated with transparent GEO satellite and LEO based non-terrestrial access network.”. Adding MEO in 38.821 conflicts with the SID. We therefore prefer not to add a new scenario in 38.821, which has been made under change control for more than two years.</p>
<p><b>11 – Qualcomm Incorporated</b></p> <p>We would be OK with documenting the MEO scenario in the TR for information. It may be too late in Rel-17 for WGs to take this information into account, but we don’t think there would be any new requirement for this scenario (and if there are, could be added in a later release).</p> <p>One (minor) note: in the proposed TP, there seems to be a TBD in Table 4.2-2. Is the plan to solve this TBD before approving the CR?</p>
<p><b>12 – Spreadtrum Communications</b></p> <p>Agree</p>
<p><b>13 – Beijing Xiaomi Mobile Software</b></p> <p>Fine to us to capture the MEO scenario, but common understanding should be no additional MEO-specific work is expected.</p>
<p><b>14 – ZTE Corporation</b></p> <p>Regarding the motivation for this action ‘Concerning the set of proposals, the key ask of RAN Plenary is if MEO should be added to TR 38.821. If this proposal is agreed in principle, RAN Plenary <b>could task RAN1/RAN4</b> with the technical review/work.’, it’s unclear and not preferred from our side. For the RAN1 issue, we are already in the maintenance phase and only essential parts are expected. For RAN4, it has been concluded that <b>focus on the GEO and LEO with three classes</b>. More work on MEO is not expected.</p>

So, further clarification on the intention should be clarified and no additional workload is expected.

**15 – Nokia France**

We have no objection to the MEO scenario in principle, but procedurally we agree with Huawei that the TR scope should be aligned with the Rel-16 SI, so this should probably be handled separately as an update to be considered for the Rel-18 work. We are also conscious that RAN4 is fully loaded with NTN work already, and adding additional scenarios that need any RAN4 analysis at the present time would be challenging; if, on the other hand, no additional MEO-specific work is intended from this, as suggested by Xiaomi, this would not seem too critical and we could simply take note of RP-220590 as a useful reference for future consideration.

**16 – NTT DOCOMO INC.**

We have same view with Huawei. The TR was made in Rel-16. We do not see essentiality to add such an update in this late stage of Rel-17. In addition, although the TR does not include HAPS, it seems that RAN4 is discussing HAPS. Even without adding MEO scenario to the TR, RAN4 would be able to have discussions if necessary.

**17 – Ericsson LM**

Similar comments as others that the 38.821 is the TR from the Rel-16 SI and should reflect the outcome of the SI. Then adding MEO now without any further reference should not be done. As suggested by Nokia, the contribution can be noted as reference. Any need to address the MEO scenario can be further discussed when there is a need.

**18 – NOVAMINT**

We agree as we believe that it is valuable to add a reference scenario for MEO

**19 – Omnispace**

We agree to add MEO scenarios into TR 38.821.

**20 – Sony Europe B.V.**

We would like clarification on some points:

- Which version of TR38.821 is this new scenario proposed to be added to? The latest Release-16 TR "16.1.0"?
- Is the proposal to update the already approved Satellite SI to include the MEO scenario?
- Is there an estimation of the additional time budget required in WG meetings and which WGs are involved?

We see value in adding the MEO scenario, but would really like to understand how this proposal fits into the approved Rel-18 planning.

## **21 – Inmarsat**

We are ok to add MEO parameters to the reference scenarios in TR 38.821, since it was never explicitly excluded from the TR.

FFS whether additional SAN class and requirements will be needed.

## **22 – MediaTek Inc.**

We would be fine to document this scenario for information. But we understand that it is the intention that there would be no specific normative work here compared to what we have already today based on LEO/GEO. So i.e. no specific work/studies beyond documenting the scenario in the TR. Is that correct?

### 1.2.3 Summary and recommendation for further discussion

Thanks for the feedback in the initial round. In general, there was support to add MEO scenario and baseline characteristics to TR 38.821. However, there were concerns raised by a number of companies that adding MEO to a Rel-16 TR would be outside of the scope of the already completed Rel-16 NTN study item (FS-NR-NTN-solutions) and could impact RAN4 workload.

The moderator recommends continuing discussion in the intermediate round with the goal to compromise on a way forward.

## 1.3 Intermediate Round

In the intermediate round, the moderator proposes to consider the following options for a possible way forward.

- Option 1: Task RAN1/RAN4 to review the proposed changes for TR 38.821 are shown in clause 7 of [1] and to come back at RAN#96 with their assessment of any workload concerns and impact to existing work. RAN can then decide at RAN#96 as to the proper handling.
- Option 2: Take note of RP-220590 as a useful reference for future consideration.
- Option 3: Consider adding the scope to the Rel-18 NR\_NTN\_enh WID and list TR 38.821 in the list of affected documents.
- Option 4: Consider a separate Rel-18 SI for MEO in order to not impact the Rel-16 SI TR.

### 1.3.1 Open Issues

Issue 1.3-1: Please identify your preferred option (and fallback options in order of preference) based on the moderator proposed way forward.

- Option 1: Task RAN1/RAN4 to review the proposed changes for TR 38.821 are shown in clause 7 of [1] and to come back at RAN#96 with their assessment of any workload concerns and impact to existing work. RAN can then decide at RAN#96 as to the proper handling.

- Option 2: Take note of RP-220590 as a useful reference for future consideration.
- Option 3: Consider adding the scope to the Rel-18 NR\_NTN\_enh WID and list TR 38.821 in the list of affected documents.
- Option 4: Consider a separate Rel-18 SI for MEO in order to not impact the Rel-16 SI TR.

### 1.3.2 Collection of company views

Issue 1.3-1: Please identify your preferred option (and fallback options in order of preference) based on the moderator proposed way forward.

#### **Feedback Form 2: Issue 1.3-1**

<p><b>1 – HUGHES Network Systems Ltd</b></p> <p>We think <b>Option 3</b> is the best approach for 3GPP to consider a useful reference to MEO scenario. This will accomplish the objective having a specific reference to MEO characteristics in TR 38.821 while not creating additional workload.</p> <p>For clarification purposes, MEO is already part of NTN-NR Rel-17 normative work under NGSO (LEO and MEO). The analyses on GEO and LEO scenarios had assumed support for MEO. However the explicit reference to MEO characteristics have not been included in TR 38.821 as were captured in IoT-NTN TR 36.763. It is therefore necessary to have a specific description of MEO baseline characteristics in TR 38.821, as proposed in RP-220590. Thank you.</p>
<p><b>2 – Lockheed Martin</b></p> <p>We agree with Hughes.</p>
<p><b>3 – THALES</b></p> <p>We agree with Hughes</p>
<p><b>4 – Apple AB</b></p> <p>We think option 1 is the better choice, allowing RAN to take a more informed decision based on feedback from RAN1 and RAN4.</p>
<p><b>5 – ZTE Corporation</b></p> <p>We think Option-2 is a good choice.</p> <p>Regarding the corresponding WG in RAN1, since we are already in the maintenance phase, taking this as a useful reference allows the proponent to justify the potential changes without explicitly increasing the load in WG.</p> <p>For the RAN4 part, similar to RAN1, if clear differences for MEO are justified compared to GEO/LEO, RAN4 can make the decision on whether to extend the agreement for more cases.</p>

**6 – Qualcomm Incorporated**

In our view it would be good to quickly add these scenarios to the TR, maybe with some clarification that the normative work does not explicitly cover these. In general we would like to minimize the amount of work resulting from this, so we would support either agreeing to the TR as is in this plenary, or to Option 2 (Option 3 as a last resort).

**7 – CATT**

We agree with Hughes

**8 – Guangdong OPPO Mobile Telecom.**

we think ZTE's suggestion is a good way-forward. But we can also agree with QC's suggestion with the clarification.

**9 – Lenovo (Beijing) Ltd**

We slightly prefer Option 2 considering the current progress. We can also accept Option 3 based on Qualcomm's views.

**10 – HUAWEI TECHNOLOGIES Co. Ltd.**

Option 2 (as proposed by Nokia and supported by a number of companies in the initial round) could be a way forward.

**11 – ESA**

We support option 3.

**12 – Ericsson LM**

Option 2. We should not load working groups at this point for a hypothetical scenario.

**13 – Samsung Electronics Co.**

We are supportive of Option 2 as commented by many other companies.

**14 – MediaTek Inc.**

We think the Qualcomm proposal to add to the TR as an informative case could be fine, possibly with a note to say that normative work does not explicitly cover it for the Rel-17 NR NTN system. Maybe this can be added as Option 5.

**15 – Omnispace**

We agree with Hughes

**16 – NOVAMINT**

We support option 3

**17 – Intel Corporation SAS**

Our preference is Option 1 or Option 2 without extension of Rel-18 scope at this meeting

<p><b>18 – Lockheed Martin</b></p> <p>We agree with Hughes</p>
<p><b>19 – Sony Europe B.V.</b></p> <p>Our preference is Option 3, although option 1 is also OK for us. This allows the work to be planned and considered.</p> <p>Presumably, option 1 would lead to the MEO scenario being on the agenda of the upcoming RAN1 / RAN4 meetings in some way. For option 2, we would be OK if RP-220590 is noted, but we don't see why it would be concluded that it is a "useful reference for further consideration": that might imply that the document had some form of endorsement. Option 4 would imply a new SI and our understanding is that the Rel-18 package is complete.</p> <p>Given that MEO is already part of the NTN-NR Rel-17 normative work and that this work has been successfully completed, why would we need to update TR38.821 with MEO? It seems like the normative work has been successfully progressed without the need for such a TR update.</p>
<p><b>20 – Intelsat</b></p> <p>We support Option 3. Agree with Hughes comments</p>
<p><b>21 – Nokia France</b></p> <p>We support Option 2.</p> <p>Options 3 or 4 could be considered at a later plenary, as clarified by the RAN Chair.</p>
<p><b>22 – Sateliot</b></p> <p>We agree with Hughes</p>

### 1.3.3 Summary and recommendation for further discussion

In the intermediate round, the moderator proposed to consider the following options for a possible way forward.

- Option 1: Task RAN1/RAN4 to review the proposed changes for TR 38.821 are shown in clause 7 of [1] and to come back at RAN#96 with their assessment of any workload concerns and impact to existing work. RAN can then decide at RAN#96 as to the proper handling.
- Option 2: Take note of RP-220590 as a useful reference for future consideration.
- Option 3: Consider adding the scope to the Rel-18 NR\_NTN\_enh WID and list TR 38.821 in the list of affected documents.
- Option 4: Consider a separate Rel-18 SI for MEO in order to not impact the Rel-16 SI TR.

In addition, during the intermediate round discussion, Qualcomm proposed an alternative option as below which was supported by some companies.

- Option 5 (QC): Add text proposal to TR with some clarification that the normative work does not explicitly cover MEO scenario and baseline characteristics.

The following summarizes the company views on the options.

- Option 1: Apple, Intel, Sony
- Option 2: ZTE, Qualcomm, OPPO, Lenovo, Huawei, Ericsson, Samsung, Intel, Nokia
- Option 3: Hughes, Lockheed Martin, Thales, CATT, Lenovo, ESA, Omnispace, NOVAMINT, Sony, Intelsat, Sateliot
- Option 4: No company expressed support
- Option 5 (QC): Qualcomm, OPPO, MediaTek

The views are quite mixed and Option 3 and Option 2 have the majority of support. If additional scope can be added to the Rel-18 NR\_NTN\_enh WID based on RAN Chair guidance, the moderator recommends the following way forward.

**Proposed Moderator Way Forward:**

- At RAN#95e, take Option 2 with the understanding that Option 3 will be considered as the preferred option concerning how to add MEO scenario and baseline characteristics and revisited in future RAN plenary meeting based on the RAN Chair timeline for additional considerations for Rel-18.

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## 2 Topic #2: [flag] RP-220132 Status report WI NR-NTN-solutions

### 2.1 Proposed Objectives

Topic #2 will capture the outcome of the discussions concerning the flagging of the Status Report as follows:

- 1) RP-220132 [2]

### 2.2 Initial Round

N/A.

### 2.3 Intermediate Round

#### 2.3.1 Open Issues

Concerning the identified flag, the moderator has identified the following issues to resolve in the intermediate round as identified in section 2.3.2.

**Update 20 March 2022:** An additional flag for the SR was received from Ericsson which was missed in the original Intermediate Round. The moderator has added the additional open issue in section 2.3.2 for consideration. Due to the shorter period for comment, the additional open issue will be extended to the final round but any feedback during the remaining period of the intermediate round will be considered.

### 2.3.2 Collection of company views

Issue 2.3-1: Should the open issues list for RAN2 in the Status Report in [2] be updated to include that feedback is awaited from SA3 on UE location reporting?

The proposed open issue for RAN2 is shown as follows:

- Completion of UE location reporting in RAN2 is subject to feedback from SA3.

#### **Feedback Form 3: Issue 2.3-1**

<p><b>1 – THALES</b></p> <p>RAN2 has already defined a solution for the reporting of UE location. Unless SA3 express a justified concern, this solution will apply and therefore we do not consider that the “completion of UE location reporting in RAN2 subject to feedback from SA3.” is a real open issue. Besides the solution proposed, fully address the “possible” privacy concern of SA3</p>
<p><b>2 – HUGHES Network Systems Ltd</b></p> <p>Agree with Thales comment</p>
<p><b>3 – Lockheed Martin</b></p> <p>Agree with Thales.</p>
<p><b>4 – Apple AB</b></p> <p>If SA3 agrees with the solution proposed by RAN2 on UE location reporting, then there is nothing much left for RAN2 to do in R17. If SA3, disagrees, then there is no clear path forward in R17, and the topic will need to be addressed in R18 (e.g., as part of the network verified UE location objective). Either way, we think this issue can be considered closed as far as Release 17 goes.</p>
<p><b>5 – ZTE Corporation</b></p> <p>For the UE location report, since the LS to SA3 has already been endorsed with a potential solution for the case without UE consent, we prefer not to take this issue as part of an open issue in Rel-17. If SA3 has strong concerns about the proposed solution, we can further refine the solution similar to others in the maintenance phase.</p>
<p><b>6 – CATT</b></p> <p>We could consider the RAN2 work on UE location reporting is completed without waiting the SA3 progress on user consent. We can further work on the User consent when it’s decided in SA3.</p>

<p><b>7 – Lenovo (Beijing) Ltd</b></p> <p>We think this issue should be closed for Rel-17. And if further there is concern we can discuss in Rel-18 e.g. as part of network verified UE location.</p>
<p><b>8 – HUAWEI TECHNOLOGIES Co. Ltd.</b></p> <p>We share similar view with Thales and other companies that we do not consider “completion of UE location reporting in RAN2 subject to feedback from SA3” as a real open issue. There is therefore no update needed for the RAN2 part of open issue list.</p>
<p><b>9 – ESA</b></p> <p>We agree with Thales, ZTE, Huawei and many others. We do not consider a real open issue the completion of UE location.</p>
<p><b>10 – MediaTek Inc.</b></p> <p>We share same views as Thales and other companies. RAN2 endorsed an LS to SA3 and need to wait for SA3 feedback.</p>
<p><b>11 – Omnispace</b></p> <p>We agree with Thales views.</p>
<p><b>12 – NOVAMINT</b></p> <p>We share the same views as Thales and other companies.</p>
<p><b>13 – Intel Corporation SAS</b></p> <p>Agree with Thales</p>
<p><b>14 – Ericsson LM</b></p> <p>Yes we think this can be listed as an open issue, and it seems we have an exception sheet in any case thus there should be no issue on adding it.</p>
<p><b>15 – Lockheed Martin</b></p> <p>We agree with Thales</p>
<p><b>16 – Intelsat</b></p> <p>Agree with Thales</p>
<p><b>17 – Nokia France</b></p> <p>Our view is in line with Ericsson’s.</p>

Issue 2.3-2: Should the open issues list for RAN1 in the Status Report in [2] be updated to include interworking between open loop TA and closed loop TA, and resolution of ambiguity for SI update?

The proposed open issue for RAN1 is shown as follows:

- Completion of interworking between open loop TA and closed loop TA, and resolution of ambiguity for SI update.

#### Feedback Form 4: Issue 2.3-2

##### 1 – THALES

We are not supporting of such revision for the following reasons:

- The open and closed loop TA aspects (double adjustment issue) have already been resolved by RAN4 (RAN4#102-e). In principle this aspect doesn't need further technical discussion at RAN1 and the issue should be closed.
- The resolution of ambiguity for SI update actually refers to the resolution of ambiguity in interpretation of SFN indicating Epoch time that was introduced during RAN1#108-e together with other topics "details on UE behaviour w.r.t Validity timer expiry" and "Support of negative TACCommon-DriftVariation values for GEO". All of these three topics should be considered as minor corrections to be treated under maintenance activity rather than real open issues.

All this should be clarified in the status report accordingly via a revision of the text under clause "RAN1 remaining open issue."

##### 2 – Lockheed Martin

Agree with Thales.

##### 3 – Apple AB

Regarding the issue of interworking between open loop TA and closed loop TA, no conclusion has been made in RAN1, based on the existing RAN4 reply LS. It was RAN1 FL's recommendation (R1-2202553) that "RAN1 to wait for RAN4's final decision before concluding the RAN1 discussion on "double-correction" issue" Hence, this issue is still considered open in RAN1.

Regarding the issue of ambiguity for SI update, this issue is mentioned in a recent LS (R1-2202843) from RAN1 to RAN2, where RAN1 asked RAN2 to "share their understanding on whether there is a need to address this potential ambiguity." Hence, we think this issue should still be considered open in RAN1.

##### 4 – ZTE Corporation

For the interworking between open-loop TA and closed-loop TA (i.e., potential duplicated correction), there is a clear conclusion in RAN1 and details will be determined by RAN4. So, no need to include it as part of an open issue.

Regarding the ambiguity of SI update, as a normal procedure in maintenance we have discussed this issue and sent the LS to RAN2 in the last WG group meeting. all of these are only corrections without the need to highlight them as open issues.

##### 5 – Qualcomm Incorporated

This has been already resolved in RAN4, there is no need to further discuss in RAN1.

<p><b>6 – Lenovo (Beijing) Ltd</b></p> <p>Agree with Thales.</p>
<p><b>7 – HUAWEI TECHNOLOGIES Co. Ltd.</b></p> <p>We don't think the update is needed. To avoid unnecessary further discussion in RAN1, we also suggest that RAN to conclude none of these two issues should be further discussed in RAN1. Detailed reasoning below:</p> <p>For interworking between open loop TA and closed loop TA: In the RAN4 LS "R1-2200870", RAN4 has already replied "RAN4 has reached an agreement that RAN4 defines a requirement to ensure the impact on NTN UE UL timing accuracy due to "double-correction" issue is properly addressed." So there is nothing RAN1 needs to discuss.</p> <p>For resolution of ambiguity for SI update: majority of companies think that it can be handled by gNB implementation. Hence there is no need to list it as open issue in the status report.</p>
<p><b>8 – ESA</b></p> <p>As mentioned by QCOM and Huawei, the issue has been clarified in RAN4. No further discussion in RAN1</p>
<p><b>9 – Ericsson LM</b></p> <p>Our understanding is that this is an open issue, but not specific to RAN1</p>
<p><b>10 – NOVAMINT</b></p> <p>Agree with Thales, Qualcomm, Huawei... No need for update and no further discussion needed in RAN1</p>
<p><b>11 – Intel Corporation SAS</b></p> <p>We do not support to include those two issues in the revised SR.</p> <p>For open loop TA and closed loop TA RAN1 agreed that this issue is considered in RAN4. If RAN4 find any issue RAN1 can reopen the discussion, if needed.</p> <p>For resolution of ambiguity for SI update, it can be discussed as part of the maintenance phase.</p>
<p><b>12 – Intelsat</b></p> <p>Agree with Thales.</p>
<p><b>13 – HUGHES Network Systems Ltd</b></p> <p>Agree with Thales, Qualcomm, Huawei... No need for update and no further discussion needed in RAN1</p>
<p><b>14 – Nokia France</b></p> <p>This is clearly an open issue from at least RAN4 perspective, but it also seems to impact RAN1.</p>

Issue 2.3-3: Due to the one quarter extension of the core part, should the RAN4 performance part also be

extended for one quarter i.e. until December 2022?

**Feedback Form 5: Issue 2.3-3**

<p><b>1 – ZTE Corporation</b></p> <p>We are open to it and maybe we can check it in the next plenary meeting.</p>
<p><b>2 – Ericsson LM</b></p> <p>We suggest to extend the performance WI in this meeting (RAN#95e). This will allow appropriate planning of the work and allow RAN4 to focus on core completion. Otherwise some companies will argue to complete the BS RF tests and RRM tests by Q3. This is completely unrealistic given that so many core issues are not yet settled yet.</p>
<p><b>3 – Nokia France</b></p> <p>We agree it needs to be extended.</p>
<p><b>4 – HUGHES Network Systems Ltd</b></p> <p>We should check in the next plenary meeting</p>
<p><b>5 – THALES</b></p> <p>We are open to it. Indeed next RAN4 meeting in May should prioritize the core part, however, it is beneficial to start discussing the drafting of 38.181 as well.</p>
<p><b>6 – THALES</b></p> <p>Indeed checking at next plenary is preferred</p>

**2.3.3 Summary and recommendation for further discussion**

Issue 2.3-1: All companies with the exception of Ericsson and Nokia indicated that there was no need to list completion of UE location reporting in RAN2 is subject to feedback from SA3 as an open issue in the SR.

Based on the vast majority view, the moderator proposes that this item does not need to be listed as an open issue in the SR. It can be handled in Rel-17 maintenance if SA3 expresses any concerns or could be further discussed in Rel-18 as part of network verified UE location objective if needed given that there is not any action that RAN2 can take at this time.

Issue 2.3-2: The rapporteur of the WI suggests to clarify the existing text for the RAN1 open issues as opposed to adding the proposed open issue. The majority of companies supported the rapporteur view and/or the position that this item did not need to be listed as an open issue. Apple, Ericsson, and Nokia supported adding this open issue.

Based on the vast majority view, the moderator proposes that this item does not need to be listed as an open issue in the SR. The rapporteur of the WI will propose clarifications to the existing RAN1 open issues list.

Issue 2.3-3: Companies either support extending the performance part by one quarter or are willing to consider

the extension at the next RAN Plenary meeting. Due to the shorter period for comment, this additional open issue will be extended to the final round for additional feedback.

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### 3 Topic #3: [flag] RP-220209 Solutions for NR to support non-terrestrial networks (NTN) (WI exception request)

#### 3.1 Proposed Objectives

Topic #3 will capture the outcome of the discussions concerning the flagging of the WI exception request as follows:

1) RP-220209 [3]

#### 3.2 Initial Round

N/A.

#### 3.3 Intermediate Round

##### 3.3.1 Open Issues

Concerning the identified flag, the moderator has identified the following issues to resolve in the intermediate round as identified in section 3.3.2.

##### 3.3.2 Collection of company views

Issue 3.3-1: Should the scope of the work documented in the WI exception request in [3] be updated with the list of remaining open issues for RAN1 as identified in the Status Report in [2]?

The list of remaining open issues for RAN1 are shown as follows:

- Details on UE behaviour w.r.t Validity timer expiry
- Support of negative TACCommonDriftVariation values for GEO
- Resolving the ambiguity in interpretation of SFN indicating Epoch time

#### **Feedback Form 6: Issue 3.3-1**

##### **1 – THALES**

As explained in previous Thales response in Issue 2.3.2, the three topics introduced at RAN1#108-e “resolution of ambiguity in interpretation of SFN indicating Epoch time”, “details on UE behaviour w.r.t Validity timer expiry” and “Support of negative TACCommonDriftVariation values for GEO”. should be considered as minor corrections to be treated under maintenance activity rather than real open issues, and therefore

**they should not be added in the exception sheet.**

**2 – HUGHES Network Systems Ltd**

Agree with response form Thales

**3 – Lockheed Martin**

Agree with Thales

**4 – Apple AB**

We also think that these RAN1 open issues do not need significant efforts to address. They can be handled in RAN1 maintenance phase, and they should not be added in the exception sheet.

**5 – ZTE Corporation**

All of them are needed to be discussed in WG1 as part of maintenance. It's not proper to take them in the exception sheet.

**6 – Qualcomm Incorporated**

We think that there is no need to explicitly mention these in the exception sheet.

**7 – CATT**

Agree with Thales, we are ok to discuss and address the leftover issues in the maintenance phase, no need to take them in the exception sheet.

**8 – Guangdong OPPO Mobile Telecom.**

agree with Thales.

**9 – Lenovo (Beijing) Ltd**

Agree with Thales.

**10 – HUAWEI TECHNOLOGIES Co. Ltd.**

Agree with Thales and other companies that they should not be added in the exception sheet. Reasons as below:

– Details on UE behaviour w.r.t Validity timer expiry

This was discussed several times in many RAN1 meetings, several companies think the UE behavior can be left to UE implementation. No need to list this issue in the exception sheet.

– Support of negative TACCommonDriftVariation values for GEO

There was no consensus among companies that this requires any specification impact. This issue doesn't affect the WI completion, and it should not be listed as an open issue.

<p>– Resolving the ambiguity in interpretation of SFN indicating Epoch time</p> <p>This issue does not impact the finish of any objective in NTN WI, so we see there is no need to list this issue in the exception sheet. If any work is needed, this can be handled as maintenance.</p>
<p><b>11 – ESA</b></p> <p>We agree with Thales</p>
<p><b>12 – MediaTek Inc.</b></p> <p>Agree with Thales and other companies. These issues should not be added in the exception sheet, and can be addressed in the maintenance phase.</p>
<p><b>13 – Ericsson LM</b></p> <p>In general we support including the open issues from the SR in any exception sheet</p>
<p><b>14 – Intel Corporation SAS</b></p> <p>Agree with Thales</p>
<p><b>15 – NOVAMINT</b></p> <p>Agree with Thales and other companies. No exception sheet - to be addressed in the maintenance phase</p>
<p><b>16 – Intelsat</b></p> <p>Agree with Thales</p>
<p><b>17 – Nokia France</b></p> <p>As there is anyway an exception sheet, proper procedure is to list all the open issues there, in order to ensure that the WGs bring them to completion. We do not understand the motivation for hiding acknowledged open issues from the exception sheet.</p>

Issue 3.3-2: Should the scope of work documented in the WI exception request in [3] be updated with the following open issue for RAN1 pending the outcome of Issue 2.3-2?

The proposed open issue for RAN1 is shown as follows:

- Completion of interworking between open loop TA and closed loop TA, and resolution of ambiguity for SI update.

#### **Feedback Form 7: Issue 3.3-2**

<p><b>1 – THALES</b></p> <p>We are not supporting to add this topic in the exception sheet because the open and closed loop TA aspects (double adjustment issue) has already been resolved by RAN4 (RA?4#102-e). In principle this aspect doesn't need further technical discussion at RAN1 and the issue should be closed at next RAN1 meeting.</p>
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<p><b>2 – Lockheed Martin</b></p> <p>We agree with Thales.</p>
<p><b>3 – Apple AB</b></p> <p>We think the issue of interworking between open loop TA and closed loop TA, and resolution of ambiguity for SI update can be handled in RAN1 maintenance phase, and they should not be added in the exception sheet.</p>
<p><b>4 – ZTE Corporation</b></p> <p>No need to take them in the exception sheet and all of them are in the normal stage of maintenance.</p>
<p><b>5 – Qualcomm Incorporated</b></p> <p>Agree with Thales</p>
<p><b>6 – CATT</b></p> <p>Agree with Thales.</p>
<p><b>7 – Guangdong OPPO Mobile Telecom.</b></p> <p>Agree with Thales.</p>
<p><b>8 – Lenovo (Beijing) Ltd</b></p> <p>Agree with Thales.</p>
<p><b>9 – HUAWEI TECHNOLOGIES Co. Ltd.</b></p> <p>Agree with Thales.</p> <p>As we commented for issue 2.3-2. We do not think the update is needed. To avoid unnecessary further discussion in RAN1, we also suggest that RAN to conclude none of these two issues should be further discussed in RAN1</p>
<p><b>10 – ESA</b></p> <p>Agree with Thales</p>
<p><b>11 – MediaTek Inc.</b></p> <p>Agree with Thales.</p>
<p><b>12 – Ericsson LM</b></p> <p>The exception sheet should be updated based on the outcome of the discussion of issue 2.3-2</p>
<p><b>13 – Intel Corporation SAS</b></p> <p>Agree with Thales</p>

<p><b>14 – NOVAMINT</b></p> <p>Agree with Thales.</p>
<p><b>15 – Intelsat</b></p> <p>Agree with Thales</p>
<p><b>16 – HUGHES Network Systems Ltd</b></p> <p>Support Thales view</p>
<p><b>17 – Nokia France</b></p> <p>The exception sheet should be updated based on the outcome of the discussion of issue 2.3-2.</p>

Issue 3.3-3: Should the scope of work documented in the WI exception request in [3] be updated with the following open issue for RAN2 pending the outcome of Issue 2.3-1?

The proposed open issue for RAN2 is shown as follows:

- Completion of UE location reporting in RAN2 is subject to feedback from SA3.

**Feedback Form 8: Issue 3.3-3**

<p><b>1 – THALES</b></p> <p>As explained in Thales response to Issue 2.3-1, RAN2 has already defined a solution for the reporting of UE location. Unless SA3 express a justified concern, this solution will apply and therefore we do not consider that the “completion of UE location reporting in RAN2 subject to feedback from SA3.” is a real open issue. Therefore we do not support to add it in the exception sheet.</p>
<p><b>2 – Apple AB</b></p> <p>We do not support further work on this topic in Release 17, and feel it should not be added to the exception sheet.</p>
<p><b>3 – ZTE Corporation</b></p> <p>The only pending issue for this topic is the response from SA3, and we can check it in the next WG meeting. No need to add it to the exception sheet.</p>
<p><b>4 – Qualcomm Incorporated</b></p> <p>We agree that the solution for reporting UE location is already defined by RAN2 (i.e., location report can be provided to network using existing method that RAN2 already agreed for NTN). The Rel-17 NTN UE should be able to support it. Based on the last RAN2 LS to SA3, the pending issue is only related to user consent that may not impact RAN2 specification (i.e. whether network would be able to configure UE to report location). Therefore, it does not have to be added to the exception sheet from RAN2 point of view. If anything needs to be captured, we suggest to capture the following in the status report:</p>

– Completion of NTN specific user consent for UE location reporting to NG-RAN is subject to feedback from SA3.

**5 – CATT**

It's not a real leftover issue, no need to add it into the exception sheet. Of course we can further work on that in RAN2/RAN3 when SA3 replies the LS on the details of user consent.

**6 – Guangdong OPPO Mobile Telecom.**

We agree that the UE location reporting is pending and a complete design is ready at RAN2 side. In this regards, we support QC's suggestion to add this clarification in the status report. But we think that if SA3 gives negative feedback, it whole UE location reporting will be off the table. For this reason, we suggest a rewording based on QC's suggestion, i.e.

- Completion of NTN UE location reporting to NG-RAN is subject to feedback from SA3.

**7 – Lenovo (Beijing) Ltd**

We think this issue should be closed for Rel-17.

**8 – HUAWEI TECHNOLOGIES Co. Ltd.**

As we explained in the response for issue 2.3-1, there is no need to document this issue in WI exception request.

**9 – ESA**

No need to document this issue

**10 – MediaTek Inc.**

Wait for SA3 feedback as discussed in Issue 2.3-1

**11 – Intel Corporation SAS**

Agree with Thales

**12 – NOVAMINT**

Agree with Thales.

**13 – Ericsson LM**

In general we support including the open issues from the SR in any exception sheet, and this seems to be on such issue.

**14 – Intelsat**

Agree with Thales

**15 – HUGHES Network Systems Ltd**

Agree with Thales

**16 – Nokia France**

All open issues should be stated on the exception sheet, unless the proponents wish there to be a risk that the open issues are not completed.

### 3.3.3 Summary and recommendation for further discussion

Issue 3.3-1: All companies with the exception of Ericsson and Nokia indicated that there was no need to list the items in the Rel-17 Exception Sheet.

Based on the vast majority view, the moderator proposes that these items do not need to be listed in the Rel-17 Exception Sheet. They can be handled in Rel-17 maintenance.

Issue 3.3-2: All companies with the exception of Ericsson and Nokia indicated that there was no need to list the item in the Rel-17 Exception Sheet.

Based on the vast majority view and the way forward presented on Issue 2.3-2, the moderator proposes that this item does not need to be listed in the Rel-17 Exception Sheet.

Issue 3.3-3: All companies with the exception of Ericsson and Nokia indicated that there was no need to list the item in the Rel-17 Exception Sheet.

Based on the vast majority view and the way forward presented on Issue 2.3-1, the moderator proposes that this item does not need to be listed in the Rel-17 Exception Sheet.

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## 4 Final Conclusions

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## 5 References

[1] RP-220590: MEO Scenario and baseline characteristics - to be added in TR 38.821; Hughes Network Systems

[2] RP-220132: Status report for WI Solutions for NR to support NTN; rapporteur: Thales; RAN2

[3] RP-220209: Rel-17 Exception: Solutions for NR to support non-terrestrial networks (NTN); THALES