3GPP TSG-RAN WG2 #118-e R2- 22xxxxx

Electronical meeting, 9 May – 20 May 2022

Agenda Item: 6.20.1

Source: Ericsson

Title: Summary of [AT118-e][210][71 GHz] RRC corrections (Ericsson)

Document for: Discussion, Decision

# Introduction

This document is to summarize the inputs from companies on the RIL issues in order to resolving the issues and attempt to finalize the RRC CR for 71 GHz.

* [AT118-e][210][71 GHz] RRC corrections (Ericsson)

 Scope: Discuss RRC RIL for 71 GHz and provide proposals for resolution

 Intended outcome: Discussion report in [R2-2206176](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-220xxxx.zip) (for online discussion) and final RRC CR in [R2-2206177](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-220xxxx.zip).

 Deadline: Deadline 3

Deadline 3 (discussions for 2nd week Tue online):

* Comment deadline: Friday W1, 0800 UTC (for collecting views)
* Rapporteur proposals: Monday W2, 0900 UTC (proposed resolution of issues)
* Document deadline: Tuesday W2, 0900 UTC (report or agreed CRs)
	+ Discussion may continue to 2nd phase (using Deadline 5) based on online decisions

# Summary

## Contact information

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| --- | --- | --- |
| Company | Name | Email Address |
| Ericsson | Min Wang | min.w.wang@ericsson.com |
| LG Electronics | Gyeong-Cheol LEE | gyeongcheol.lee@lge.com |
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## Issues to resolve

As summarized in [1], rapporteur categorizes RIL issues into two groups. The first group contains the issues which may easily reach consensus. The second group contains the controversial issues. The issues in the two group are discussed separately.

### Group 1 – RIL issues for consensus

This group includes the following RIL issues.

* E048, I017, I027, I034, Z450, Z453, Z454, Z455, H707, S626
* Q300
	+ *Rapp: suggested changes have been agreed in ASN.1 review adhoc webinar*
* N121
	+ *Rapp: It may be sufficient to add a restriction in the field description*.

Changes for the above issues proposed by companies have been captured in the rapporteur CR [2].

Companies are invited to give comments in the below table for changes of the above issues captured in the rapporteur CR [2].

|  |  |
| --- | --- |
| **Company** | **Comments on changes of each issue in rapporteur CR** [R2-2205188](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205188.zip)* **Whether changes of each issue are ok**
* **Any suggestion to improve changes for specific issues**
 |
| LGE | Ok with changes for above RIL issues. |
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**Rapporteur summary**

Based Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1.

### Group 2 – controversial RIL issues

This group includes the following RIL issues.

E134, E135, E136, Z451, Z452, E801

E049, N109

*Rapp: relevant contribution* [*R2-2205191*](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205191.zip) *has submitted to the main session, so we can just wait for outcome in the main session*.

E133

*Rapp: relevant contributions* [*R2-2205196*](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205196.zip) *and* [*R2-2204397*](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205397.zip) *have submitted to the main session, so we can just wait for outcome in the main session.*

N110

*Rapp: this change is not introduced due to 71 GHz. Therefore, changes are to be handled by other topics (i.e., IOT).*

In this section, rapporteur would like to check companies views on the below issues

E134, E135, E136, Z451, Z452, E801

#### Question on E134

RAN1 has defined new values for 120, 480 and 960 kHz in 38.213 Table 10.4-1.

In the table, the value of 160 symbols and 320 symbols are introduced for SCS 480 and 960 kHz and UE processing capability 1.

Therefore, new values are needed to be introduced for RRC parameter searchSpaceSwitchDelay.

As captured in [R2-2205192](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205192.zip),

New scaled values (scaled by 16) of searchSpaceSwitchDelay for SCS 120, 480 and 960 kHz.

SearchSpaceSwitchConfig-r17 ::= SEQUENCE {

 cellGroupsForSwitchList-r16 SEQUENCE(SIZE (1..4)) OF CellGroupForSwitch-r16 OPTIONAL, -- Need R

 searchSpaceSwitchDelay-r17 INTEGER (10..832) OPTIONAL -- Need R

}

It is necessary to check companies’ views for the above changes.

***Q2-1: do companies agree that E134 is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
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***Q2-2: if the answer of Q2-1 is yes, do companies agree to adopt changes captured in*** [R2-2205192](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205192.zip)***?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
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**Rapporteur summary**:

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1. xxxxx

#### Question on E135

For FR2-2, SCS 120,480 and 960 kHz are supported. Therefore, value range of si-WindowLength needs to be extended for higher SCS e.g., 480 and 960 kHz. The new values can be scaled by 8 compared to the existing values.

Changes have been proposed in [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip)

It is necessary to check companies’ views for the above changes.

***Q3-1: do companies agree that E135 is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
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***Q3-2: if the answer of Q3-1 is yes, do companies agree to adopt changes captured in*** [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip)***?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes with comments | 1. update the CR to have the Need R for the field, 2. SCS 960 KHz is only configurable for SCell. Therefore, we only need to extend values for SCS up to 480kHz3.update field description that the new values are only applicable to SCS 480 kHz, when new values are configured, UE ignores the legacy values |
| LGE | Yes, but | As indicated by Ericsson above, the current CR is not correct. Details can be discussed in the 2nd phase.  |
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**Rapporteur summary**:

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1.

#### Question on E136

RAN2 has agreed to extend value range for DRX RTT timer for SCS 480 kHz and 960 kHz. Similarly, value range of drx-RetransmissionTimerUL/drx-RetransmissionTimerDL also need to be extended for SCS 480 kHz and 960 kHz. Same as RTT timer, the new values can be scaled by 8 compared to the existing values.

As discussed in [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip), there may be two options to extend the values.

*Option 1:*

*ENUMERATED {*

*sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128, sl160, sl320, sl512-v17xy, sl640-v17xy, sl768-v17xy, sl896-v17xy, sl1024-v17xy, sl1280-v17xy, sl2560-v17xy, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1*

*}*

*Option 2:*

*ENUMERATED {*

*sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128, sl160, sl320, sl480-v17xy, sl640-v17xy, sl768-v17xy, sl896-v17xy, sl1024-v17xy, sl1280-v17xy, sl2560-v17xy, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1*

*}*

***Q4-1: do companies agree that E136 is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
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***Q4-2: if the answer of Q4-1 is yes, which options do companies agree to adopt for E136 in*** [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip)***?***

***Option 1:***

*ENUMERATED {*

*sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128, sl160, sl320, sl512-v17xy, sl640-v17xy, sl768-v17xy, sl896-v17xy, sl1024-v17xy, sl1280-v17xy, sl2560-v17xy, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1*

*}*

***Option 2:***

*ENUMERATED {*

*sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128, sl160, sl320, sl480-v17xy, sl640-v17xy, sl768-v17xy, sl896-v17xy, sl1024-v17xy, sl1280-v17xy, sl2560-v17xy, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1*

*}*

***Other***

|  |  |  |
| --- | --- | --- |
| Company | Options | Comments |
| Ericsson | Option 2 | Option 2 is implemented in [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip) |
| LGE | Option 1 |  |
|  |  |  |
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**Rapporteur summary**:

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1.

#### Question on Z451 and Z452

Both issues are discussed in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip),

For Z451, new SCS has been added for FR2-2**.** However, the PDCCH-Config for paging and for PDCCH monitoring in general has not been updated to consider the new SCS for the PDCCH occasions. Hence new values need to be added for this. The following proposal was proposed in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip) accordingly.

*Proposal 1: For PDCCH monitoring occasions new values should be defined to cover the introduction of 480 KHz and the 960 KHz SCS.*

It is necessary to check companies’ views for the issue.

***Q5-1: do companies agree that*** Z451 ***is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
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***Q5-2: if the answer of Q5-1 is yes, do companies agree to adopt changes in*** [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip)***?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
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For Z452, as part of the coverage enhancement, one TB may be scheduled across multiple slots. *numberOfSlots-TBoMS* is used to indicate the number of slots allocated for TB processing. However, for multiple PUSCH, each PUSCH is confined within one slot and the corresponding agreements are as below:

|  |
| --- |
| Agreement:Scheduling PUSCH over multiple slots/mini-slots by single DCI supports at least multiple continuous PUSCHs with separate TBs* Each TB is mapped to at most one slot or one mini-slot
 |

|  |
| --- |
| Agreement:* For a UE and for a serving cell, scheduling multiple PDSCHs by single DL DCI and scheduling multiple PUSCHs by single UL DCI are supported.
	+ Each PDSCH or PUSCH has individual/separate TB(s) and each PDSCH/PUSCH is confined within a slot.
	+ FFS: The maximum number of PDSCHs or PUSCHs that can be scheduled with a single DCI
	+ FFS: Whether multiple PDSCH scheduling applies to 120 kHz in addition to 480 and 960 kHz
	+ At least for 120 kHz SCS, single-slot scheduling with slot-based monitoring will still be supported as specified in Rel-15/Rel-16
 |

The first agreement above is for multiple PUSCH introduced in Rel-16 NR-U and the second agreement is for multiple PUSCH introduced in extending to 71GHz. According to these agreements, each PUSCH of multiple PUSCH is confined within one slot, so *numberOfSlots-TBoMS* is not applicable for multiple PUSCH introduced in Rel-16 NR-U and in Rel-17 extending to 71GHz. It is hence proposed to clarify in the field description of *numberOfSlots-TBoMS* that this field is not applicable for pusch-TimeDomainAllocationListForMultiPUSCH-r16 and pusch-TimeDomainAllocationListForMultiPUSCH-r17.

*Proposal 3: It is proposed to clarify in the field description of numberOfSlots-TBoMS that this field is not applicable for pusch-TimeDomainAllocationListForMultiPUSCH-r16 and pusch-TimeDomainAllocationListForMultiPUSCH-r17 as follows:*

|  |
| --- |
| ***numberOfSlots-TBoMS***Number of slots allocated for TB processing over multi-slot PUSCH for DCI format 0\_1/0\_2 (see TS 38.214 [19], clause 6.1.2.1). It is not applicable to *pusch-TimeDomainAllocationListForMultiPUSCH-r16* and *pusch-TimeDomainAllocationListForMultiPUSCH-r17.* |

It is necessary to check companies’ views for the issue.

***Q5-3: do companies agree that*** Z452 ***is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | uncertain |  |
| LGE |  | It seems no critical clarification, but no strong view, can follow majority view.  |
|  |  |  |
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***Q5-4: if the answer of Q5-3 is yes, do companies agree to adopt changes in*** [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip)***?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | uncertain | Perhaps no change is needed, it is sufficient to leave to gNB implementation. |
| LGE |  | It seems no critical clarification, but no strong view, can follow majority view. |
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**Rapporteur summary**:

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1.

#### Question on E801

For this issue, A new *OverheatingAssistance-r17* IE for FR2-2 was added to *UEAssistanceInformation*. Since the legacy procedure supports reporting of overheating information for SCG (*overheatingAssistanceForSCG*) in (NG)EN-DC, the corresponding *UEAssistanceInformation* can be extended to also cover FR2-2.

Changes for E801 has been covered in [R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip), [R2-2205053](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205053.zip), [R2-2204872](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2204872.zip). There are so fundamental differences of suggested CRs/TPs between the three contributions, except that the update of procedure text is missing in [R2-2205053](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205053.zip).

The changes comprise

1. Introduce a new field *overheatingAssistanceForSCG-FR2-2* to provide overheating assistance information for SCG in (NG)EN-DC for FR2-2
2. update the procedural text in clause 5.6.10.3.

It is necessary to check companies’ views for the issue.

***Q6-1: do companies agree that*** E801 ***is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
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***Q6-2: if the answer of Q6-1 is yes, do companies agree changes proposed in the contributions (***[R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip), [R2-2205053](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205053.zip), [R2-2204872](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2204872.zip)***)? E.g., which CR can be adopted***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes | Prefer to adopt changes captured in [R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip) |
| LGE | Yes | Fine with R2-2205190 |
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**Rapporteur summary**:

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1.

### Additional changes addressed in rapporteur CR

In additional, rappoertur CR has also added new/modified parameters in R1-2202541 and R1-2202759

1. SSB-PositionQCL-Relation-r17 with range {32, 64} in various places

o SIB2

o SIB3

o SIB4

o MeasObjectNR

o ServingCellConfigCommon

2. PDCCH-Config -> SearchSpaceExt:

* Extended value range for *searchSpaceSwitchTimer*
* Extended value range for *monitoringPeriodicityAndOffset*
* New *duration-17* for slot group monitoring

3. PDSCH-ServingCellConfig

* Added restrictions in the field description for *codeBlockGroupTransmission*

4. CG-Config:

* Extended value range for *cg-minDFI-Delay*

5. SlotFormatIndicator:

* Extended value range for CO-Duration

6. MeasObjectNR -> RMTC-Config:

* Added TCI state with reference serving cell ID

7. Renaming k2-r17 to k2-Ext-r17 according to outcome of ASN.1 review Adhoc webinar

8. Updated texts for the condition *MultiPUSCH*

Changes for the above issues proposed by companies have been captured in the rapporteur CR [2].

Companies are invited to give comments in the below table for changes of the above issues.

|  |  |
| --- | --- |
| **Company** | **Comments on changes of each issue*** **Whether changes of each issue are ok**
* **Any suggestion to improve changes for specific issues**
 |
| LGE | Ok with the changes. |
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**Rapporteur summary**:

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1.

# Conclusion

We have the following proposal:

[Proposal 1](#_Toc102858297)

[Proposal 2](#_Toc102858298)

[Proposal 3](#_Toc102858299)

[Proposal 4](#_Toc102858300)

[Proposal 5](#_Toc102858301)

[Proposal 6](#_Toc102858302)

[Proposal 7](#_Toc102858303)

3.1 Proposals in priority order

# Reference

1. R2- 2205189 - RIL issue list of running RRC CR for 71 GHz, Ericsson
2. R2-2205188 - Correction for Extending NR operation to 71 GHz. Ericsson
3. [R2-2204871](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2204871.zip) - Correction to periodicityAndOffset for Ext 71GHz [H707], Huawei, Hisilicon
4. [R2-2204872](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2204872.zip) - Discussion on overheating assistance report for SCG in EN-DC, Huawei, Hisilicon
5. [R2-2205050](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205050.zip) - [S626] Clarification on drx-HARQ-RTT-TimerDL/UL, Samsung
6. [R2-2205051](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205051.zip) - [E048] Overheating assistance information for FR2-2 in (NG)EN-DC, Samsung
7. [R2-2205052](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205052.zip) - [E048] Overheating information for FR2-2 in (NG)EN-DC (38.331), Samsung
8. [R2-2205053](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205053.zip) - [E801] Overheating information for FR2-2 in (NG)EN-DC (36.331), Samsung
9. [R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip) - Correction on RIL issue E801, Ericsson
10. [R2-2205191](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205191.zip) - Correction on RIL issue E049, Ericsson
11. [R2-2205192](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205192.zip) - Correction on RIL issue E134, Ericsson
12. [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip) - Correction on RIL issue E135, Ericsson
13. [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip) - Correction on RIL issue E136, Ericsson
14. [R2-2205196](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205196.zip) - Discussion on RIL issue E133, Ericsson
15. R2-2205554 - Control plane issues for NR operation above 71 GHz, ZTE Corporation, Sanechips

# Appendix