3GPP TSG-RAN WG2 Meeting #113-e R2-210xxxx

**Online, January 25th – February 5th 2021**

**Agenda item: 6.16**

**Source: Apple**

**Title: Phase 2 Summary of [028] – Topic 2: Overheating Other (Apple)**

**Document for: Discussion and Decision**

# 1 Introduction

This document contains the Phase 2 summary on **the clarification for the overheating UAI reporting in NR-DC** basedon R2-2100872.

* [AT113-e][028][TEI16] Miscellaneous I (Apple)

Scope: R2-2101434, R2-2101346, R2-2101170, R2-2101656, R2-2100872, R2-2101356, R2-2101357, R2-2101358, R2-2101359, R2-2100979, R2-2101289, R2-2101290, R2-2101291, R2-2101292, R2-2101657,

Phase 1, determine agreeable parts, Phase 2, for agreeable parts Work on CRs.

Intended outcome: Report and Agreed CRs if any is agreeable.

Deadline: Schedule A (can come back Thu Feb 4 is needed)

# 2 Contact Points

Respondents to the email discussion are kindly asked to fill in the following table.

|  |  |  |
| --- | --- | --- |
| Company | Name | Email Address |
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|  |  |  |
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|  |  |  |
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# 3 Phase 2 Discussion

R2-2100872 Cleanup on Overheating UAI reporting procedure Apple CR Rel-16 38.331 16.3.1 2361 - F TEI16

**Summary of change:** To make it clear that the UAI reporting procedures defined for EN-DC and NR-DC are not applicable to overheating indication.

Following conclusions were made in offline#028 phase 1.

|  |
| --- |
| 3/13 companies think the clarification for NR-DC is needed;  6/13 companies understand the intention and would like to check further.  Based on company’s input, majority (9/13) is fine to check further on the necessity on the clarification for NR-DC, e.g. whether the spec is clear on the differentiation on the overheating UAI and power saving UAI for SCG.  **Proposal 2-2: Continue the discussion on the clarification for the overheating UAI reporting in NR-DC.** |

The overheating UAI reporting in NR-DC is different from the overheating reporting in EN-DC and the power saving UAI reporting in NR-DC:

* For overheating UAI reporting in NR-DC:
  + The overheating UAI info is per UE;
  + The overheating UAI is only delivered to MN;
  + The configuration is only controlled by MN.
  + Transmission via SRB3 is not allowed.
* For the overheating UAI reporting in EN-DC:
  + The overheating UAI can include the SCG NR specific overheating (based on configuration);
  + The overheating UAI is only delivered to MN;
  + The configuration is only controlled by MN.
  + Transmission via SRB3 is not allowed.
* For power saving UAI reporting in NR-DC:
  + The PS UAI is per CG;
  + The CG specific UAI is delivered separately to MN and SN;
  + The configuration is controlled by MN and SN separately.
  + SCG specific PS UAI report and corresponding configuration can be (not limited to) via SRB3.

The difference can be summarized in the following table.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Overheating UAI in NR-DC | Overheating UAI in EN-DC | PS UAI in NR-DC |
| SCG specific Info | No support | Support | Support |
| Configuration | Per UE  Controlled by MN | Per UE  Controlled by MN | Per CG  Controlled by MN and SN separately |
| Receiving Node | Only to MN | Only to MN  MN decides and forwards the SCG specific OH info to SN. | To MN or SN separately |
| Deliver via SRB3 | No support | No support | Support |

In NR RRC spec, all the NR related UAI info is described in the section 5.7.4 (UE Assistance Information), it’s quite difficult to comprehend the difference between overheating UAI reporting in NR-DC and other cases.

In phase 1 discussion, companies thought it’s not needed to add any clarification on overheating in EN-DC scenario. But for NR-DC scenario, there is some support to explicitly differentiate overheating from power saving UAI reporting. In details, overheating for SCG (both config and report) is not supported while power saving for SCG (both config and report) is allowed.

##### **PH2-Q1: Do you agree that clarification is needed for the differentiation between PS specific UAI and overheating UAI in NR-DC?**

|  |  |  |
| --- | --- | --- |
| Company | Agree? (Yes or No) | Comments |
|  |  |  |
|  |  |  |
|  |  |  |

In order to clarify that **only** power saving UAI can be configured by SN and reported to SN, the revised CR has been uploaded into the draft folder (path: Phase II -> 02\_Clarification for OH UAI in NR-DC (R2-2100872)).

##### **PH2-Q2: If the answer to PH2-Q1 is Yes, do you agree the revised CR? Any comments?**

|  |  |  |
| --- | --- | --- |
| Company | Agree? (Yes or No) | Comments |
|  |  |  |
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# 4 Annex – Phase 1 Discussion

### R2-2100872

R2-2100872 Cleanup on Overheating UAI reporting procedure Apple CR Rel-16 38.331 16.3.1 2361 - F TEI16

**Summary of change:** To make it clear that the UAI reporting procedures defined for EN-DC and NR-DC are not applicable to overheating indication.

|  |
| --- |
| 5.7.4.3 Actions related to transmission of *UEAssistanceInformation* message  …  1> else if the UE is in (NG)EN-DC:  2> if SRB3 is configured:  3> submit the *UEAssistanceInformation* message via SRB3 to lower layers for transmission, except overheating assistance information indication;  2> else:  3> submit the *UEAssistanceInformation* message via the E-UTRA MCG embedded in E-UTRA RRC message *ULInformationTransferMRDC* as specified in TS 36.331 [10], except overheating assistance information indication.  1> else if the UE is in NR-DC:  2> if the UE assistance configuration that triggered this UE assistance information (except overheating assistance information) is associated with the SCG:  3> if SRB3 is configured:  4> submit the *UEAssistanceInformation* message via SRB3 to lower layers for transmission;  3> else:  4> submit the *UEAssistanceInformation* message via the NR MCG embedded in NR RRC message *ULInformationTransferMRDC* as specified in5.7.2a.3;  2> else:  3> submit the *UEAssistanceInformation* message via SRB1 to lower layers for transmission; |

#### **Q5: Do you agree with the change in R2-2100872?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree or not?** | **Comments** |
| Huawei, HiSilicon |  | In our understanding, in 38.331 5.7.4.3, it describe how to set the contents of the **NR UAI message** and the information associated with SCG only includes the power saving UAI in DC case. The overheating assistance information associated with SCG is included in the **LTE UAI message** described in 36.331. Thus, we understand the intention but not sure if any clarification is really needed. |
| Samsung |  | Alike expressed by Huawei, we assume a UE in (NG)EN-DC will not trigger 38.331 5.7.4.3 (at least not for providing overheating assistance) |
| Ericsson | Agree | We think the use case is valid for NR-DC. |
| Nokia |  | The motivation is correct, but in fact the section of 38.331 does not concern providing UAI for ENDC over SRB3 |
| MediaTek | No | The modified part of 38.331 5.7.4.3 has nothing to do with the overheating for EN-DC. Instead, we only use 5.7.4.3a to setup an IE (container). So the change is not needed. |
| QCOM | Disagree | Carry similar understanding as Huawei |
| Xiaomi |  | Agree with Huawei that this section relates to the setting of the NR UAI message, and UE will not trigger 38.331 5.7.4.3 for EN-DC case for overheating |
| CATT | No | According to 38.331, the SCG UEAssistanceInformation for overheating is captured in another subclause, i.e. 5.7.4.3a. And the SCG UEAssistanceInformation for overheating is included in LTE UEAssistanceInformation message. We think no further clarification is needed. |
| Apple | Agree | It’s not clear in current spec on the difference of overheating assistance information and other information. Without the clarification, the UE will mistakenly regard all UAI processing in the same way. |
| ZTE | / | We understand the use case is valid for NR-DC but the change does not seem to be correct. |
| vivo |  | Agree with HW |
| Spreadtrum |  | Agree with Huawei. |
| OPPO | No | We also think no further clarification is needed as commented by CATT |

#### **Conclusions (R2-2100872):**

3/13 companies think the clarification for NR-DC is needed;

6/13 companies understand the intention and would like to check further.

Based on company’s input, majority (9/13) is fine to check further on the necessity on the clarification for NR-DC, e.g. whether the spec is clear on the differentiation on the overheating UAI and power saving UAI for SCG.

**Proposal 2-2: Continue the discussion on the clarification for the overheating UAI reporting in NR-DC.**