3GPP TSG-RAN WG2 Meeting #110-e R2-200xyzw

**Online, 1-12 June 2020**

Source: Session Chair (MediaTek)

Title: Report from session on positioning and on-demand SI in connected

# Status of At-Meeting Email Discussions

This subclause is not an Agenda Item. It contains a running summary of the email discussions assigned to take place during the meeting weeks. This section will be moved to an appendix in the final version of the report.

* [AT110-e][600] Organisational Nathan – Positioning/OdSIB (MediaTek)

 Scope: Organisational discussions and announcements, as needed throughout the meeting weeks

 Intended outcome: Well-informed participants

 Deadline: Friday 2020-06-12 1000 UTC

* [AT110-e][601][POS] AIP CRs on GNSS terminology (ESA)

 Scope: Confirm agreement on documents R2-2004734, R2-2004735, R2-2004745, and R2-2004746

 Intended outcome: Agreed CRs

 Deadline: Wednesday 2020-06-03 1000 UTC

* [AT110-e][602][POS] AIP CRs on UE positioning architecture in 38.305 (CATT)

 Scope: Confirm agreement on documents R2-2004790 and R2-2004791

 Intended outcome: Agreed CRs

 Deadline: Wednesday 2020-06-03 1000 UTC

* [AT110-e][603][POS] CRs on B1I signal ICD file version (CATT)

 Scope: Discuss and agree on documents R2-2004792, R2-2004793, and R2-2004794

 Intended outcome: Agreed CRs

 Deadline: Wednesday 2020-06-03 1000 UTC

* [AT110-e][604][POS] AIP CR on NavIC Keplerian set IE (Reliance Jio)

 Scope: Confirm agreement on document R2-2004595

 Intended outcome: Agreed CR

 Deadline: Wednesday 2020-06-03 1000 UTC

* [AT110-e][605][POS] On-demand posSIBs (Ericsson)

 Scope: Discuss the open issues for on-demand posSIBs:

* How many posSIBs can the UE request at a time?
* Is the request for posSIBs on SUL supported in Rel-16?
* Is T351 timer handling required also in 5.2.2.3.5 apart from 5.2.2.4.2?

 Intended outcome: Agreeable text proposal to be merged into the OdSIB running CR, in R2-2005881; report in R2-2005897

 Deadline: Comments Wednesday 2020-06-03 1000 UTC; report Thursday 2020-06-04 1000 UTC

* [AT110-e][606][POS] Open issues in LPP ASN.1 review (Qualcomm)

 Scope: Discuss and resolve remaining open issues identified in the LPP ASN.1 review process, and determine which issues need online discussion

 Intended outcome: Update of open issues from R2-2005212, in R2-2005882

 Deadline: Thursday 2020-06-04 1000 UTC

* [AT110-e][607][OdSIB] Proposals for on-demand SI in connected (Ericsson)

 Scope: Condense the proposals from documents under agenda item 6.21, and identify any easy agreements

 Intended outcome: Summary of issues and agreements, in R2-2005883

 Deadline: Comments Wednesday 2020-06-03 1000 UTC; report Thursday 2020-06-04 1000 UTC

* [AT110-e][608][POS] Positioning capabilities (Intel)

 Scope: Discuss and conclude on the agreeable UE capabilities for positioning in RRC and LPP, considering the common capability email discussion as well as capability-related inputs to the positioning session

 Intended outcome: Agreeable TPs to 38.306 (in R2-2005884), 38.331 (in R2-2005885), and 37.355 (in R2-2005886) , and report in R2-2005909

 Deadline: Comments Tuesday 2020-06-09 1000 UTC; output Wednesday 2020-06-10 1000 UTC [note: subject to adjustment based on the general capability discussion]

* [AT110-e][609][POS] Stage 2 CR checking and update (Qualcomm)

 Scope: Confirm the changes from R2-2005210 and update to take into account decisions of this meeting

 Intended outcome: Agreeable CR in R2-2005888

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][610][POS] Stage 2 proposals (Huawei)

 Scope: Conclude on proposals related to the update of 38.305:

* Updates for request of posSI in different RRC states
* Determine where the ARFCN needs to be added to the information transferred between UE and LMF
* Whether to include the “same Rx beam indication” in the information transferred from UE to LMF for DL-AoD

 Intended outcome: Agreeable TP to be merged into the stage 2 running CR, in R2-2005889

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][611][POS] RRC positioning CR update (Ericsson)

 Scope: Update R2-2005718 with decisions of this meeting

 Intended outcome: Agreeable CR in R2-2005890

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][612][POS] TRP-ID continuation (Ericsson)

 Scope: Continue discussion of the open issues from R2-2004704 and converge where possible. Open issues identified:

* Name of the integer identifier for a TRP
* Unique identification of a DL-PRS resource between the UE and the LMF
* Need for an additional identifier in the measurement information
* Need for a cell identifier in DL-PRS assistance data
* Need for a cell identifier in UE-based assistance data

 Intended outcome: Report of discussion, in R2-2005894

 Deadline: Thursday 2020-06-04 1800 UTC – extended to Wednesday 2020-06-10 1000 UTC

* [AT110-e][613][OdSIB] Checking of OdSIB CRs (Ericsson)

 Scope: Update and final checking of CRs to 38.300 (R2-2005898), 38.331 main (R2-2005899), 38.331 capability (R2-2005900), 38.306 (R2-2005901). Includes capturing the support of on-demand posSIBs from R2-2005881.

 Intended outcome: Agreeable CRs

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][614][POS] LS to RAN3 on cell list in NRPPa (Ericsson)

 Scope: Indicate to RAN3 the agreement above on posSIBs in different cells, and that we do not have a separate area ID for positioning.

 Intended outcome: Approved LS in R2-2005902

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][615][POS] Remaining positioning RRC issues (Huawei)

 Scope: Discuss and conclude on proposals 1, 4, and 11 from R2-2005714.

 Intended outcome: Agreeable TP in R2-2005903

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][616][POS] LPP CR update (Qualcomm)

 Scope: Update the running CR in R2-2005213 with decisions of this meeting.

 Intended outcome: Agreeable CR in R2-2005906

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][617][POS] UE-based assistance data continuation (Ericsson)

 Scope: Continue the beam and location info aspects of the email discussion on the structure of UE-based assistance data (proposals from R2-2004705).

 Intended outcome: Agreeable TP in R2-2005907

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][618][POS] MAC proposals (Huawei)

 Scope: Discuss the proposals in the MAC papers (R2-2004636, R2-2005211) and incorporate agreeable conclusions into the MAC CR.

 Intended outcome: Agreeable CR, update of R2-2005087 (in R2-2005905)

 Deadline: Wednesday 2020-06-10 1000 UTC

* [AT110-e][619][POS] Editorial LPP updates (Spirent)

 Scope: Check the contents of R2-2004460 and update if necessary.

 Intended outcome: Endorsed TP in R2-2005908

 Deadline: Wednesday 2020-06-10 1000 UTC

# 4 EUTRA corrections Rel-15 and earlier

See Appendix A for reference to Work items, work item codes and WIDs.

Only essential corrections. No documents should be submitted to 4. Please submit to 4.x

## 4.4 Positioning corrections Rel-15 and earlier

Documents in this agenda item will be handled by email. No web conference is planned for this agenda item.

### 4.4.0 In-principle agreed CRs

### 4.4.1 Other

# 5 WI: New Radio (NR) Access Technology

(NR\_newRAT-Core; leading WG: RAN1; REL-15; started: Mar. 17; closed: Jun. 19: WID: RP-191971)

Only essential corrections

## 5.2 Stage 2

### 5.2.3 Positioning

Corrections to both the stage 2 and stage 3 aspects related to positioning. Stage 2 CRs should be discussed with the specification rapporteur before submission.

Documents in this agenda item will be handled in a break out session.

#### 5.2.3.0 In-principle agreed CRs

[R2-2004734](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004734%20CR%20to%20clarify%20the%20meaning%20of%20GNSS%20term%20in%2036.305%20Rel-15.docx) CR to clarify the meaning of GNSS term in 36.305 Rel-15 ESA, Nokia, Nokia Shanghai Bell CR Rel-15 36.305 15.4.0 0086 1 F NR\_pos-Core R2-2003991

* Agreed in offline discussion [AT110-e][601]

[R2-2004735](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004735%20CR%20to%20clarify%20the%20meaning%20of%20GNSS%20term%20in%2036.305%20Rel-16.docx) CR to clarify the meaning of GNSS term in 36.305 Rel-16 ESA, Nokia, Nokia Shanghai Bell CR Rel-16 36.305 16.0.0 0087 1 A NR\_pos-Core R2-2003992

* Agreed in offline discussion [AT110-e][601]

[R2-2004745](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004745%20CR%20to%20clarify%20the%20meaning%20of%20GNSS%20term%20in%2038.305%20Rel-15.docx) CR to clarify the meaning of GNSS term in 38.305 Rel-15 ESA, Nokia, Nokia Shanghai Bell CR Rel-15 38.305 15.5.0 0020 1 F NR\_pos-Core R2-2003993

* Agreed in offline discussion [AT110-e][601]

[R2-2004746](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004746%20CR%20to%20clarify%20the%20meaning%20of%20GNSS%20term%20in%2038.305%20Rel-16.docx) CR to clarify the meaning of GNSS term in 38.305 Rel-16 ESA, Nokia, Nokia Shanghai Bell CR Rel-16 38.305 16.0.0 0021 1 A NR\_pos-Core R2-2003994

* Agreed in offline discussion [AT110-e][601]
* [AT110-e][601][POS] AIP CRs on GNSS terminology (ESA)

 Scope: Confirm agreement on documents R2-2004734, R2-2004735, R2-2004745, and R2-2004746

 Intended outcome: Agreed CRs

 Deadline: Wednesday 2020-06-03 1000 UTC

[R2-2004790](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38305_CR0018r1_%28Rel-15%29_R2-2004790.docx) Clarification on UE Positioning Architecture in 38 305 for Rel-15 CATT CR Rel-15 38.305 15.5.0 0018 1 F NR\_newRAT-Core R2-2004143

* Revised in R2-2005891

[R2-2004791](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38305_CR0019r1_%28Rel-16%29_R2-2004791.docx) Clarification on UE Positioning Architecture in 38 305 for Rel-16 CATT CR Rel-16 38.305 16.0.0 0019 1 A NR\_newRAT-Core R2-2004144

* Revised in R2-2005892
* [AT110-e][602][POS] AIP CRs on UE positioning architecture in 38.305 (CATT)

 Scope: Confirm agreement on documents R2-2004790 and R2-2004791

 Intended outcome: Agreed CRs

 Deadline: Wednesday 2020-06-03 1000 UTC

[R2-2005891](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38305_CR0018r2_%28Rel-15%29_R2-2005891.docx) Clarification on UE Positioning Architecture in 38 305 for Rel-15 CATT CR Rel-15 38.305 15.5.0 0018 2 F NR\_newRAT-Core R2-2004790

* Agreed in offline discussion [AT110-e][602]

[R2-2005892](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38305_CR0019r2_%28Rel-16%29_R2-2005892.docx) Clarification on UE Positioning Architecture in 38 305 for Rel-16 CATT CR Rel-16 38.305 16.0.0 0019 2 A NR\_newRAT-Core R2-2004791

* Agreed in offline discussion [AT110-e][602]

# 6 Rel-16 NR Work Items

## 6.8 NR Positioning Support

(NR\_pos-Core; leading WG: RAN1; REL-16; started: Mar 19; target; Jun 20; WID: RP-200218, SR: RP-200217). Documents in this agenda item will be handled in a break out session

Time budget: 1 TU

### 6.8.1 Organisational

Including incoming LSs, rapporteur inputs, etc.

Incoming LSs

[R2-2004319](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004319_S2-2003341.doc) Reply LS on Local NR positioning in NG-RAN (S2-2003341; contact: Nokia) SA2 LS in Rel-16 5G\_eLCS To:RAN Cc:RAN3, RAN2

[R2-2004332](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004332_R3-202646.doc) LS on support for UL NR E-CID (R3-202646; contact: Nokia) RAN3 LS in Rel-16 NR\_pos-Core To:RAN1, RAN2

[R2-2004333](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004333_R3-202749.docx) LS on support for Area Scope in Assistance Information metadata (R3-202749; contact: Ericsson) RAN3 LS in Rel-16 NR\_pos-Core To:RAN2

[R2-2004376](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004376_R4-2005841.doc) LS on NR Positioning gNB measurement report range and granularity (R4-2005841; contact: Intel) RAN4 LS in Rel-16 NR\_pos-Core To:RAN2, RAN3 Cc:RAN1

[R2-2004383](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004383_R4-2005845.doc) LS on report mapping for UE positioning measurement (R4-2005839; contact: Huawei) RAN4 LS in Rel-16 NR\_pos-Core To:RAN2 Cc:RAN1, RAN3

* Above 5 LSs are noted without presentation

UE capability

[R2-2004635](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004635%20CR%20UE%20Capabilities.docx) Introduction of UE capability for Positioning Ericsson draftCR Rel-16 38.331 16.0.0 B NR\_pos-Core

* Noted (to be taken into account in discussion [608])
* [AT110-e][608][POS] Positioning capabilities (Intel)

 Scope: Discuss and conclude on the agreeable UE capabilities for positioning in RRC and LPP, considering the common capability email discussion as well as capability-related inputs to the positioning session

 Intended outcome: Agreeable TPs to 38.306 (in R2-2005884), 38.331 (in R2-2005885), and 37.355 (in R2-2005886), and report in R2-2005909

 Deadline: Comments Tuesday 2020-06-09 1000 UTC; output Wednesday 2020-06-10 1000 UTC [note: subject to adjustment based on the general capability discussion]

R2-2005909 Report of offline discussion [608][POS] Positioning capabilities (Intel) Intel Corporation discussion Rel-16

R2-2005884 Introduction of UE capability for Positioning Intel Corporation draftCR Rel-16 38.306 16.0.0 B NR\_pos-Core

R2-2005885 Introduction of UE capability for Positioning Intel Corporation draftCR Rel-16 38.331 16.0.0 B NR\_pos-Core

R2-2005886 Introduction of UE capability for Positioning Intel Corporation draftCR Rel-16 37.355 16.0.0 B NR\_pos-Core

On-demand SI

[R2-2004639](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004639%20Open%20issues.docx) Report Open issues on on-demand SI for positioning Ericsson report Rel-16

[R2-2004653](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004653%20CR%20on-demand.docx) Introduction of on-demand System Information functionality for Positioning Ericsson draftCR Rel-16 38.331 16.0.0 B NR\_pos-Core

* Above 2 documents noted without presentation (to be taken into account in discussion [605])
* [AT110-e][605][POS] On-demand posSIBs (Ericsson)

 Scope: Discuss the open issues for on-demand posSIBs:

* How many posSIBs can the UE request at a time?
* Is the request for posSIBs on SUL supported in Rel-16?
* Is T351 timer handling required also in 5.2.2.3.5 apart from 5.2.2.4.2?

 Intended outcome: Agreeable text proposal to be merged into the OdSIB running CR, in R2-2005881; report in R2-2005897

 Deadline: Comments Wednesday 2020-06-03 1000 UTC; report Thursday 2020-06-04 1000 UTC

[R2-2005897](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005897.docx) [AT110-e][605][POS] On-demand posSIBs (Ericsson) Ericsson report Rel-16

P3:

 Huawei think the concern is whether to have a separate T351, because we decided last meeting to have a single timer per UE. They do not see the motivation for a separate timer.

 Ericsson think the UE handles the positioning and regular SIBs separately and the network may also handle them separately. Both requests could come together.

 Nokia think it is overkill to have independent timers. From an ASN.1 perspective there is no need.

 CATT share Ericsson’s view and note that the number of available SIBs is quite different in the two cases. The network may want to set the positioning timer shorter.

 Samsung agree with Huawei and Nokia that the separate timer is not required. They think the prohibit timer is already a compromise and we shouldn’t complicate it further. LG agree.

 vivo wonder if when the UE fails to receive a posSIB, it can still receive a regular SIB. The contents come from different sources; if the network cannot send the posSIB it may still have the regular SIBs.

 ZTE think the intention is to prevent the UE from sending repeated requests in a congested network, and it doesn’t matter what kind of SIB is being requested.

P5:

 Qualcomm think it is needed to have the separate field, because the UE can request both simultaneously and they would need to be provided in two different OCTET STRINGs.

 Huawei think the fields can carry both simultaneously. Chair understands that the SystemInformation message is a CHOICE between regular and positioning, so it cannot delivery both in a single message. Qualcomm agree.

 Nokia wonder if we have a single container for multiple requested SIBs. They understand that a simultaneous request could be met by multiple reconfiguration messages.

 Ericsson think we should keep the separate field because the UE handles the two cases differently and it might have procedural impact to combine them.

 Qualcomm think handling the request with multiple reconfiguration messages overcomplicates the process. Since we can request both at the same time, we should be able to deliver both at the same time.

Agreements:

The maximum number of posSIB(s) that UE may request is up to 32.

Msg-1 based on demand SI request is supported also for SUL.

T350 also functions as prohibit timer for posSIBs.

A separate dedicatedPosSysInfoDelivery-r16 field is provided.

[R2-2005881](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005881.docx) Introduction of on-demand System Information functionality for Positioning Ericsson draftCR Rel-16 38.331 16.0.0 B NR\_pos-Core

* Endorsed to be merged into the CR in offline discussion #613, incorporating the decisions of this meeting.

LSs received during meeting

[R2-2006093](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006093_R1-2004951.doc) LS on removing SMTC from SSB assistance data (R1-2004951; contact: Huawei) RAN1 LS in Rel-16 NR\_pos-Core To:RAN2

[R2-2006103](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006103_R1-2005047.doc) LS on Capturing UE DL PRS Processing Capability (R1-2005047; contact: Intel) RAN1 LS in Rel-16 NR\_pos-Core To:RAN2

[R2-2006129](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006129_R4-2009111.doc) LS on intra/inter-frequency measurement for NR positioning (R4-2009111; contact: Huawei) RAN4 LS in Rel-16 NR\_pos-Core To:RAN1, RAN2

[R2-2006136](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006136_R4-2009246.doc) LS on measurement gaps for NR positioning (R4-2009246; contact: Ericsson) RAN4 LS in Rel-16 NR\_pos-Core To:RAN2, RAN1

[R2-2006138](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006138_R4-2009267.doc) LS on impact of NTA offset on UE Rx-Tx time difference measurement (R4-2009267; contact: Ericsson) RAN4 LS in Rel-16 NR\_pos-Core To:RAN2 Cc:RAN1

Withdrawn

[R2-2004377](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004377_R4-2005845.doc) LS on report mapping for UE positioning measurement (R4-2005839; contact: Huawei) RAN4 LS in Rel-16 NR\_pos-Core To:RAN2 Cc:RAN1, RAN3 Withdrawn

### 6.8.2 Architecture and protocol aspects

No documents should be submitted to 6.8.2. Please submit to 6.8.2.x.

#### 6.8.2.1 Stage 2 corrections

Including impact to 36.305 and 38.305. Stage 2 corrections should be discussed with the specification rapporteur before submission.

This agenda item will utilize a summary document to facilitate treatment of topics during the e-meeting. (Huawei)

Tdoc limitation: 1 tdoc

Running CR to 38.305

[R2-2005210](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005210_%2838305%20corrections%29_v3.docx) Corrections to NR Positioning Qualcomm Incorporated CR Rel-16 38.305 16.0.0 0025 - F NR\_pos-Core

* [AT110-e][609][POS] Stage 2 CR checking and update (Qualcomm)

 Scope: Confirm the changes from R2-2005210 and update to take into account decisions of this meeting

 Intended outcome: Agreeable CR in R2-2005888

 Deadline: Wednesday 2020-06-10 1000 UTC

R2-2005888 Corrections to NR Positioning Qualcomm Incorporated CR Rel-16 38.305 16.0.0 0025 1 F NR\_pos-Core

CR to 38.300

[R2-2004517](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004517%20Stage%202%20Missing%20Positionning%20SIB.docx) Missing SIB for positioning Nokia (Rapporteur) CR Rel-16 38.300 16.1.0 0227 - F NR\_pos-Core

Ericsson think we should have an RRC reference as well as the sibPos name is not used in 37.355.

Reference to 38.331 to be added in the new text.

* Agreed with this change in R2-2005887

Summary document

[R2-2005103](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CDraft%20R2-2005103%20Summary%20of%20stage-2%20AI%206.8.2.1.DOCX) Summary of stage-2 AI 6.8.2.1 Huawei, HiSilicon discussion Rel-16 NR\_pos-Core Late

P2:

 CATT think we can say “on-demand SI request in RRC\_CONNECTED” instead of “on-demand connected mode procedure”.

 Qualcomm don’t think we need a new section for the on-demand procedure as it does not add a different procedure for positioning. CATT agree that the new 7.5.x is not needed, and have additional comments on the details.

 We will not introduce the new section and just have a brief sentence in 7.5.1.

P3:

 CATT wonder if we will align stage 3 to the same wording.

 Ericsson think this may be in a RAN3 part. Intel agree it is in RAN3 scope but are OK to mention the NG-RAN measurements in the RRC description.

 Qualcomm think there is no stage 3 impact.

 OPPO wonder if we need to specify that the measurements are for positioning. Apple think it’s correct to capture “NG-RAN measurements for positioning”.

 Nokia think the proposal is OK as it is. Ericsson think we should give RAN3 some say.

P4:

 Qualcomm think the pathloss reference in the MAC CE is not for the positioning SRS; we can only change the spatial relation. Huawei agree for Rel-16 SRS, but point out for Rel-15 SRS used for positioning we have the Rel-15 a/d MAC CE. Qualcomm agree but the new MAC functionality is specific to Rel-16.

 Nokia think we should keep the existing text but just update “uplink positioning measurements” to “NG-RAN measurements”. They think the other aspects can stay in stage 3.

 Ericsson think it makes sense to have some generic description of the pathloss reference if RAN1 confirm that multi-RTT can be used with Rel-15 signals.

 Intel agree with Nokia that we should keep the text simple.

 Huawei think the description is incomplete without mentioning the spatial relation; it suggests that the functionality is just activation/deactivation.

 Qualcomm think there is no direct relationship to multi-RTT and the use of Rel-15 signals does not affect our stage 2. They would be OK with keeping the original text, but if we capture more details we should do it correctly.

P5:

 Nokia think this is RAN3 text and it should be addressed in RAN3. Intel agree.

P6:

 Qualcomm think the argumentation applies to all positioning methods, not just NR E-CID. Huawei think for other positioning methods it would be between gNB and LMF. Qualcomm understand that it is needed from UE to LMF for all methods (for the measured cell).

 CATT think this is in the scope of the TRP-ID discussion. Huawei do not think it is related because the ARFCN is needed either in or out of the TRP-ID container. Intel agree with Huawei.

P7:

 Nokia think RAN1 have discussed the same Rx beam indication, but not clear what the conclusion was. We may need time to check the RAN1 status.

 CATT wonder why we remove “quality of each measurement” since the quality of the RSRP should be included. Qualcomm understand that the quality is only for timing measurements. Huawei have the same view.

Agreements:

- Change the “UL positioning measurement” to “NG-RAN measurements for NR positioning” in the description for RRC and MAC protocols.

- Remove “Quality of each measurement” that may be transferred from UE to the LMF for NR DL AoD positioning in clause 8.11.2.2

* [AT110-e][610][POS] Stage 2 proposals (Huawei)

 Scope: Conclude on proposals related to the update of 38.305:

* Updates for request of posSI in different RRC states
* Determine where the ARFCN needs to be added to the information transferred between UE and LMF
* Whether to include the “same Rx beam indication” in the information transferred from UE to LMF for DL-AoD

 Intended outcome: Agreeable TP to be merged into the stage 2 running CR, in R2-2005889

 Deadline: Wednesday 2020-06-10 1000 UTC

[R2-2005889](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005889%20%5BAT110-e%5D%5B610%5D%5BPOS%5D%20Stage%202%20proposals.docx) [AT110-e][610][POS] Stage 2 proposals (Huawei) Huawei, HiSilicon discussion Rel-16

The following tdocs will not be individually treated

[R2-2004638](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004638%20CR%20Stage2.docx) Text Proposal for on demand system information procedure Ericsson discussion Rel-16 38.305 NR\_pos-Core

[R2-2005094](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005094%20Corrections%20to%20stage-2%20v02.docx) Corrections to stage-2 spec Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005700](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005700%20SUL%20support%20for%20Rel-16%20positioning.docx) SUL support for Rel-16 positioning purpose Samsung R&D Institute UK discussion

Withdrawn:

R2-2004727 Introduction of UL NR E-CID Intel Corporation CR Rel-16 38.305 16.0.0 0023 - F NR\_pos-Core

#### 6.8.2.2 RRC corrections

Including impact to 36.331 and 38.331. Issues for correction in RRC should be raised as class 3 issues in the ASN.1 review process. For accepted RIL issues, the proponent company can provide a discussion doc with an annex TP (if needed). Documents on issues outside the ASN.1 review (aside from email discussion summaries) may be deprioritised.

This agenda item will utilize a summary document to facilitate treatment of topics during the e-meeting. (Ericsson)

Including outcome of email discussion [Post109bis-e][950][POS] Remaining issues on broadcast (CATT)

Running CR

[R2-2005718](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005718.docx) Capturing RRC Positioning Impacts after RAN2-109bis Ericsson (Rapporteur) CR Rel-16 38.331 16.0.0 1592 1 F NR\_pos-Core R2-2003880

Huawei think the changes from R2-2005089 need to be captured.

* Endorsed as baseline for further updates (R2-2005089 should be included)
* [AT110-e][611][POS] RRC positioning CR update (Ericsson)

 Scope: Update R2-2005718 with decisions of this meeting

 Intended outcome: Agreeable CR in R2-2005890

 Deadline: Wednesday 2020-06-10 1000 UTC

R2-2005890 Capturing RRC Positioning Impacts after RAN2-109bis Ericsson (Rapporteur) CR Rel-16 38.331 16.0.0 1592 2 F NR\_pos-Core

Email discussion summary

[R2-2004796](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004796_Report%20of%20%5BPost109bis-e%5D%5B950%5D%5BPOS%5D%20Remaining%20issues%20on%20broadcast%20%28CATT%29.doc) Report of [Post109bis-e][950][POS] Remaining issues on broadcast (CATT) CATT discussion Rel-16 NR\_pos-Core

=> Revised in R2-2006012.

[R2-2006012](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006012_Report%20of%20%5BPost109bis-e%5D%5B950%5D%5BPOS%5D%20Remaining%20issues%20on%20broadcast%20%28CATT%29.doc) Report of [Post109bis-e][950][POS] Remaining issues on broadcast (CATT) CATT discussion Rel-16 NR\_pos-Core

P1:

 Nokia think NRPPa has the option to stop broadcasting, and the requirements are not clear as to whether the gNB releases the stored posSIBs in this case—so can the UE still request them? If the UE includes the GNSS ID in the request, but the gNB has been asked to stop broadcasting for this GNSS, can the UE request it? Chair thinks this is a general issue and not specific to the GNSS/SBAS ID. Nokia clarify their concern is about the gNB being required to store multiple copies of the posSIB.

 Qualcomm think the problem is that we have only a GNSS positioning method, and the UE may need the assistance data for a specific GNSS. E.g. we have “GNSS ephemeris” SIB type, although the actual ephemeris is different for different GNSSs. They understand that the UE must be able to request AD for a particular GNSS.

 CATT wonder if the gNB has the option to stop broadcasting, why wouldn’t it just update SIB1 which will prevent the UE from seeing the GNSS that has stopped? Chair has the same understanding. Ericsson agree with CATT, and wonder if there will be actual cases of deploying multiple GNSSs in a single network—if so, it would be important to have this. Intel also wonder about the likelihood of deploying multiple GNSSs.

 Nokia understand that the GNSS/SBAS metadata are for the benefit of the UE and there is no requirement on the gNB to act on it. They see that this would create a requirement for the gNB to be sensitive to the metadata instead of passing it through transparently.

 Qualcomm think the metadata are already not transparent for the gNB, because the gNB needs to take it into account in formulating SIB1. They consider that the feature is broken if we do not have the ability to request AD for a specific GNSS/SBAS, because the AD are not meaningful without an associated GNSS ID.

P2:

 Ericsson think if we do not have a separate SI area ID for positioning, the use of this field is unclear, but they can accept the majority view.

 Intel also think it is not needed without the separate area ID.

 CATT think area scope still works without the separate area ID; it can be configured by OAM.

 QC understand that the SIBs already can be area-specific, so this adds nothing new. Ericsson think it relates to the LS from RAN3 which asked if there will be a cell list. So the question is whether we need NRPPa signalling. Nokia think this is already discussed in RAN3 and out of RAN2 scope.

 Qualcomm do not think it is related to the cell list, and understand the area scope flag is already part of the metadata. They do not think this is a RAN2 issue.

P3:

Agreements:

Agree with GNSS ID/SBAS ID in on-demand SI request (per SIB) to assistance data in RRC\_CONNECTED mode and merge it into running CR 38.331 for ASN.1 check.

Postpone the separate positioning system information area ID to Rel-17 and reuse the existing area ID.

[Discussion continued in next session]

D1 (cell list):

 Qualcomm think we need to provide input to RAN3, and the issue is that RAN3 understand currently that the posSIB information is valid for all cells in the gNB. The question is whether to distinguish by cells.

 Ericsson think the area scope should resolve this. They see no limitation that prevents the LMF from sending per-cell information.

 CATT think the gNB does not know the area scope automatically and the cell list can help the gNB determine the correct cells to handle the broadcast.

 Intel think if RAN3 didn’t understand that the posSIB can be different for different cells, we should notify them. Huawei agree that the final conclusion can be left to RAN3.

 Nokia think the underlying problem is not entirely clear in the LS from RAN3.

 Ericsson think if we have a per-gNB limitation, we should solve it.

Agreements:

RAN2 consider that the posSIBs can be different in different cells of the gNB, and leave it to RAN3 how to handle this in signalling.

Send an LS to RAN3 to this effect.

* [AT110-e][614][POS] LS to RAN3 on cell list in NRPPa (Ericsson)

 Scope: Indicate to RAN3 the agreement above on posSIBs in different cells, and that we do not have a separate area ID for positioning.

 Intended outcome: Approved LS in R2-2005902

 Deadline: Wednesday 2020-06-10 1000 UTC

R2-2005902 LS on Cell list in NRPPa RAN2 LS out Rel-16 NR\_pos-Core To:RAN3

* Not provided (discussion concluded that no LS is needed)

D2 (unicast tag):

 Ericsson think the spec impact is minor and there would be a scheduling bottleneck without it.

 Nokia think we have discussed it for a long time without consensus, and they do not see a clear motivation.

 ESA think the tag is helpful to reduce latency.

 CATT think there are other ways to reduce latency, and this is not a good solution because if the gNB does not want to broadcast a posSIB it should not schedule it in SIB1.

 vivo understand it would not be mandatory to use the tag, but they see that it could improve the deployment situation by relieving the scheduling bottleneck.

 Huawei think it has some benefits but is not essential, and they see more significant impact than Ericsson do. It is a very late stage and maybe we can consider it in Rel-17.

 Apple think information not being broadcasted should not be treated as system information. Ericsson think it is needed to inform the UE that the posSIB is available even if it is not broadcasted.

Agreement:

We do not introduce the unicast tag in this release.

AIP CR

[R2-2004707](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004707.docx) Broadcast of additional assistance data NextNav, AT&T, FirstNet, Intel, Polaris Wireless CR Rel-16 38.331 16.0.0 1508 1 C NR\_pos, NR\_pos-Core R2-2002598

* Noted (merged into R2-2005718)

Summary document

[R2-2005714](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005714.docx) Summary for RRC Corrections for Positioning Ericsson discussion Rel-16 NR\_pos-Core Late

P1:

 Huawei are OK with the change although it is a bit of an optimisation. If the serving cell ID is included in the non-serving-cell case then we do not need a two-level structure and it’s enough to have a CHOICE.

 CATT think the change is too complicated and prefer the existing definition. They agree with the second proposal in R2-2004637 (removal of the -r16 suffix in a CHOICE).

 Ericsson do not see what the complication is.

 Continue offline.

P2:

 Proposal is to remove the CSI-RS pathloss reference.

P4:

 Proposal is about the LocationMeasurementIndication.

 Continue offline for the details of how to capture it.

 Huawei and Intel understand that RAN4 have taken related decisions not to have the inter-frequency concept for positioning measurements. All positioning measurements may need a gap, but Huawei wonder if it covers all positioning methods.

P10:

 Ericsson understand that RAN1 have decided not to include the SMTC configuration.

 Huawei have the same understanding from RAN1. vivo understand it is a RAN4 agreement. Qualcomm think it originates from RAN1 and there is an LS expected.

P11:

 Continue offline to evaluate whether there is a duplicate configuration at the resource level.

P12:

 Intel think it is quite late to consider this and we should focus on NR positioning.

 Qualcomm think it is more of a correction and by default it should be there in LTE as well. They observe the spec impact is small.

 Huawei agree with Qualcomm and think this only relates to NGEN-DC. They see it as in scope for the WI and no reason not to support it.

 Nokia agree with Intel that this is coming quite late.

 Intel think this would require a change to LPP to support the serving cell being LTE.

 Qualcomm point out that NR can broadcast LTE OTDOA SIBs, and we are inconsistent in not having the opposite direction. They see no impact to LPP or to RAN3 specs.

 CATT agree with Intel and think more investigation is needed for the possible spec impact.

 Huawei think the possible LPP change is not the same issue and relates more to uplink positioning. They see this as about the completeness of the spec but can accept if majority view is not to have it.

 Intel think if we want to enable the LTE UE to do NR positioning, we should support the whole package in one release. They are open to consider this in Rel-17.

Agreements:

 Remove the CSI-RS pathloss reference for SRS for positioning.

 The LocationMeasurementIndication is extended to support NR inter-frequency measurements.

 Re-organise (Separate table) the field description for trp-ID, dl-PRS-ResourceSetID and dl-RRS-ResourceId-r16 in DL-PRS-Info-R16.

 If SSB-InfoNcell-r16 is used to configure spatial relation, ssb-IndexNcell-r16 in SSB-InfoNcell-r16 is optional and Need R.

 Change the SFN offset in SSB-Configuration according to the LPP spec.

 Add missing field description for SSB-Configuration IE for SRS for Positioning configuration.

 Align the SSB timing with RAN1 agreement not to have the SMTC configuration.

Proposal 1 RAN2 to review the changes suggested in R2-2004637 and provide the opinion in an email discussion during RAN2#110.

Proposal 4 RAN2 to agree on the changes and review R2-2005091 and R2-2005394 to capture the needed change in an email discussion during RAN2#110.

Proposal 11 RAN2 to review and discuss if there is no need to configure the resource type under SRS resource.

• Change the choice structure to configuration of periodicityAndOffset and slotOffset

• Add a conditional presence tag that the field periodicityAndOffset is mandatory present for semi-persistent and periodic SRS. For Aperiodic SRS, it is absent.

• Add a conditional presence tag that the field slotOffset is optional present for aperiodic SRS, need S; otherwise it is absent.

* [AT110-e][615][POS] Remaining positioning RRC issues (Huawei)

 Scope: Discuss and conclude on proposals 1, 4, and 11 from R2-2005714.

 Intended outcome: Agreeable TP in R2-2005903

 Deadline: Wednesday 2020-06-10 1000 UTC

R2-2005903 [TP from offline discussion #615] Huawei, HiSilicon draftCR Rel-16 38.331 16.0.0 F NR\_pos-Core

The following tdocs will not be individually treated

[R2-2004637](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004637%20RIL%20E259.docx) Solution for RIL E259 to remove cond on ServingCell ID Ericsson draftCR Rel-16 38.331 16.0.0 F NR\_pos-Core

[R2-2004708](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004708.docx) Removal of CSI-RS as pathloss reference for positioning SRS [M111] MediaTek Inc. discussion Rel-16 NR\_pos-Core

[R2-2005089](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005089%20DraftCR%20for%20SSB%20configuration%20in%20RRC%20spec.docx) DraftCR for SSB configuration in RRC spec Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005090](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005090%20DraftCR%20for%20introduction%20of%20new%20posSib.doc) DraftCR for introduction of new posSIB Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005091](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005091%20DraftCR%20for%2038.331%20on%20location%20measurement%20indication-v2.docx) DraftCR for 38.331 on location measurement indication Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005093](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005093%20Discussion%20on%20SRS%20spitial%20direction%20configuration_final%20%28003%29.doc) Discussion on SRS spitial relation configuration Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005095](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005095%20DraftCR%20for%20posSI-SchedulingInfo.doc) DraftCR for posSI-SchedulingInfo Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005096](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005096%20DraftCR%20for%20on%20demand%20Positioning%20system%20information.doc) DraftCR for onDemand Positioning system information Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005097](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005097%20Correction%20on%20prohibit%20timer%20for%20SI%20request%20for%20positioning.doc) Correction on prohibit timer for SI request for positioning Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005098](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005098%20DraftCR%20for%20duplicated%20description%20for%20SI%20request%20for%20positioning.doc) DraftCR for duplicated description for SI request for positioning Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005099](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005099%20Text%20proposal%20for%20positioning%20system%20information.doc) Text proposal for positioning system information Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005100](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005100%20Draft%20CR%20the%20resourceType%20under%20SRS-PosResource.doc) Draft CR the resourceType under SRS-PosResource Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005106](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005106%20Corrections%20to%20SSB%20configuration%20in%20RRC_final.docx) Corrections to SSB configuration in RRC Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005316](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005316%20unicast%20tag.docx) [E271] unicast tag for positioning posSI-BroadcastStatus Ericsson discussion Rel-16

[R2-2005394](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005394%20LocationMeasurementIndication.docx) [N043] Location Measurement Indication updates for NR inter-frequency RSTD Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_pos-Core

#### 6.8.2.3 LPP corrections

Issues for correction in LPP should be raised as part of the LPP ASN.1 review process. Documents on issues outside the ASN.1 review (aside from email discussion summaries) may be deprioritised.

This agenda item will utilize a summary document to facilitate treatment of topics during the e-meeting. (Intel)

Including outcome of email discussion [Post109bis-e][946][POS] Reference for additional path reporting (Ericsson)

Including outcome of email discussion [Post109bis-e][947][POS]TRP-ID structure (Ericsson)

Including outcome of email discussion [Post109bis-e][948][POS] LPP ASN.1 review (Qualcomm)

Including outcome of email discussion [Post109bis-e][949][POS] Structure of UE-based assistance data (Ericsson)

Including outcome of email discussion [Post109bis-e][951][POS] Remaining issues on UE-based positioning (Huawei)

Running CR

R2-2005215 LPP Clean-Up Qualcomm Incorporated CR Rel-16 37.355 16.0.0 0260 - F NR\_pos Late

[R2-2005213](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CDocs%5CR2-2005213.zip) LPP Clean-Up Qualcomm Incorporated discussion Late

* Endorsed as a baseline, to be updated with decisions of this meeting
* [AT110-e][616][POS] LPP CR update (Qualcomm)

 Scope: Update the running CR in R2-2005213 with decisions of this meeting.

 Intended outcome: Agreeable CR in R2-2005906

 Deadline: Wednesday 2020-06-10 1000 UTC

R2-2005906 LPP Clean-Up Qualcomm Incorporated CR Rel-16 37.355 16.0.0 0260 1 F NR\_pos Late

Email discussion summaries

[R2-2004702](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004702%20Report%20additional%20path.docx) Report on Reference for additional path reporting Ericsson report Rel-16

[R2-2004703](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004703%20Summary.docx) Summary and Text Proposal Reference for additional path reporting Ericsson discussion Rel-16

Qualcomm think the TP is not clear when it says the UE should subtract the transmission timing from the reference values; we have no such requirement in LTE, and for UE Rx-Tx there should be no relevance of the transmission timing difference. Ericsson clarify that without any consideration of the transmission timing, it will not be correct for beam sweeping, because the reference timing can be from a different resource. The alternative would be for the LMF to handle it.

Qualcomm want to understand what the transmission timing difference is in this context. Ericsson clarify it is the difference between two DL PRS resources in the same resource set. Qualcomm find this not clear from the TP.

CATT agree with the proposal but think the description needs some modification. They also point out there is a related LS response proposed from Huawei. Also think we need to add 38.133 as a reference.

Nokia also think the current text is not clear and we should formulate a clear proposal without relying on option numbers. Huawei agree and think the TP needs to be polished. They think the RAN4 LS is on a different issue (measurement report value ranges) and comes under the LPP discussion.

Ericsson note the nr-RSTD-ResultDiff field description is missing in the baseline and the TP adds it. So this should be checked.

Agreements:

Additional path reporting is based on a path timing reference in which the path timing used to determine the nr-RSTD, nr-RSTD-ResultDiff, nr-UE-RxTxTimeDiff and nr-UE-RxTxTimeDiffAdditional values is relative to the first path of the resource used to determine RSTD .

TP on additional path reporting can be checked under offline discussion #616.

[R2-2004701](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004701%20Report%20TRP-ID.docx) Report on TRP-ID structure Ericsson report Rel-16

[R2-2004704](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004704%20Summary.docx) Summary and Text Proposal on TRP-ID structure Ericsson discussion Rel-16

Ericsson think we can first decide if we want to split up the TRP-ID IE into individual fields. This was the intention of P1. Qualcomm think splitting the IE per se is more editorial if we do not change what information is signalled.

Intel think the original problem was that we have multiple fields in the TRP-ID and it is difficult to know which fields the UE should indicate for which cases. If we split the TRP-ID and indicate separate IEs for separate cases, it becomes clearer. So they support splitting the IE, but do not see the connection to P1.

Huawei agree with Intel. It is not clear today in which case the TRP-ID should include which fields.

vivo think we should start by agreeing to separate the IEs.

Nokia wonder if it is correct that the DL-PRS-Id is identifying a TRP per cell, which would then need to be qualified with a PCI or NCGI. Intel understand that it was defined in RAN1 and can be used together with a PRS resource set ID and PRS resource ID to uniquely identify a single PRS instance. Nokia understand that it is a PRS resource per TRP. Ericsson think the DL-PRS-Id identifies a TRP within the LPP session.

Huawei have generally the same understanding as Intel and Ericsson, that the domain of the DL-PRS-Id is within the LPP session and outside the session it has no meaning.

Nokia think we need to reach a common understanding on the components of what is now the TRP-ID. RAN1 and RAN3 have different ranges for a “TRP ID” and they understand that the RAN1 ID may be per cell. They think it is not specific to the LPP session but a TRP could be globally identified with this 0..255 identifier and NCGI.

Intel understand that the reason the range is 0..255 is because the UE can only support 256 TRPs in AD. RAN1 mentioned that each TRP shall only be associated with one such ID, but Intel understand that this means within the AD. In a different LPP session with different AD the same TRP can be associated with a different 0..255 ID. Ericsson have the same understanding as Intel.

Spreadtrum have the same view, and think there should be a different name for the “TRP-Id” in the broadcast case because the ID is end-to-end between the LMF and the UE. Ericsson think the broadcast aspect was touched on in the continuation email discussion and there was convergence to use the name DL-PRS-Id for the 0.255 identifier.

CATT think we should consider three situations: (1) single LPP session, (2) broadcast, and (3) multiple LPP sessions with AD from one session used for reporting in another session. Ericsson think we can discuss broadcast under the next discussion. Intel think scenario 3 is not necessary because the LMF can distinguish which session is being used.

P3:

 Intel are OK with the proposal. Qualcomm agree and think it confirms that the NR-ARFCN is needed. So they see that all three cell identifiers are needed, and they do not see that this would be different for the other methods. For E-CID there seems to be agreement.

P5:

 Qualcomm think this should be any of the available cell identifiers. The UE always has the PCI, but it could as well report the NCGI if available. So they think that the NCGI should also be optionally available to signal. Huawei think this is covered in the continuation discussion, and they do not think anything beyond PCI is needed because the reference is provided by the assistance data.

Huawei understand that there are RAN1 agreements related to what is signalled with the timestamp, which do not mention any cell identity.

CATT wonder if the RAN1 agreement refers to UEA or UEB or both. The timestamp is needed for UEB. Huawei understand that the agreement is only for UEA and for UEB there is no measurement report to the network.

Ericsson think if the UE can report other identifiers such as NCGI, it should be available to do so. Regarding the RAN1 agreement, they understand that it says there has to be a timestamp, and the additional information besides the SFN is in RAN2 scope.

Intel understand that the timestamp should be from the reference cell the UE is using, and the UE already indicates in the measurement report what reference is used in the form of PRS-ID. In the broadcast case, however, the AD may have come from a different cell and in this case the UE should report the serving cell ID and the LMF can identify what reference was used for the timestamp. So they understand that no cell ID is needed in the timestamp IE. The question is how the LMF can know which reference cell is being used.

Qualcomm point out this is also discussed in the ASN.1 review. On Intel’s comment, they agree if the reported cell is the RSTD reference, but the agreement Huawei cited is talking about the AD reference. Also, for UE Rx-Tx and DL-AoD there is no RSTD reference.

Agreements:

The TRP-ID IE is replaced by separate IEs signalled in the separate cases where previously the TRP-ID was used.

The existing dl-PRS-Id field retains its range as INTEGER (0..255) and is broken out as a separate IE.

The included identifiers of the NR E-CID Signal Measurement Information per cell are the NR physical cell identity, NR cell global identity (shall be provided if the device was able to determine the NCGI of the measured cell at the time of measurement) and NRARFCN.

The NR-SSB-Config IE includes NR physical cell identity and NR ARFCN but no (0..255) TRP ID.

The NR-TimeStamp IE includes a conditionally present NR physical cell identity and an optionally present NCGI.

Proposal 6 RAN2 to agree to the text proposal in Annex A3.

Proposal 7

Proposal 8 RAN2 to agree to the text proposal in Annex A4.

* [AT110-e][612][POS] TRP-ID continuation (Ericsson)

 Scope: Continue discussion of the open issues from R2-2004704 and converge where possible. Open issues identified:

* Name of the integer identifier for a TRP
* Unique identification of a DL-PRS resource between the UE and the LMF
* Need for an additional identifier in the measurement information
* Need for a cell identifier in DL-PRS assistance data
* Need for a cell identifier in UE-based assistance data

 Intended outcome: Report of discussion, in R2-2005894 – updated report in R2-2005904

 Deadline: Thursday 2020-06-04 1800 UTC – extended to Wednesday 2020-06-10 1000 UTC

[R2-2005894](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005894-%28612%29-TRP-ID%20continuation.docx) Report on TRP-ID continuation Ericsson report Rel-16

R2-2005904 [Updated report on TRP-ID continuation] Ericsson report Rel-16

[R2-2004700](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004700%20Report.docx) Report on Structure of UE-based assistance data Ericsson report Rel-16

[R2-2004705](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004705%20Summary.docx) Summary and Text Proposal on Structure of UE-based assistance data Ericsson discussion Rel-16

* [AT110-e][617][POS] UE-based assistance data continuation (Ericsson)

 Scope: Continue the beam and location info aspects of the email discussion on the structure of UE-based assistance data (proposals from R2-2004705).

 Intended outcome: Agreeable TP in R2-2005907

 Deadline: Wednesday 2020-06-10 1000 UTC

R2-2005907 [Summary and Text Proposal on UE-based assistance data continuation] Ericsson discussion Rel-16

[R2-2005104](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005104%20Post109bis-e%5B951%5D%5BPOS%5D%20Remaining%20issues%20on%20UE-based%20positioning%20%28Huawei%29.docx) [Post109bis-e][951][POS] Remaining issues on UE-based positioning (Huawei) Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

P1:

 Ericsson think this was previously discussed without strong support, and has not been supported in RAN1. They would prefer to leave it to Rel-17 and think there are other aspects of representing an antenna that need to be considered.

 Nokia agree with Ericsson and think this is a late addition.

 Qualcomm still think it is useful and think we cannot meet the Rel-16 targets without it. They do not see it as a very large addition.

 Intel and CATT agree with Qualcomm. Huawei also share the same view and think the changes in the draft CR are not very large.

 Ericsson think this should be decided in RAN1.

[R2-2005105](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005105%20Draft%20CR%20on%20UE-based%20positioning%20v01.docx) DraftCR on UE-based positioning Huawei, HiSilicon draftCR Rel-16 37.355 16.0.0 NR\_pos-Core

[R2-2005212](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005212_%28LPP%20Open%20Issues%20Summary%29.docx) Email discussion report: [Post109bis-e][948][POS] LPP ASN.1 review Qualcomm Incorporated discussion Late

* Revised in R2-2006003

[R2-2006003](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006003_%28LPP%20Open%20Issues%20Summary%29.docx) Email discussion report: [Post109bis-e][948][POS] LPP ASN.1 review Qualcomm Incorporated discussion Late

* [AT110-e][606][POS] Open issues in LPP ASN.1 review (Qualcomm)

 Scope: Discuss and resolve remaining open issues identified in the LPP ASN.1 review process, and determine which issues need online discussion

 Intended outcome: Update of open issues from R2-2005212, in R2-2005882

 Deadline: Thursday 2020-06-04 1000 UTC

[R2-2005882](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005882_%28LPP%20Open%20Issues%29_v003_Summary.docx) Report of offline discussion [AT110-e][606][POS] Open issues in LPP ASN.1 review Qualcomm Incorporated discussion

P12:

 Ericsson think there is a relation to whether we indicate the reference as the first element of the list. Items (b) and (c) are not needed if so.

 Intel understand that for DL-TDOA, the network needs to provide the reference to the UE (as in LTE) and the UE may select a different reference (also as in LTE), and they want to clarify item (a) in terms of which reference is which. Qualcomm clarify that the proposal only relates to assistance data and there is no confusion for the measurement report. If we provide the reference info we don’t need the explicit interpretation that the first item of the list is the reference. They also understand that we do not need to use the first item as the reference for DL-TDOA, because only a subset of the resources is used as the reference.

 Ericsson agree with Qualcomm but think we have this discussion occurring in several places.

 Intel understand that items (a) and (b) match what we already have in LPP, and (c) is reasonable.

 Huawei also support the proposal as having the least spec impact.

P13:

 Qualcomm think this can be done with clarifications in the field descriptions. Huawei have the same understanding and want to confirm that 0 is in the ranges.

P14:

 Ericsson think this aligns with the agreement we took about SSB configuration including PCI.

P16:

 Huawei think there is a similar issue in UE capability about whether the PRS support should be cross-positioning-method. They prefer to have the PRS information in the message body to avoid creating dependencies between methods.

 Intel think capability can be discussed separately and here we just keep the existing structure.

 Ericsson think it is a matter of taste.

P22:

 Qualcomm understand that this is not really an ASN.1 correction. Intel agree that it is not a correction and we don’t need to consider it now.

 Ericsson think it is similar to GNSS where we have quite fine granularity in what we request.

P37:

 Huawei think reporting the PSCell allows the network to know whether the UE supports measurements in its current configuration. They acknowledge that there is concern about the SCells being dynamically activated and deactivated, but think the PSCell should be more stable.

 Intel think we agreed to consider this in Rel-17.

 CATT support Huawei’s motivation, but think the information needs to be added between AMF and LMF instead of between UE and LMF.

Item 42:

 Huawei clarify this is a signalling optimisation to reduce indicating the SCS explicitly.

Item 45:

 Huawei indicate the motivation is to avoid duplicated information, because the SCS is already signalled at the frequency layer level. At least they think we should clarify the meaning of the values (e.g. n4-16).

 Intel think the current format is clearer and requires less description. Huawei can accept the current approach but think the field description should say that the SCS needs to be aligned with the layer configuration.

Agreements:

Proposed Conclusion 12:

(a) "assistance data reference" is the same as the requested "RSTD reference" for DL-TDOA (i.e., A1=A2).

(b) "assistance data reference" is indicated by IE DL-PRS-IdInfo (field nr-DL-PRS-ReferenceInfo in NR-DL-PRS-AssistanceData).

(c) nr-DL-PRS-ReferenceInfo in NR-DL-PRS-AssistanceData is changed to mandatory present.

Proposed Conclusion 13:

The DL-PRS configuration for the "assistance data reference" and associated parameter (expected RSTD, etc.) is included in the assistance data list nr-DL-PRS-AssistanceDataList. The network signals a value of zero for the nr-DL-PRS-SFN0-Offset, nr-DL-PRS-expectedRSTD, and nr-DL-PRS-expectedRSTD-uncertainty of the "assistance data reference".

Proposed Conclusion 19:

- Add the nr-TOA-Quality to the NR-DL-TDOA-AdditionalMeasurementElement.

Proposed Conclusion 21:

(a) Change the nr-DL-PRS-RxBeamIndex in NR-DL-AoD-MeasElement and NR-DL-AoD AdditionalMeasurementElement to OPTIONAL present.

(b) Add a proper field description for how the field should be set and when the field should be included.

Remaining proposals can be taken into the LPP CR update and any objections can be raised in that discussion.

Summary document

[R2-2004730](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004730%20summary%20of%206.8.2.3%20v02.doc) "summary of 6.8.2.3 LPP corrections" Intel Corporation discussion Rel-16 NR\_pos-Core Late

The following tdocs will not be individually treated

[R2-2004460](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004460.docx) Editorial and other minor updates Spirent Communications CR Rel-16 37.355 16.0.0 0258 - F NR\_pos-Core

* Revised in R2-2005908
* [AT110-e][619][POS] Editorial LPP updates (Spirent)

 Scope: Check the contents of R2-2004460 and update if necessary.

 Intended outcome: Endorsed TP in R2-2005908

 Deadline: Wednesday 2020-06-10 1000 UTC

R2-2005908 Editorial and other minor updates Spirent Communications CR Rel-16 37.355 16.0.0 0258 1 F NR\_pos-Core

[R2-2005088](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005088%20DraftCR%20for%20SSB%20configuration%20in%20LPP%20spec.docx) DraftCR for SSB configuration in LPP spec Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005101](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005101%20Corrections%20on%20the%20positioning%20measurement%20report%20in%2037.355%20v02.docx) Corrections on the positioning measurement report in 37.355 Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005107](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005107%20Remaining%20issues%20in%20LPP_final.docx) Remaining issues in LPP Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005108](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005108%20Remaining%20issues%20in%20LPP%20ASN.1%20issues_final.docx) Remaining issues in LPP ASN.1 Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2005305](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005305%20UE%20Capability%20SRS.docx) UL SRS UE Capability Ericsson discussion Rel-16 R2-2003137

[R2-2006013](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006013%20Structure%20of%20UE-based%20beam%20information%20assistance%20data%20%28Extension%20to%20email%20discussion%20949%29.docx) Structure of UE-based beam information assistance data (Extension to email discussion 949) Ericsson discussion Rel-16 NR\_pos-Core Late

#### 6.8.2.4 MAC corrections

Including impact to 38.321.

Tdoc limitation: 1 tdoc

Running CR

[R2-2005087](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005087%20Runnnig%20CR%20to%20MAC%20spec%20for%20R16%20Positioning.docx) Runnnig CR to MAC spec for R16 Positioning Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

* Endorsed as a baseline, to be updated if there are agreements on additional proposals.
* [AT110-e][618][POS] MAC proposals (Huawei)

 Scope: Discuss the proposals in the MAC papers (R2-2004636, R2-2005211) and incorporate agreeable conclusions into the MAC CR.

 Intended outcome: Agreeable CR, update of R2-2005087 (in R2-2005905)

 Deadline: Wednesday 2020-06-10 1000 UTC

R2-2005905 [Summary of offline #618] Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

SRS during DRX inactive period

[R2-2005092](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005092%20Remaining%20issues%20in%20MAC%20spec_final.doc) Remaining issues in MAC spec Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2004461](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004461%20Discussion%20on%20SRS%20for%20positioning%20during%20the%20DRX%20inactive%20period.docx) Discussion on SRS for positioning during the DRX inactive period vivo discussion Rel-16 NR\_pos-Core

[R2-2005046](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005046-Discussion%20on%20positioning%20SRS%20during%20DRX%20inactive%20period.docx) Discussion on positioning SRS during DRX inactive period Spreadtrum Communications discussion

Other

[R2-2004636](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004636%20MAC%20CE.docx) Discussion and corrections for MAC CE Design for Positioning Ericsson discussion Rel-16

[R2-2005211](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005211_%2838321%20PHR%20corrections%29.docx) Corrections to Power Headroom Reporting for SRS for positioning Qualcomm Incorporated discussion

### 6.8.3 Other

Tdoc limitation: 1 tdoc

[R2-2005304](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005304%20UE%20Rx%20Tx%20measurements.docx) DL PRS and UL SRS Coupling for UE Rx Tx measurements for NR positioning Ericsson discussion Rel-16

Qualcomm clarify RAN1 have postponed this issue to Rel-17.

* Noted

Withdrawn:

R2-2004797 UE capabilities on supporting positioning SRS during DRX inactive period CATT discussion Rel-16 NR\_pos-Core

## 6.20 NR TEI16 enhancements

Small Technical Enhancements to NR. TEI should be predominantly within a single WG and fully completed within the same quarter in all affected WGs. RAN2 impact of RAN1/4-led TEI shall be limited to RRC signalling of configuration parameters and UE capabilities (no MAC impact, no RRC procedural impact, etc). Please also see RP-191602 endorsed at RAN#84. Please submit to 6.20.x. NOTE that proponent companies are responsible to ensure that correct CRs are provided in all groups for proposals that have impact in >1 working group.

Time budget: 1 TU

Tdoc Limitation: 2 tdocs. NOTE for TEI, the tdoc limitation applies to new proposals, not to open proposals since previous meeting(s), nor to corrections.

### 6.20.1 RAN2 led TEI16 enhancements - Control plane related

#### 6.20.1.3 Corrections

Corrections to functionality previously introduced as TEI16

[R2-2004792](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C36%20305_CR0088_%28Rel-16%29_R2-2004792.docx) Update B1I signal ICD file to v3.0 in BDS system in A-GNSS CATT, CAICT, Huawei, ZTE Corporation CR Rel-16 36.305 16.0.0 0088 - F TEI16

* Revised in R2-2005895

[R2-2005895](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C36%20305_CR0088_%28Rel-16%29_R2-2005895.docx) Update B1I signal ICD file to v3.0 in BDS system in A-GNSS CATT, CAICT, Huawei, ZTE Corporation CR Rel-16 36.305 16.0.0 0088 1 F TEI16

* Agreed in offline discussion [AT110-e][603]

[R2-2004793](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C37%20355_CR0259_%28Rel-16%29_R2-2004793.docx) Update B1I signal ICD file to v3.0 in BDS system in A-GNSS CATT, CAICT, Huawei, ZTE Corporation CR Rel-16 37.355 16.0.0 0259 - F TEI16

* Revised in R2-2005893

[R2-2005893](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C37%20355_CR0259_%28Rel-16%29_R2-2005893.docx) Update B1I signal ICD file to v3.0 in BDS system in A-GNSS CATT, CAICT, Huawei, ZTE Corporation CR Rel-16 37.355 16.0.0 0259 1 F TEI16

* Agreed in offline discussion [AT110-e][603]

[R2-2004794](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38%20305_CR0024_%28Rel-16%29_R2-2004794.docx) Update B1I signal ICD file to v3.0 in BDS system in A-GNSS CATT, CAICT, Huawei, ZTE Corporation CR Rel-16 38.305 16.0.0 0024 - F TEI16

* Revised in R2-2005896

[R2-2005896](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38%20305_CR0024_%28Rel-16%29_R2-2005896.docx) Update B1I signal ICD file to v3.0 in BDS system in A-GNSS CATT, CAICT, Huawei, ZTE Corporation CR Rel-16 38.305 16.0.0 0024 1 F TEI16

* Agreed in offline discussion [AT110-e][603]
* [AT110-e][603][POS] CRs on B1I signal ICD file version (CATT)

 Scope: Discuss and agree on documents R2-2004792, R2-2004793, and R2-2004794

 Intended outcome: Agreed CRs

 Deadline: Wednesday 2020-06-03 1000 UTC

## 6.21 On demand SI in connected

On demand SI reception in RRC\_CONNECTED is relevant to several Rel-16 WIs (e.g. V2X, positioning). This agenda item is for the discussion of the generic procedure for on demand SI in RRC\_CONNECTED; WI specific details of the SI content should be discussed within the appropriate AI for that WI.

Tdoc Limitation: 1 tdoc

Running CRs

[R2-2005173](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38.300_CR0237%28Rel-16%29_R2-2005173-%20Introduction%20of%20on-demand%20SIB%28s%29%20procedure%20in%20CONNECTED.docx) Introduction of on-demand SIB(s) procedure in CONNECTED Ericsson (Rapporteur) CR Rel-16 38.300 16.1.0 0237 - B 5G\_V2X\_NRSL-Core, NR\_pos-Core

Offline for further checking.

[R2-2005172](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38.331_CR1657%28Rel-16%29_R2-2005172-%20Introduction%20of%20on-demand%20SIB%28s%29%20procedure%20in%20CONNECTED.docx) Introduction of on-demand SIB(s) procedure in CONNECTED Ericsson (Rapporteur) CR Rel-16 38.331 16.0.0 1657 - B 5G\_V2X\_NRSL-Core, NR\_pos-Core

To be updated according to agreements in discussion [613]

* [AT110-e][613][OdSIB] Checking of OdSIB CRs (Ericsson)

 Scope: Update and final checking of CRs to 38.300 (R2-2005898), 38.331 main (R2-2005899), 38.331 capability (R2-2005900), 38.306 (R2-2005901). Includes capturing the support of on-demand posSIBs from R2-2005881.

 Intended outcome: Agreeable CRs

 Deadline: Wednesday 2020-06-10 1000 UTC

[R2-2005898](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38.300_CR0237%28Rel-16%29_R2-2005898-%20Introduction%20of%20on-demand%20SIB%28s%29%20procedure%20in%20CONNECTED.docx) Introduction of on-demand SIB(s) procedure in CONNECTED Ericsson (Rapporteur) CR Rel-16 38.300 16.1.0 0237 1 B 5G\_V2X\_NRSL-Core, NR\_pos-Core

[R2-2005899](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5C38.331_CR1657%28Rel-16%29_R2-2005899-%20Introduction%20of%20on-demand%20SIB%28s%29%20procedure%20in%20CONNECTED.docx) Introduction of on-demand SIB(s) procedure in CONNECTED Ericsson (Rapporteur) CR Rel-16 38.331 16.0.0 1657 1 B 5G\_V2X\_NRSL-Core, NR\_pos-Core

[R2-2005900](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005900-%20Introduction%20of%20capability%20for%20on-demand%20SIB%28s%29%20procedure%20in%20CONNECTED%20%2838.331%29.docx) Introduction of capability for on-demand SIB(s) procedure in CONNECTED Ericsson (Rapporteur) draftCR Rel-16 38.331 16.0.0 5G\_V2X\_NRSL-Core, NR\_pos-Core

[R2-2005901](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005901-%20Introduction%20of%20capability%20for%20on-demand%20SIB%28s%29%20procedure%20in%20CONNECTED%20%2838.306%29.docx) Introduction of capability for on-demand SIB(s) procedure in CONNECTED Ericsson (Rapporteur) draftCR Rel-16 38.306 16.0.0 5G\_V2X\_NRSL-Core, NR\_pos-Core

* [AT110-e][607][OdSIB] Proposals for on-demand SI in connected (Ericsson)

 Scope: Condense the proposals from documents under agenda item 6.21, and identify any easy agreements

 Intended outcome: Summary of issues and agreements, in R2-2005883

 Deadline: Comments Wednesday 2020-06-03 1000 UTC; report Thursday 2020-06-04 1000 UTC

R2-2005883 Report of offline discussion [AT110-e][607][OdSIB] Proposals for on-demand SI in connected Ericsson discussion Rel-16

* Not provided (two tdocs allocated and the other one is used)

[R2-2006043](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2006043-%20Report%20of%20%5BAT110-e%5D%5B607%5D%5BOdSIB%5D%20Proposals%20for%20on-demand%20SI%20in%20connected.docx) Report of [AT110-e][607][OdSIB] Proposals for on-demand SI in connected Ericsson discussion Rel-16

P2:

 Huawei think the current range may not be appropriate because the minimum of 0.5s may be too large. 3 bits is OK but with smaller granularity. Ericsson think this can be taken on board in the CR discussion. Nokia think the granularity is sufficient and the current value range looks OK.

P4:

 Huawei wonder about the DAPS scenario where the UE completes handover but is still receiving DL from the source SCG. Should the timer be stopped in this scenario? Ericsson understand that the timer should still be running until the handover completes successfully, because if it fails the UE will fall back to the source. Huawei understand that if the UE performs SI request in the source cell and then hands over to the target in DAPS, the UE can still receive the SI update in the source cell. So this is a different scenario than HO failure. Ericsson think that there is no uplink to the source in this scenario and so the request will never re-trigger, making the timer meaningless.

 OPPO think the proposal is OK because after the DAPS HO command, the UE will not receive SI from the source cell. LG are also OK with the proposal and have the same understanding as Ericsson. vivo understand Huawei’s concern that we could receive SI from the source cell and think last meeting we agreed the timer only restarts at PCell change. Ericsson think at PCell change the UE may receive a new timer and of course should stop the old one.

 Huawei think the issue is with the word “only” in the proposal and think the current spec already supports. They are OK with the intention that the UE stops the timer after the HO completes successfully but think there are other cases of stopping the timer.

P5:

 Intel wonder what the expected network behaviour is if the UE does not support the feature. Chair understands that the network would be responsible for delivering the SIBs to UEs that do not support it.

 vivo think the feature is optional but there is no need for a capability bit. They are not sure how the network knows which SIBs need to be provided.

 ZTE think if the UE does not support the feature, the network will not configure T350 in OtherConfig.

 Nokia wonder if it is optional for the UE, will the UE be able to gracefully ignore the related configuration in RRCReconfiguration? It may be better for the network to know. Huawei understand when the UE does not support this feature, the network should not configure it, so there should be a capability bit. Ericsson agree and see that the point of the capability is to prevent the network from blindly configuring the feature.

 Intel think it seems more about the configuration aspect and there is no requirement on the network to take any particular action with the SIBs.

 LG think the benefit of the capability bit is clear.

P7:

 MediaTek and Huawei think SIB9 is not limited only to the IIoT scenario. It could be used for other upper-layer purposes.

 Ericsson consider that since IIoT agreed to have the reference time delivered unicast, requesting SIB9 would create a strange situation from the network perspective with different mechanisms for delivering the time. ZTE have the same understanding and see no need for two separate procedures.

 Nokia think it would be strange to allow SIB9 for some scenarios and not others. Either we have it or we don’t have it.

 vivo understand that it is up to network implementation to deliver the reference time by broadcast or unicast, and the use case for requesting SIB9 would be for other information.

Agreements:

The checking of the timer T350 is moved from section 5.2.2.4.2 to section 5.2.2.3.5 of TS 38.331.

The value range of timer T350 is 3 bits.

Delete the stopping of timer T350 from section 5.3.13.2 of TS 38.331.

The UE should stop the timer T350 after the successful completion of the handover command, not immediately after receiving the handover command.

A non-mandatory capability for on-demand SI in RRC\_CONNECTED is defined in TS 38.306.

UE shall not request SIB10 on-demand while in RRC\_CONNECTED.

RAN2 to confirm that UE shall not request SIB9 on-demand while in RRC\_CONNECTED.

Prohibit timer

[R2-2004530](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004530_Corrections%20for%20onDemandSIB-RequestProhibitTimer%20operation.doc) Corrections for onDemandSIB-RequestProhibitTimer operation Samsung Electronics Co., Ltd discussion Rel-16

[R2-2004604](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004604_ProhibitTimer_open_issues.doc) Open issues on Prohibit timer Lenovo, Motorola Mobility discussion Rel-16 TEI16

[R2-2004795](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004795%20%5BC701%5D%20Prohibit%20Timer%20for%20on%20Demand%20SIB%20Request%20in%20RRC_CONNECTED.docx) [C701]Prohibit Timer for on Demand SIB Request in RRC\_CONNECTED CATT discussion Rel-16 NR\_pos-Core, 5G\_V2X\_NRSL-Core Late

[R2-2005696](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005696%20Condition%20for%20T350%20stop.doc) Condition for T350 stop LG Electronics Inc. discussion

UE capability and which SIBs

[R2-2004641](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004641_Remaining%20issues%20of%20on-demand%20SI%20in%20RRC_CONNECTED.doc) Remaining issues of on-demand SI in RRC\_CONNECTED vivo discussion Rel-16 TEI16

[R2-2005102](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005102%20Discussion%20on%20on-demand%20SIB10%20in%20RRC_CONNECTED.DOC) Discussion on the remaining issue of on-demand SI in RRC\_CONNECTED Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

[R2-2004706](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004706.docx) On-demand request for SIB9 (for reasons beyond IIoT) [M118] MediaTek Inc. discussion Rel-16

Other

[R2-2004986](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004986%20%5BH780%5D%20Text%20Proposal%20on%20PDCCH%20monitoring%20for%20SI%20request%20in%20RRC_CONNECTED.doc) [H780] Text Proposal on PDCCH monitoring for SI request in RRC\_CONNECTED Huawei, HiSilicon discussion Rel-16 NR\_pos-Core Late

[R2-2004987](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004987%20%5BH781-783%5D%20Correction%20on%20OnDemandSIB-Request.doc) [H781-783] Correction on OnDemandSIB-Request Huawei, HiSilicon draftCR Rel-16 38.331 16.0.0 NR\_pos-Core Late

[R2-2005174](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005174-%20%5BE243%5D%20ASN.1%20remaining%20issues%20on%20on-demand%20SIBs%20in%20CONNECTED.docx) [E243, E244] ASN.1 remaining issues on on-demand SIBs in CONNECTED Ericsson draftCR Rel-16 38.331 16.0.0 B 5G\_V2X\_NRSL-Core, NR\_pos-Core Late

[R2-2005597](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2005597_%5BZ113%5D%20%5BZ117%5D%20Text%20proposal%20for%20accepted%20RIL%20issues.docx) [Z113] [Z117] Text proposal for accepted RIL issues ZTE Corporation, Sanechips discussion Rel-16

# 7 Rel-16 LTE Work Items

Documents in these agenda items will be handled in break out sessions

## 7.7 Support of Indian Navigation Satellite System (NavIC)

(LCS\_NAVIC; leading WG: RAN2; REL-16; started: Sept 19; target; March-20; WID: RP-192350)

Time budget: 0 TU

This item is 100%

[R2-2004595](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202006%20-%20RAN2_110-e%2C%20Online%5CExtracts%5CR2-2004595_Introduction%20of%20NavIC%20Keplerian%20set%20IE.docx) Introduction of NavIC Keplerian set IE Reliance Jio CR Rel-16 37.355 16.0.0 0257 2 F LCS\_NAVIC-Core R2-2003998

* Agreed in offline discussion [AT110-e][604]
* [AT110-e][604][POS] AIP CR on NavIC Keplerian set IE (Reliance Jio)

 Scope: Confirm agreement on document R2-2004595

 Intended outcome: Agreed CR

 Deadline: Wednesday 2020-06-03 1000 UTC