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

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

**Agenda item: 6.16**

**Source: Apple**

**Title: Summary of [028][TEI16] Miscellaneous I (Apple)**

**Document for: Discussion and Decision**

# 1 Introduction

This document contains the summary of documents from agenda item 6.16 (“Overheating Stop Behaviour”, “Overheating Other”, “Processing time of DL Segmentation”, and “Release with Redirect”) as per below excerpt from the session chair minutes:

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

Scope: [R2-2101434](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101434.zip), [R2-2101346](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101346.zip), [R2-2101170](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101170.zip), [R2-2101656](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101656.zip), [R2-2100872](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2100872.zip), [R2-2101356](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101356.zip), [R2-2101357](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101357.zip), [R2-2101358](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101358.zip), [R2-2101359](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101359.zip), [R2-2100979](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2100979.zip), [R2-2101289](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101289.zip), [R2-2101290](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101290.zip), [R2-2101291](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101291.zip), [R2-2101292](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101292.zip), [R2-2101657](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101657.zip),

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 |
| Huawei, HiSilicon | Yiru Kuang | kuangyiru@huawei.com |
| Samsung | Himke van der Velde | Himke.vandervelde@samsung.com |
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# 2 Company comments to the contributions

## Topic 1: Overheating Stop Behaviour

**R2-2101434** is the email summary of the [Post112-e][067][NR TEI16] UE indication when it no longer experiences overheating.

Following three solutions are under the email discussion.

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The e-mail discussion resulted in the following proposals:

[Proposal 1 RAN2 to decide between solution 1 or 2 to address overheating for SCG in EN-DC.](#_Toc61018122)

[Proposal 2 RAN2 to confirm that for overheating in NR-DC, the field *allowedReducedConfigForOverheating* should work in the same way as any other restrictions signaled within *CG-ConfigInfo*>*configRestrictInfo*.](#_Toc61018123)

**In R2-2101346,** Solution1 with no spec change is proposed.

**In** **R2-2101170**, Solution 2 is proposed and following inter-node procedure for EN-DC is proposed to be confirmed.

Proposal 2: RAN2 confirms the that in EN-DC when the MN should sends the CG-ConfigInfo not containing the overheatingAssistanceForSCG to the SN that the SN understands that no change in the last signalled UE preference in regards to the detected overheating condition has occurred.

#### **Q1: Which solution is your preference, i.e. Solution 1 or Solution 2?**

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| --- | --- | --- |
| **Company** | **Solution?** | **Comments** |
| Huawei, HiSilicon | Solution-2 (slightly) | We understand and agree the comments from Samsung([R2-2101346](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101346.zip)) that it is just one overheating feature and there is no delta reporting for LTE UAI, Solution-1 better satisfies this principle. But more changes on the Uu interface for overheating reporting seems to be needes if Solution-1 is selected, based on the current procedural text, the UE need to include *overheatingAssistanceForSCG* if configured. So we slightly prefer Solution 2 as only inter-node message needs clarification, but still open to hear other companies views.  3> if configured to provide overheating assistance indication for NR SCG:  4> include *overheatingAssistanceForSCG* in the *OverheatingAssistance* IE;  4> set *overheatingAssistanceForSCG* in accordance with clause 5.7.4.3a as specified in TS 38.331 [82]; |
| Samsung | Solution 1 | The general principle is that UE includes all fields of a feature and that absence means previous value is cleared i.e. there is no delta signalling. This means that whenever UE triggers reporting of overheating (i.e. initially and when preferences change), the UE will provide the full picture. I.e. according to current principles, delta signalling only applies when making this an independent subfeature, with its own prohibit, ..  We think there is no problem with existing specifications i.e. solution 2 is merely a minor enhancement. We think we should really avoid introducing a new kind of UE assistance i.e. with different characteristics than apply for the two known cases of a)‘one feature’ and b) ‘independent sub-features |
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#### **Q2: Do you agree with the proposal 2 in email summary (R2-2101434)?**

Proposal 2 RAN2 to confirm that for overheating in NR-DC, the field *allowedReducedConfigForOverheating* should work in the same way as any other restrictions signaled within *CG-ConfigInfo*>*configRestrictInfo*.

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| **Company** | **Agree or not?** | **Comments** |
| Huawei, HiSilicon | Agree |  |
| Samsung | Agree | We note that in general overheating solutions for EN-DC and NR-DC are quite different, so we think this is not really relevant to decide what to do for EN-DC |
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#### **Q3: Do you agree with the proposal 2 in R2-2101170 for EN-DC case?**

Proposal 2: RAN2 confirms the that when the MN should sends the CG-ConfigInfo not containing the overheatingAssistanceForSCG to the SN that the SN understands that no change in the last signalled UE preference in regards to the detected overheating condition has occurred.

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| **Company** | **Agree or not?** | **Comments** |
| Huawei, HiSilicon | Agree (depend on Q1?) | It is related to the Q1, we understand it is aligned with Solution 2 in Q1. |
| Samsung | Disagree | See Q1. We think this is a minor optimisation of network signalling (see below) i.e. there seems insufficient motivation to change UE behaviour and introduce a new type of UE assistance.  (We think that when UE indicates preferences regarding SCG overheating, SCG reconfiguration would be rather infrequent. Moreover, this is not the most size critical field for which we currently use full signaling. |
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#### **Conclusions (Overheating Stop Behaviour): TBA**

## Topic 2: Overheating Other

### R2-2101656

R2-2101656 Correction on handling of overheatingAssistanceConfigForSCG when SCG is released Huawei, HiSilicon CR Rel-16 36.331 16.3.0 4584 - F TEI16

**Summary of change:** Clarify that the overheatingAssistanceConfigForSCG-r16 is released when the SCG is released in (NG)EN-DC.

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| 5.3.3.4a Reception of the *RRCConnectionResume* by the UE  The UE shall:  1>…  1> else:  2> if resuming an RRC connection from a suspended RRC connection in EPC; or  2> for NB-IoT, if resuming an RRC connection from a suspended RRC connection in 5GC and *fullConfig* is not present in the *RRCConnectionResume* message:  3>…  3> else if the UE was configured with EN-DC:  4> perform MR-DC release, as specified in TS 38.331 [82], clause 5.3.5.10;  4> release *tdm-PatternConfig* or *tdm-PatternConfig2*, if configured;  4> if *overheatingAssistanceConfigForSCG* is configured:  5> release *overheatingAssistanceConfigForSCG* and stop timer T345, if running;  3> ..  2> else if the *RRCConnectionResume* message includes the *fullConfig* (i.e., for resuming an RRC connection from RRC\_INACTIVE or for resuming a suspended RRC connection in 5GC):  3> perform the radio configuration procedure as specified in 5.3.5.8;  2> else if resuming an RRC connection from RRC\_INACTIVE:  3> …  3> else if the UE was configured with NGEN-DC:  4> perform MR-DC release, as specified in TS 38.331 [82], clause 5.3.5.10;  4> release *tdm-PatternConfig* or *tdm-PatternConfig2*, if configured;  4> if *overheatingAssistanceConfigForSCG* is configured:  5> release *overheatingAssistanceConfigForSCG* and stop timer T345, if running; |
| 5.3.5.3 Reception of an *RRCConnectionReconfiguration* not including the *mobilityControlInfo* by the UE  …  1> if the received *RRCConnectionReconfiguration* includes *endc-ReleaseAndAdd* and it is set to *TRUE*:  2> perform MR-DC release as specified in TS 38.331 [82], clause 5.3.5.10;  2> if *overheatingAssistanceConfigForSCG* is configured:  3> release *overheatingAssistanceConfigForSCG* and stop timer T345, if running;  … |
| 5.3.5.4 Reception of an *RRCConnectionReconfiguration* including the *mobilityControlInfo* by the UE (handover) ….  1> if the received *RRCConnectionReconfiguration* includes *endc-ReleaseAndAdd* and it is set to *TRUE*:  2> perform MR-DC release as specified in TS 38.331 [82], clause 5.3.5.10;  2> if *overheatingAssistanceConfigForSCG* is configured:  3> release *overheatingAssistanceConfigForSCG* and stop timer T345, if running;  …. |

#### **Q4: Do you agree with the change in R2-2101656?**

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| **Company** | **Agree or not?** | **Comments** |
| Huawei, HiSilicon | Agree | Proponent. |
| Samsung |  | Not sure this is really needed, but no strong view |
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#### **Conclusions (R2-2101656): TBA**

### 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.

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| 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?**

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

## Topic 3: Processing time of DL Segmentation

R2-2102261 is the summary of Email Report of [Post112-e][063][NR TEI16] RRC processing time with segmentation.

The e-mail discussion resulted in the following proposals:

Proposal 1: Adopt option 2 (i.e. 16ms + (Nseg-1)\*X) to define the NR RRC processing time requirement for DL RRC message with segmentation.

Proposal 2: Assume the X value is [2ms~16ms] in option 2, and final decision is made by RAN2.

Proposal 3: Send LS to RAN5 to inform the RRC processing time extension for the RRC message with segmentation.

Proposal 4: Adopt option 2 (i.e. 20ms + (Nseg-1)\*X) to define the LTE RRC processing time requirement for DL RRC message with segmentation.

#### **Q6: Do you agree with the proposal 1,3,4?**

*Proposal 1: Adopt option 2 (i.e. 16ms + (Nseg-1)\*X) to define the NR RRC processing time requirement for DL RRC message with segmentation.*

*Proposal 3: Send LS to RAN5 to inform the RRC processing time extension for the RRC message with segmentation.*

*Proposal 4: Adopt option 2 (i.e. 20ms + (Nseg-1)\*X) to define the LTE RRC processing time requirement for DL RRC message with segmentation.*

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| **Company** | **Agree or not?** | **Comments** |
| Huawei, HiSilicon | Yes | This seems also the “obvious” conclusion of the email discussion [063] |
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About the proposal 2 on the X value, there is not a clear consensus on a specific value. To allow the different UE implementation, in [R2-2100979](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2100979.zip), it is proposed to introduce a UE capability for it.

#### **Q7: Do you agree to introduce the UE capability for the X value as suggested in** [**R2-2100979**](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2100979.zip) **?**

[*Proposal 1 The value of “X” for the processing delay requirement of DL RRC segmentation is signalled as a UE capability.*](#_Toc61538347)

[*Proposal 2 The range of “X” (to be signalled as UE capability) is 2m, 7ms, 12ms.*](#_Toc61538348)

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| **Company** | **Agree or not?** | **Comments** |
| Huawei, HiSilicon | Maybe | The report via UE capability seems an overkill. Nevertheless, if it is really difficult to converge on a value for X, the UE capability could be a compromise to consider. In that case for example 4 values like [4,8,12,16] could be considered. |
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#### **Q8: If UE capability for the X value is not agreed, what is your preferred value of X (i.e. 2ms, 12ms, 16ms)?**

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| **Company** | **Value?** | **Comments** |
| Huawei, HiSilicon | Any value between 12 and 16 ms is fine for us | A value for X in the range [12-16] should be able to accommodate all the UEs implementations. We believe that values = or > 12 ms are not a problem on the network side. The network will wait for the UE to finish its operations and as long as this value is known to the network (either hardcoded or UE capability), there is no problem even for value X=16 ms. Companies that believe this is a problem for the network side should be able to explain why. |
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#### **Conclusions (Processing time with DL segmentation): TBA**

## Topic 4: Release with Redirect

R2-2101289 Release with Redirect in 2 steps Ericsson discussion Rel-16 TEI16

[R2-2101290](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101290.zip) Release with Redirect in 2 steps Ericsson CR Rel-16 38.331 16.3.1 2402 - F TEI16

[R2-2101291](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101291.zip) Release with Redirect in 2 steps Ericsson CR Rel-16 38.306 16.3.0 0503 - F TEI16

[R2-2101292](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101292.zip) Release with Redirect in 2 steps Ericsson CR Rel-16 38.300 16.4.0 0338 - F TEI16

[R2-2101657](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101657.zip) Release with redirection in 2 steps release Huawei, HiSilicon discussion Rel-16 TEI16

In RAN2#112e this was discussed in [R2-2009849](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_112-e/Docs/R2-2009849.zip) and [AT112-e][029][NR TEI16] Misc Corrections II ([R2-2011176](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_112-e/Docs/R2-2011176.zip)), and the following has been agreed:

* [029] will support release with redirection in response to a ResumeRequest for both with/without anchor change cases.
* [029] For anchor change scenario, the current gNB is responsible for determining the redirection.
* [029] Discussion on detail mechanism and CRs is postponed to next meeting.

About the case without UE context relocation, R2-2101289 propose not to support it in R16, but R2-2101657 propose to support it and provide the detailed mechanism.

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| TDoc | Proposals |
| R2-2101289 | [Proposal 1: Agree on the Text Proposals to TS 38.300.](#_Toc61504334)  [Proposal 2 : Confirm that the case without UE context relocation is not supported in Rel-16.](#_Toc61504335)  Proposal 3: Agree CRs to 38.300, 38.331 and 38.306. |
| R2-2101657 | Proposal 1: Add new cause in *RETREEVE UE CONTEXT REQUESET* message to indicate anchor gNB that the new serving gNB intends to redirect this UE and the anchor gNB is responsible for determining whether to perform anchor switch.  Proposal 2: In non-anchor-change scenario, the new serving gNB determines redirect configuration and sends it to the anchor gNB along with RETRIEVE UE CONTEXT REQUSET message.  Proposal 3: If Proposal 1 and Proposal 2 are agreed, send LS to RAN3 to inform them.  Proposal 4: Agree the Text Proposals to TS 38.300. |

#### **Q9: Do you support case without UE context relocation?**

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| **Company** | **Support?** | **Comments** |
| Huawei, HiSilicon | Support | Proponent of R2-2101657.  After receiving the *RRCResumeRequest* message from UE, if the load of the new serving gNB is too heavy or it couldn’t support this resume cause, the new serving gNB could decide release and redirect this UE. Then, it requests UE context from the last serving gNB. After UE context is moved to the last serving gNB and Path switch is made, the new serving gNB2 will be anchor gNB. RRC release message including redirection information could be created by gNB2 and be send to UE. After receiving release message with redirect information, UE will perform cell selection and camp on a new cell, and then UE’s NAS will trigger RRC resume procedure again. In this case, anchor gNB switch has to be performed twice to finish the NAS trigger RRC resume and it is not optimal from signalling point of view. |
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#### **Conclusions (with/without UE context relocation): TBA**

# Conclusions

# 4 Discussion contribution List

*Overheating Stop Behaviour*

[R2-2101434](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101434.zip) Summary of e-mail discussion on UE indication when it no longer experiences overheating Ericsson discussion

[R2-2101346](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101346.zip) Impacting UE to optimise inter-node transfer of SCG overheating info Samsung Telecommunications, LG Electronics Inc. discussion TEI16

[R2-2101170](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101170.zip) OverheatingAssistance Restriction Release Signalling in EN-DC Beijing Xiaomi Mobile Software discussion Rel-16

*Overheating Other*

[R2-2101656](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101656.zip) Correction on handling of overheatingAssistanceConfigForSCG when SCG is released Huawei, HiSilicon CR Rel-16 36.331 16.3.0 4584 - F TEI16

[R2-2100872](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2100872.zip) Cleanup on Overheating UAI reporting procedure Apple CR Rel-16 38.331 16.3.1 2361 - F TEI16

*Processing time of DL Segmentation*

[R2-2101356](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101356.zip) Summary of Email Report of [Post112-e][063][NR TEI16] RRC processing time with segmentation Apple discussion Rel-16 NR\_newRAT-Core, TEI16

Revisedin=> Revised in R2-2102261

R2-2102261 Summary of Email Report of [Post112-e][063][NR TEI16] RRC processing time with segmentation Apple discussion Rel-16 NR\_newRAT-Core, TEI16

[R2-2101357](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101357.zip) NR RRC processing time with segmentation Apple CR Rel-16 38.331 16.3.1 2405 - F NR\_newRAT-Core, TEI16

[R2-2101358](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101358.zip) LTE RRC processing time with segmentation Apple CR Rel-16 36.331 16.3.0 4572 - F NR\_newRAT-Core, TEI16

[R2-2101359](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101359.zip) Draft LS to RAN5 on RRC processing time with segmentation Apple LS out Rel-16 NR\_newRAT-Core, TEI16 To:RAN5

[R2-2100979](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2100979.zip) RRC processing delay for DL RRC segmentation Ericsson discussion Rel-16 TEI16

*Release with Redirect – Continue from last meeting*

[R2-2101289](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101289.zip) Release with Redirect in 2 steps Ericsson discussion Rel-16 TEI16

[R2-2101290](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101290.zip) Release with Redirect in 2 steps Ericsson CR Rel-16 38.331 16.3.1 2402 - F TEI16

[R2-2101291](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101291.zip) Release with Redirect in 2 steps Ericsson CR Rel-16 38.306 16.3.0 0503 - F TEI16

[R2-2101292](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101292.zip) Release with Redirect in 2 steps Ericsson CR Rel-16 38.300 16.4.0 0338 - F TEI16

[R2-2101657](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101657.zip) Release with redirection in 2 steps release Huawei, HiSilicon discussion Rel-16 TEI16