**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Apple’s email\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**[Huawei\_0308] As I mentioned in my previous email, we will further check stage-3 details for the feature, so any comment directly to the 38.331 CR is welcome.**

Regarding the  cross-RAT RLFreporting issue in RRC CR, please see Apple comment in line

1. the UE maintains a single varRLFReport across both RATs.

[Apple} We agree with Nokia that where use one or two varRLFReport is up to UE implementation. So far, both LTE RRC and NR RRC has defined this variable and corresponding handling, respectively. As long as UE conforms to the procedure requirements for RLF reporting, the spec does not need to mandate how UE maintains variables in detail.

2. in the RLF-Report-r16 IE, there is a CHOICE between nr-RLF-Report-r16  AND eutra-RLF-Report-r16

[Apple] We prefer to keep the CHOICE structure.

3. if the UE does not support cross RAT RLF reporting, the UE does not indicate the availability of RLF report to NR network

[Apple] I assume  you mean “UE does not indicate the availability of LTE RLF report to NR network”, This is OK to me.

4. if the UE supports cross RAT RLF reporting, the UE indicates the availability of RLF report to NR network when it has stored LTE RLF report

[Apple] In the typical scenario, UE has a LTE RLF and then connect to NR node. If UE supports cross-RAT RLF report, then it is OK to indicate the availability. But we do not want to generalize the above scenario to force UE to introduce two types of availability indication (e.g., one for LTE, one for NR) to let UE report both NR RLF and LTE RLF reports at the same time.

**[Ericsson] We think that all the above issues are addressed in the updated latest CR. Please check the procedural text and the ASN.1 if there are some concerns.**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Nokia’s email 1\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Thanks for acknowledging the PLMN check,

On building the RLFcontent (the LTE one in NR RRC) –  thanks for willingness to remove it. We think it would be simpler if we leave the procedure simpler 😊

**[Huawei\_0308] Suggest that Ericsson can make some updates as following Nokia’s comment.**

**[Ericsson] The procedural text of copying the varRLFReport from LTE to NR is removed. Now, it is up to the UE as to when it performs this action.**

On the points asked by Jun:

On 1. I think it can be up to UE implementation This is detailed modelling of two UE’s AS layers.

On 2. We think the ChOICE is also a matter of modelling – it could be also that the procedures as they are now in the running CR basically refer to LTE RRC, and the variable in NR RRC is LTE content agnostic.

On 3 and 4 we agree.

Please note our findings (so far) on the detailed MDT implementation in the 38.331:

* On **RAreport –** we thought the UE should also  indicate the report availability, along with other availability indicators. Currently its not indicated (e.g. Ra-ReportAvailable) We have all other avialbility indicators (including for MobilityState, mobilityHistory) why not for RA?

**[Huawei\_0308] Ericsson to respond?**

**[Ericsson] The RAReport availability is not explicitly indicated by the UE as the UE is always expected to have the RAReport after the successful random-access procedure i.e., the successful RA procedure itself is taken as an implicit indication. So, when the network received the RRCReconfigurationComplete/RRCSetupComplete/RRCResumeComplete/RRCRe-establishmentComplete message, the network knows that the UE has at least one RA procedure related info in the RAReport.**

* On **mobility history**, when it is cleared?

**[Huawei\_0308] I checked the 38.331 CR and also TS 36.331, there is no explicit text on clearing the variable** *VarMobilityHistoryReport***. Anyway I will double check it and feedbacks will be sent later.**

**[Ericsson] Agree with Huawei. The mobility history is not cleared even after informing it to the RAN node. The reasoning is to enable the continuity when the UE goes to idle. For example, the UE reports the MHI to cell-A and then sent to IDLE mode. Then the UE pops up in neighbor cell, cell-B. Now, the cell-B do not get the UE’s mobility history from the previous cell as there is no context fetch. Therefore, the cell-B can directly fetch the MHI from the UE again although it might contain 90% similar content as the UE had reported in the previous cell.**

- On section 5.3.3.7 T300 expiry and **per cell info:**

2>           store the following connection establishment failure information ~~per cell~~ in the *VarConnEstFailReport* by setting its fields as follows:

                                (….)

3>  if *numberOfConnFailPerCell* is smaller than 7:

4>  increment the *numberOfConnFailPerCell* by 1;

                Should we set it consistently? In the first sentence the text per cell is for removal, while for number of connection failures we store the number per cell?

**[Huawei\_0308] There is also a CATT comment “**Should (per cell) be deleted?**”. Here I tend to agree with Nokia to be consistent.**

**[Ericsson] Agree to remove the ‘per cell’ in 2>.**

* On **CGI-Info\_LoggingDetailed** -> the same description in the field descriptionf for *cellIdentity* and *PLMNIdentity* should apply as for the one without TAC

**[Huawei\_0308] Ok.**

**[Ericsson] Ok.**

* On **LocationInfo** – as we know, the contents of the locationInfo in NR RRC are different than LTE baseline. While the three additional parameters were not explicitly discussed during Work Item phase, we believe it is worth understanding if all are needed. It is obvious that with the additional entries we increase the MDT reports size. Given the generic concerns on this aspect, the NR contents should keep reasonable contents to avoid potential impacts to further reporting via RRC:
  + locationTimeStamp should provide very similar or the same information with the time stamp delivered with each MDT report. It seems redundant information or making RRC time stamping redundant.
  + locationSource, which tells which positioning method was used to get the location coordinates, would duplicate information with RRC signalling for sensor, BT and WLAN. Besides source infor we have upper layer and BT, WLAN specific info:

#### –                      *LocationInfo*

The IE *LocationInfo* is used to transfer detailed location information and sensor available at the UE.

*LocationInfo* information element

-- ASN1START

-- TAG-LOCATIONINFO-START

LocationInfo-r16 ::=  SEQUENCE {

       commonLocationInfo-r16              CommonLocationInfo-r16              OPTIONAL,            -- Need R

       bt-LocationInfo-r16                        LogMeasResultListBT-r16                    OPTIONAL,              -- Need R

       wlan-LocationInfo-r16               LogMeasResultListWLAN-r16           OPTIONAL,            -- Need R

       sensor-LocationInfo-r16                    Sensor-LocationInfo-r16                    OPTIONAL,              -- Need R

       ...

}

-- TAG-LOCATIONINFO-STOP

-- ASN1STOP

* + locationError provides failure cause when the UE is not able to provide location coordinates or the location measurements. In LTE with standalone and best effort (optional) capability there has been no reason to have this info. Only

**[Huawei\_0308] Ericsson to respond? On one hand, I tent to share Nokia’s analysis; on the other hand, it seems that these location info could bring some benefits on accurate positioning. However, I do not have strong opinion, and would like to hear more opinions from other companies.**

**[Ericsson] As I had written in my previous reply, reason for including the additional fields was to give more information to the operators. Please note that these fields are not new and they were already part of the LPP related reporting and only thing that we had done was to include them also for MDT logs for enhancing the MDT report usage.**

**locationTimeStamp provides the exact time of recording the positioning information which could be different from the time of logging the MDT measurements. This is specifically useful in the high speed mobility scenarios.**

**locationSource is required to identify what method is used by the UE. Even when the UE is including the WLAN/BT measurements, the UE might still be using the a-GNSS based positioning estimation. Therefore, knowing what method the UE has used for deriving the position info aids the OAM to use the log accordingly.**

**locationError provides the reasoning behind the lack of location info in the report. This, we are fine with removing from the report as this is not the most critical field.**

* Logginginterval = Infitiy should be removed.

**[Huawei\_0308] This “infinity” is added based on the following RAN2 agreement, so why is it removed?**

**[Ericsson] This is required for ‘one-shot’ reporting of event triggered logged MDT and this has already been agreed.**

2    Include ‘infinity’,’640ms’ and ‘320ms’ as options for loggingInterval value range.

* Logging intreval placement in event type config:

LoggedEventTriggerConfig ::=                                    SEQUENCE {

       eventType-r16                             EventType-r16,

       loggingInterval-r16                        LoggingInterval-r16

}

By this structure we mandate that whatever event will be introduced, it should be logged periodically. If this is the intention, we believe it is pointless to deviate from LTE baseline and filtering out of the measurement results )that was initially target by the event-based trigger in NR does not serve the prupose.

We wonder if we have had agremeent to have always periodcial reporting for any event type? Originally we agreed A2-like event for IDLE UE to lavarage the burden caused by periodial reporting. Now we associate interval with any event. This will contradict with the intention to filter-out some data stored in the UE and momory constrains will appear easily in NR reports

**[Huawei\_0308] RAN2 agreed that a uniform logged result is used for both periodical and event triggered MDT (shown below), and the result is a list with including one or more entries. If the loggingInterval IE is removed, how does the UE record the measurements?**

LogMeasInfoList-r16 ::=     SEQUENCE (SIZE (1..maxLogMeasReport-r16)) OF LogMeasInfo-r16

LogMeasInfo-r16 ::=     SEQUENCE {

    locationInfo-r16                    LocationInfo-r16            OPTIONAL,

**[Ericsson] Agree with Huawei. The reason for having loggingInterval for event triggered logged MDT is to enable ‘dense’ measurement collection only in some regions of the network and this is not possible with just periodic MDT.**

* Measurements Logging section (5.7.x4) requires some cleanup. Now it coveres too much copying from the agreements (e.g. on entering and leaving condition, while below these statemetents the UE ets clear intructions what and how to log. More detaield comments in the verison uploaded to the folder marked by Nokia  **v3…\_Nokia**

**[Huawei\_0308] Ok.**

Considering there are a lot of issues still, we were wonderign whether we shouldn’t note to RANP that the CRs are baseline to work with, while upcoming RAN2 meetings will certianly have to polish the content and further work on some parts. It should not be taken by RAN3 as a very stable final version.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Nokia’s email 2\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**[Huawei\_0308] Can be discussed together with Nokia’s email 1.**

On RLFreporting:

For report avilaibility indoicator:

* Exemplary procedure in a few places states:

2>           if the UE has radio link failure or handover failure information available in *VarRLF-Report* of TS 36.331 [10] and if the UE is capable of cross-RAT RLF reporting and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report* of TS 36.331 [10]:

Do we know if plmnIdentityList will contain NR PLMN? Otherwise this is not even possible to pass the test positively by the UE

***[Ericsson] The PLMN identity broadcasted by an LTE cell and an NR cell is the same for the same operator. Isn’t it? So, I do not see any issue with comparing the UE’s current PLMN in NR based on the PLMNList stored while the UE declared RLF in LTE.***

#### Section 5.7.x1.3 Reception of the UEInformationRequest message, instructs the UE how to build the RLF/HO report information upon reception of the NR message. Isn’t it a right place to trigger the UE to store the data? I think such trigger placement in NR RRC would be procedurally “too late” for the UE. Thus, maybe a simpler procedural steps would be more appriopriate, i.e. that the UE basically reports what it has built in RLF-Report on LTE side. But then we miss on LTE RRC the procedures when the UE builds this report for NR

***[Ericsson] We are fine with removing the procedural text for ‘when’ the UE transfers the data from LTE variables to NR and it can be up to the UE. But the basic intention is that the UE is capable of doing this operation as the UE has included this ‘capability’***

***[Ericsson] This has been removed in the latest version of the CR.***

We don’t have full understanding nor certainty whether this cross-RAT reporting is feasible with the current state of the CR. Since this is still on functional matters, we wonder if RAN2 can make the clean solution?

We see some gaps that need to be bridged to get it complete.