**3GPP TSG-RAN WG4 Meeting #94-e R4-20xxxxx**

**Electronic Meeting, Feb.24th – Mar.6th 2020**

**Agenda item:** 8.8.2-8.8.4

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for RAN4#94e\_#57\_NR\_pos\_RRM\_Part\_2

**Document for:** Information

# Introduction

The documents in agenda items 8.8.2, 8.8.3 and 8.8.4 contains the following 4 main topics and sub-topics under each main topic:

* Topic #1: gNB measurement accuracy requirements (AI 8.8.2)
	+ Issue 1-1: Selection of option for gNB measurement accuracy requirements
	+ Issue 1-2: Optionality of gNB measurement accuracy requirements
	+ Issue 1-3: Basic scenario/condition for gNB measurement accuracy requirements
* Topic #2: gNB measurement report mapping (AI 8.8.2)
	+ Issue 2-1: Report mapping for SRS-RSRP measurement
	+ Issue 2-2: Report mapping for gNB Rx-Tx time difference measurement
	+ Issue 2-3: Report mapping for UL RTOA measurement
	+ Issue 2-4: Report mapping for AoA and ZoA
* Topic #3: Positioning measurement impact on RRM (AI 8.8.3)
	+ Issue 3-1: Impact of TA change on UE Rx-Tx time difference measurement
	+ Issue 3-2: Measurement gaps
	+ Issue 3-3: Scheduling restriction
	+ Issue 3-4: Active BWP status during measurements
* Topic #4: UE-based positioning performance requirements (AI 8.8.4)
	+ Issue 4-1: Requirements for UE based positioning

# Topic #1: gNB measurement accuracy requirements (AI 8.8.2)

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000054 | ZTE Corporation | gNB requirements for NR positioning is optional |
| R4-2000390 | Intel Corporation | Define requirements for NR positioning gNB measurements in Rel16.• gNB Rx-Tx time difference• UL SRS-RSRP |
| R4-2000736 | Qualcomm Incorporated | Define gNB measurement accuracy requirements for gNB measurement types in the Perf part• Rx-Tx timing difference• UL SRS-RSRP measurements |
| R4-2001196 | NTT DOCOMO, INC. | Define at least following gNB measurement accuracy requirements in the Perf part- Rx-Tx timing difference- UL SRS-RSRP measurementsStudy the feasibility of defining accuracy requirements for AoA measurements if necessary.Study the necessity of defining accuracy requirements for UL RTOA measurements if necessary. |
| R4-2001496 | Ericsson | Define gNB measurement accuracy requirements for gNB measurement types in the Perf part• Rx-Tx timing difference• UL SRS-RSRP measurements |
| R4-2001634 | Huawei, HiSilicon, CMCC | Define gNB measurement accuracy requirements for UL-RTOA. Define gNB measurement accuracy requirements for AoA/ZoA. |
| R4-2001919 | Nokia, Nokia Shanghai Bell | gNB requirements for NR positioning are optional.Define gNB minimum accuracy requirements for gNB Rx-Tx time difference and UL SRS-RSRP for the serving cell UE scenario. |

## 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

According to WF in R4-1915854, “Way forward on NR Positioning RRM”, approved in RAN4#93 the following options were agreed:

* + Option 1: Define gNB measurement accuracy requirements for gNB measurement types in the Perf part
		- Rx-Tx timing difference
		- UL SRS-RSRP measurements
	+ Option 2: Define gNB measurement accuracy requirements for gNB measurement types in the Perf part
		- Rx-Tx timing difference
		- UL SRS-RSRP measurements
		- AoA / ZoA measurements
		- UL RTOA measurements
	+ Option 3: Do not define gNB requirements

In RAN4#94-e, one of the 3 options is to be agreed.

**Issue 1-1: Selection of option for gNB measurement accuracy requirements**

* Proposals
	+ Option 1: (Intel, Qualcomm, NTT DoCoMo\*, Ericsson, Nokia)
		- select option 1 in R4-1915854 for defining accuracy requirements.
	+ Option 2: (Huawei, CMCC)
		- select option 2 in R4-1915854 for defining accuracy requirements.

\*proposes at least option 1 and define AoA and UL RTOA if necessary.

* Recommended WF
	+ Agree to define at least Rx-Tx timing difference and UL SRS-RSRP measurements and further investigate the feasibility and necessity of defining AoA/ZoA and UL RTOA.

### Sub-topic 1-2

**Issue 1-2: Optionality of gNB measurement accuracy requirements**

* Proposals
	+ Option 1: ZTE, Nokia
		- gNB measurement accuracy requirements are optional
* Recommended WF
	+ Collect feedback from other companies if the proposal is acceptable.

### Sub-topic 1-3

**Issue 1-3: Basic scenario/condition for gNB measurement accuracy requirements**

* Proposals
	+ Option 1: Nokia
		- gNB measurement accuracy requirements are defined for:
			* the serving cell of the UE,
			* fixed antenna beams only,
			* depending on BS types operating in FR1 and FR2.
* Recommended WF
	+ Collect feedback from other companies if the proposal is acceptable.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1: Sub topic 1-2:….Others: |

### 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** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| Company B |
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## Summary for 1st round

### Open issues

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

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

*Recommendations on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title**  | **Assigned Company,****WF or LS lead** |
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### CRs/TPs

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

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

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #2: gNB measurement report mapping (AI 8.8.2)

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000054 | ZTE Corporation | Further study the report mapping of AoA and ZoA measurement based on simulations |
| R4-2000390 | Intel Corporation | * UL RTOA reporting granularity ca be defined as: T=T\_c 2k, where k is a configuration parameter with a minimum value of “-1”.
* The reporting range for AoA and ZoA is from 0 to 360 degree, with resolution of 0.1 degree.
* UL SRS (PRS) RSRP reporting granularity is set to 1dB.
 |
| R4-2001632 | Huawei, HiSilicon | * For UL-RTOA report mapping,

- Reporting range is from 0 to 9600Ts.- Reporting granularity is Tc\*2k for the whole range.* For SRS-RSRP report mapping, the range and granularity of SS-RSRP are re-used.
* For gNB Rx-Tx time different report mapping,

- Reporting range is from -15391Ts to +15391Ts.- Reporting granularity is re-used from RSTD.* For gNB AoA/ZoA report mapping,

- Reporting range is from -180 degree to +180 degree for AoA and from 0 to +180 degree for ZoA.- Reporting granularity is 0.1 degree. |
| R4-2001919 | Nokia, Nokia Shanghai Bell | * RAN4 should study if a higher reporting resolution of Tc/2 is possible for gNB Rx-Tx time difference.
* RAN4 should study if a lower reporting granularity than 1 dB is feasible for UL SRS-RSRP.
* Investigate a variable reporting granularity and the reporting range for AoA and ZoA.
 |

## Open issues summary

### Sub-topic 2-1

**Issue 2-1: Report mapping for SRS-RSRP measurement**

* Proposals
	+ Option 1: (Intel, Nokia)
		- reporting granularity = 1dB
		- Maximum and minimum values = TBD
	+ Option 2: (Huawei)
		- reporting granularity = 1dB
		- Maximum and minimum values as for SS-RSRP
* Recommended WF
	+ Agree on reporting granularity of SRS-RSRP = 1dB
	+ Collect feedback if maximum and minimum values can be same as for SS-RSRP. If there is no consensus then investigate until next meeting.

### Sub-topic 2-2

**Issue 2-2: Report mapping for** **gNB Rx-Tx time difference measurement**

* Proposals
	+ Option 1: (Intel)
		- gNB Rx-Tx report mapping is same as for UL RTOA
	+ Option 2: (Huawei)
		- Reporting range is from -15391Ts to +15391Ts.
		- Reporting granularity is re-used from RSTD.
	+ Option 3: (Nokia)
		- Study if a higher reporting resolution of Tc/2 is possible for gNB Rx-Tx time difference-
* Recommended WF
	+ Proposals are very diverse. Need further discussion.

### Sub-topic 2-3

**Issue 2-3: Report mapping for UL RTOA measurement**

* Proposals
	+ Option 1: (Intel)
		- UL RTOA reporting granularity defined as: T=T\_c 2k, where k is a configuration parameter with a minimum value of “-1”.
	+ Option 2: (Huawei)
		- Reporting range is from 0 to 9600Ts.
		- Reporting granularity is Tc\*2k for the whole range.
* Recommended WF
	+ Proposals are very diverse. Need further discussion.

### Sub-topic 2-4

**Issue 2-4: Report mapping for AoA and ZoA**

* Proposals
	+ Option 1: (Intel)
		- The reporting range for AoA and ZoA is from 0 to 360 degree, with resolution of 0.1 degree.
	+ Option 2: (Huawei)
		- Reporting range is from -180 degree to +180 degree for AoA and from 0 to +180 degree for ZoA.
		- Reporting granularity is 0.1 degree.
	+ Option 3: (Nokia)
		- Investigate a variable reporting granularity and the reporting range for AoA and ZoA.
* Recommended WF
	+ Proposals are very diverse. Need further discussion.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1: Sub topic 1-2:….Others: |

### 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** |
| XXX | Company A |
| Company B |
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| YYY | Company A |
| Company B |
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## Summary for 1st round

### Open issues

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

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

*Suggestion on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title**  | **Assigned Company,****WF or LS lead** |
| #1 |  |  |

### CRs/TPs

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

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

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #3: Positioning measurement impact on RRM (AI 8.8.3)

According to WF in R4-1915854, “Way forward on NR Positioning RRM”, approved in RAN4#93 the following was agreed regarding impact of positioning on RRM:

* Existing handover requirements shall apply while the UE performs PRS based measurements.
* Existing requirements on UE transmit timing in section 7.1 and TA in section 7.3 in TS 38.133 shall apply during the PRS based positioning measurements.
* UE behaviour on scheduling restriction in FR1 shall be the same as agreed for FR2

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000605 | CATT | * No new measurement gap pattern needs to be defined for NR positioning. PRS periodicities shorter than a measurement gap periodicity can still be used for positioning measurements if measurement gap is not required.
* Existing HO requirements apply while UE performs PRS measurements, and the measurement period of RSTD measurement will be extended.
* Existing requirements on Tx timing including accuracy and application of TA apply even during an LPP session.
* The requirements for Rx – Tx time difference measurement is not applied if the transmit timing change by TA adjust signal.
* The UE Rx – Tx time difference measurement is not additional capability and is not impact on existing RRM requirements. The requirements for measurement period, accuracy and reporting mapping will be defined in RRM specification.
* The requirements for measurement period and accuracy of UE Rx – Tx time difference measurement should be defined based on the working bandwidth.
* One additional PRS measurement layer is defined for UE measurement.
 |
| R4-2000737 | Qualcomm Incorporated | * RAN4 to adhere to the RAN1 agreement regarding scheduling restriction of PRS symbols with other DL signals and channels in FR2 and apply the same rule and UE behavior to FR1.
* RAN4 to define new measurement gap lengths to enable PRS measurements with gaps. Maximum length of new measurement gap patterns to be further discussed with [40] ms as an option.
* PRS-RSTD and PRS-RSRP measurement requirements apply when UE’s active DL BWP is not changed during the measurement period. UE Rx-Tx time difference measurement requirements apply when UE’s active DL and UL BWP is not changed during the measurement period.
	+ Exact definitions of start and end of measurement period are FFS.
* RAN4 to consider UE’s active DL BWP change before the start of PRS measurement period such that it contains PRS BW and reverting it back once measurements are completed.
* Send an LS to RAN2 to provide the necessary signalling for Proposal 4.
 |
| R4-2001640 | Huawei, HiSilicon | * UE is not expected to perform RRM measurement during the processing time after a PRS occasion, or to perform PRS measurement during the processing time after the SMTC or CSI-RS occasion. Detailed UE measurement behavior is FFS.
* RAN4 to discuss whether UE can be configured with a separate gap configuration for PRS measurement in parallel to the gap configuration for RRM measurement.
* RAN4 should discuss whether to introduce new gap patterns with larger MGL for PRS measurement.
 |
| R4-2001918(AI: 8.8.2.1) | Nokia  | * UE behaviour in FR1 should be the same as in FR2, i.e. the UE is not expected to process DL PRS in the same OFDM symbol where other DL signals and channels are transmitted to the UE.
 |
| R4-2000389(AI: 8.8.2.12.) | Intel | * A single measurement gap pattern for RSTD inter-frequency measurements and other existing NR inter-frequency measurements (e.g. SSB based RSRRP/RSRQ) is beneficial for UE implementation complexity.
* If the gap for PRS measurement shall reuse the existing one [5] for NR measurement (e.g. SSB), UE may not utilize any one intact PRS resource within a gap.
* Regarding to the limited PRS resource within a legacy gap [5], RAN4 shall discuss necessity and feasibility of new measurement gap patterns for PRS measurement.
* The message to request the new RSTD measurement gap from UE is beneficial to improve the utilization of measurement gap for both RSTD and other legacy NR inter-frequency measurements.
 |

## Open issues summary

### Sub-topic 3-1

**Issue 3-1: Impact of TA change on UE Rx-Tx time difference measurement**

* Proposals
	+ Option 1: (CATT)
		- The requirements for UE Rx-Tx time difference measurement is not applied if the transmit timing change by TA adjust signal.
		- UE Rx-Tx time difference measurement does not impact any RRM requirement
* Recommended WF
	+ Collect feedback from companies if the above proposal is agreeable.

### Sub-topic 2-2

According to clause 5.1.6.4, TS 38.214 v16.0.0, PRS resource set (PRS burst) can be larger than 6 ms (current maximum MGL defined in 38.133).

**Issue 3-2: Measurement gaps**

* Proposals
	+ Option 1: (Qualcomm)
		- RAN4 to define new measurement gap lengths to enable PRS measurements with gaps. Maximum length of new measurement gap patterns to be further discussed with [40] ms as an option.
	+ Option 2: (Huawei)
		- RAN4 to discuss whether UE can be configured with a separate gap configuration for PRS measurement in parallel to the gap configuration for RRM measurement.
		- RAN4 should discuss whether to introduce new gap patterns with larger MGL for PRS measurement.
	+ Option 3: (CATT)
		- No new measurement gap pattern needs to be defined for NR positioning.
		- PRS periodicities shorter than a measurement gap periodicity can still be used for positioning measurements if measurement gap is not required
	+ Option 4 (Intel)
		- Regarding to the limited PRS resource within a legacy gap [5], RAN4 shall discuss necessity and feasibility of new measurement gap patterns for PRS measurement.
	+ Summary of options:
		- New gap pattern needed or further study new gap pattern for PRS measurements?
			* Yes (QC, Intel, HW)
			* No (CATT)
* Recommended WF
	+ Collect feedback on two main issues:
		- Is new gap pattern with MGL > 6 ms needed for PRS measurements and possible MGL values?
		- RRM and PRS measurements can be done using the same gap pattern or in separate gap patterns in parallel?

### Sub-topic 3-3

According to clause 5.1.6.4, TS 38.214 v16.0.0, “The UE assumes that for the serving cell the DL PRS is not mapped to any symbol that contains SS/PBCH. If the time frequency location of the SS/PBCH block transmissions from non-serving cells are provided to the UE then the UE also assumes that the DL PRS is not mapped to any symbol that contains the SS/PBCH block of the non-serving cell”.

**Issue 3-3: Scheduling restriction**

* Proposals
	+ Option 1: (Qualcomm, Nokia)
		- RAN4 to adhere to the RAN1 agreement regarding scheduling restriction of PRS symbols with other DL signals and channels in FR2 and apply the same rule and UE behavior to FR1.
	+ Option 2: (Huawei)
		- UE is not expected to perform RRM measurement during the processing time after a PRS occasion, or to perform PRS measurement during the processing time after the SMTC or CSI-RS occasion. Detailed UE measurement behavior is FFS.
* Recommended WF
	+ Confirm RAN4 previous agreement on scheduling restriction of PRS symbols with other DL signals and channels in FR2 and apply same rule for FR1.

### Sub-topic 3-4

**Issue 3-4: Active BWP status during measurements**

* Proposals
	+ Option 1: (Qualcomm)
		- PRS-RSTD and PRS-RSRP measurement requirements apply when UE’s active DL BWP is not changed during the measurement period.
		- UE Rx-Tx time difference measurement requirements apply when UE’s active DL and UL BWP is not changed during the measurement period
		- RAN4 to consider UE’s active DL BWP change before the start of PRS measurement period such that it contains PRS BW and reverting it back once measurements are completed. Send an LS to RAN2 to provide the necessary signalling.
* Recommended WF
	+ Collect companies’ feedback on proposed conditions related to active DL BWP for applicability of PRS-RSTD and PRS-RSRP measurement requirements.
	+ Collect companies’ feedback on proposed condition related to active DL BWP and active UL BWP for applicability of UE Rx-Tx time difference measurement requirements.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1: Sub topic 1-2:….Others: |

### 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** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| Company B |
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## Summary for 1st round

### Open issues

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

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

*Suggestion on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title**  | **Assigned Company,****WF or LS lead** |
| #1 |  |  |

### CRs/TPs

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

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

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #4: UE-based positioning performance requirements (AI 8.8.4)

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000738 | Qualcomm Incorporated | * RAT-dependent UE-based positioning has numerous benefits including but not limited to the following:
* Enabling new use cases
* Enabling improved performance of existing use cases
* Improved scalability
* Improved operational range
* Low UL overhead
* Low latency
* Very low specifications impact
* Parity with RAT-independent UE-based positioning
* UE-based positioning is optional from both gNB and UE side.
* In UE-based positioning, UE does not have to meet the measurement accuracy requirements defined in UE-assisted positioning so long as it meets the final positioning requirements. Hence, it cannot be assumed that a UE which meets the measurement accuracy requirements in UE-assisted positioning will meet the positioning requirements in UE-based positioning. In other words, UE-based and UE-assisted positioning are complementary modes.
* There is no risk in adding more capability to the standard and the requirement specifications. It enables another tool in the toolbox for the carriers to support their Emergency Services and LBS services. Commercial deployment choices will be driven by market needs and performance benefits on a carrier per carrier basis.
* Support of positioning modes are signalled independent of other modes. This means that a UE can support UE-based positioning but not UE-assisted positioning. Lack of performance requirements for UE-based positioning effectively means that UEs that only support UE-based positioning will operate in the NW without conformance testing or certification.
* RAN4 to define UE-based DL-only positioning performance requirements in terms of at least 2-D position error and max response time and the corresponding test case(s) in TS 38.133.
 |

## Open issues summary

### Sub-topic 4-1

**Issue 4-1: Requirements for UE based positioning**

* Proposals
	+ Option 1: (Qualcomm)
		- RAN4 to define UE-based DL-only positioning performance requirements in terms of at least 2-D position error and max response time and the corresponding test case(s) in TS 38.133.
* Recommended WF
	+ Collect feedback from companies:
		- Whether UE-based DL-only positioning performance requirements are to be define by RAN4?
		- Scope of work if requirements are defined?

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1: Sub topic 1-2:….Others: |

### 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** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| Company B |
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## Summary for 1st round

### Open issues

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

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

*Suggestion on WF/LS assignment*

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| --- | --- | --- |
|  | **WF/LS t-doc Title**  | **Assigned Company,****WF or LS lead** |
| #1 |  |  |

### CRs/TPs

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

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

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |