**3GPP TSG RAN WG2 #121bis-e *draft R2-230xxxx***

**Online, 17 - 26 April, 2023**

**Source:** ZTE Corporation (rapporteur)

**Title:** Report: [AT121bis-e][302][R17 SDT] SDT related correction (ZTE)

**Agenda Item:** 6.4.1

**Document for:** Discussion and decision

# Introduction

* [AT121bis-e][302][R17 SDT] SDT related correction (ZTE)

Scope: Treat the following tdocs related to SDT

* **6.4.x (SDT CP/UP):** R2-2302664, R2-2302665, R2-2302988, R2-2303056, R2-2303594, R2-2303687, R2-2303688, R2-2303699, R2-2304179
* **6.11 (SDT/RACH partitioning)**: R2-2302668
* **6.1.2 (SDT+REDCAP)**: R2-2303136, R2-2302660, R2-2304057

Determine agreeable parts/CRs. For Agreeable parts progress CRs

Intended outcome: Report, Agreed CRs.

Deadline: Company comments (Friday, 21st 10:00 UTC), Final report and CRs (Tuesday 25th 10:00 UTC)

Please use the following deadline

* **Comment deadline:** Friday, 21st 10:00 UTC (for collecting views)
* **Rapporteur proposals:** Monday W2, 0700 UTC (proposed outcome)
* **CR/Report deadline:** Tuesday W2, 10:00 UTC (discussion report, CRs)

1. Contact Information

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| --- | --- | --- |
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# Discussion – Phase-1

## SDT UP corrections

R2-2302664 Clarification on RA Resource Selection During CG-SDT vivo CR Rel-17 38.321 17.4.0 1576 - F NR\_SmallData\_INACTIVE-Core Late

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| Rapporteur comments:  The intention of the CR is to ensure that RA-SDT resource are not used during subsequent data transmission phase for CG-SDT. The general intention seems fine, but perhaps the change could be simplified (e.g: as below?) if companies think that this is not already clear in the specs.  1> if *smallData* is set to *true* for a set of Random Access resources:  2> consider the set of Random Access resources as not available for the Random Access procedure which is not triggered for RA-SDT |

Q 3.1.1: Do you agree with the reason for change in R2-2302664? Do you have any comments on the change proposed?

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| **Company** | **Yes/No** | **Comments (please propose any alternative wording etc if you think a change is needed)** |
| Samsung | No | RA triggered for SDT refers to RA initiated when SDT procedure is initiated. If majority view is to clarify this we are ok with changes suggested by rapporteur. |
| ZTE | - | We think the current spec is fine, but okay to go with majority view if companies think there is confusion. The revised wording from rapporteur seems simpler. |
| Sharp | Yes with comments | We agree with the intention of the change. However, we prefer the changes suggested by rapporteur. |
| LG | No | Same view as Samsung. Rapporteur suggestion is fine, if needed. |
| Huawei, HiSilicon | No | It is already clear in the current specification that only legacy RACH will be used for RACH triggered during ongoing SDT. The change is not needed. |
| Qualcomm | No | It is not essential. The suggestion from rapporteur is good enough. |
| CATT | No | In our understanding the RA procedure triggered during CG-SDT is not triggered for SDT, it is used when there is no UL grant when data arrives at UE. So this has been covered by the former part “the Random Access procedure which is not triggered for SDT”. Hence there is no necessity to repeat it. |
| Xiaomi | No | We are fine with the rapporteur’s change. |
| Google | Yes | We agree with the reason and prefer the change proposed by Rapporteur. |
| vivo | Yes (Proponent) | Fine with the rapporteur’s change. |
| NEC | No | We prefer rapporteur’s modification. |
| Ericsson | No | Not essential |
| MediaTek | See comment | We prefer the rapporteur’s modification |
| Nokia | No | We don’t trigger RA for SDT other than when we initiate the SDT procedure, otherwise we trigger it for SR or to indicate new beam in case no beam with valid CG resources are available. |
| Lenovo | No | We prefer suggested changes by Rapporteur |
| Apple | No | We think current spec is clear and no change is needed. if majority view is to clarify it in the spec, we prefer the change proposed by Rapporteur. |
| Intel | No | Share the view explained by Nokia and others |
| **Discussion**   * Everyone agreed that we don’t trigger RA for SDT other than when we initiate the SDT procedure (so no technical issue) * Majority of companies think this is already clear in the spec but can accept a minor clarification that RA resource are not available for procedure which is not triggered for “RA-SDT” (12/16) * 3 companies pointed out that there is no need for any change * Seems this is not a critical issue, so, no change could also be okay, but we can first try the majority way.   **Proposals**  **Proposal 1: Update R2-2302664 in R2-230xxxx as follows**  1> if *smallData* is set to *true* for a set of Random Access resources:  2> consider the set of Random Access resources as not available for the Random Access procedure which is not triggered for RA-SDT | | |

[R2-2302988](file:///C:\evutukuri\work\5G\RAN2\docs\R2-2302988.zip) Correction to CG-SDT LCH restriction Huawei, HiSilicon CR Rel-17 38.321 17.4.0 1580 - F NR\_SmallData\_INACTIVE-Core

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| **Rapporteur comments**  The intention is to Clarify that the configuredGrantType1Allowed used for SDT refers to configuredGrantType1Allowed-r17 in CG-SDT-ConfigLCH-Restriction-r17 in RRCRelease.  We can check if this is agreeable. |

Q 3.1.2: Do you agree with the change in R2-2302988?

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| **Company** | **Yes/No** | **Comments (please propose any alternative wording etc if you think a change is needed)** |
| Samsung | See comments | Alternate TP:  2> if, for each RB having data available for transmission, *configuredGrantType1Allowed*, if configured for CG-SDT, is configured with value *true* for the corresponding logical channel; and |
| ZTE |  | No strong view, but we think nothing is broken without the CR. |
| Sharp | Yes | It is fine for us to have such a clarification. |
| LG | No | *configuredGrantType1Allowed* is already specified in 5.4.3.1.1, and it is enough for SDT. Specifying the same parameter again in 5.27.1 makes more confusion. Moreover, RRC field description of *configuredGrantType1Allowed* already clarifies that *configuredGrantType1Allowed-r17* is used for CG-SDT.  But, if something is really needed, Samsung’s suggestion is better. |
| Huawei, HiSilicon | Yes (proponent) | We prefer to clarify as in TS 38.300 it is mentioned that:  “Logical channel restrictions configured by the network while in RRC\_CONNECTED state and/or in *RRCRelease* message for radio bearers enabled for SDT, if any, are applied by the UE during SDT procedure.”. The confusion may emerge in particular for the case where *configuredGrantType1Allowed-r17* is not configured, but *configuredGrantType1Allowed* is configured in RLC bearer configuration. Should the UE use it in this case (in our understanding, it shouldn’t). |
| Qualcomm | Yes |  |
| CATT | comment | Slightly prefer the Samsung’s suggestion which is simpler. |
| Xiaomi | Yes |  |
| Google | Yes |  |
| vivo | No strong view | Slightly prefer Samsung’s revision. |
| NEC | No strong view |  |
| Ericsson | No | Can be discussed if anything is needed. The change itself is not appropriate as it includes a usage description usually captured in RRC. |
| MediaTek | See comment | We prefer Samsung’s revision for its simplicity |
| Nokia | Ok to clarify, no strong view | Samsung proposal seems simple. |
| Lenovo | Yes |  |
| Apple | Yes | Slightly prefer Samsung’s revision. |
| Intel | Yes | Slightly preference to Samsung’s proposal |
| **Discussion Summary**   * Again, there seems to be no critical issue here but companies seem willing to accept a minor clarification as proposed by Samsung (9/16). * So, for this also, no change could also be okay, but we can try the majority way first   **Proposals**  **Proposal 2: Update R2-2302988 in R2-230xxxx as follows**  2> if, for each RB having data available for transmission, *configuredGrantType1Allowed*, if configured for CG-SDT, is configured with value *true* for the corresponding logical channel; and | | |

R2-2303699 Clarifying HD-FDD CG-SDT Ericsson CR Rel-17 38.321 17.4.0 1594 - F NR\_SmallData\_INACTIVE-Core

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| **Rapporteur comments**  Intention is to capture a pointer to RAN4 spec for the HD-FDD UE operation for CG-SDT.  **RAN4 note says:**  ------------------------ 5.1B.2.6 Maximum interruption in paging reception The requirements in clause 4.2B.2.6 shall apply for RedCap UEs.  For RedCap UE in HD-FDD mode, if a paging occasion overlaps with CG-SDT transmission then the UE shall monitor the paging during the paging occasion. In this case the UE is allowed to drop the CG-SDT transmission.  ------------------------  and then there is the other note in RAN1 spec as below:  ------------------------------  TS 38.213 clause 17.2  A HD-UE does not expect to receive both a Type-0/0A/1/2-PDCCH CSS set configuration for PDCCH reception in a set of symbols and dedicated higher layer parameters configuring transmission in the set of symbols.  So, firstly it is a bit unclear if RAN4 and RAN1 notes are aligned? RAN1 spec seems to require some configuration level exclusion of the above scenario whilst RAN4 spec allows it but requires the UE to skip the CG occasion.  **RAN2 status**  However, during SDT, the UE doesn't monitor normal paging... it only monitors paging for SI change notification (for ETWS/CMAS). This is only done **in any paging occasion** once per modification period. So, I am not sure if the above notes in RAN1 and RAN4 specs are really correct and if they are needed at all. i.e. why would the UE be allowed to skip the CG occasion if it can monitor it on other occasions (as long as it can do this once per modification period)??  Check what companies think of the above? |

Q 3.1.3: Do you agree with the change in R2-2303699?

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments (please explain your understanding of the RAN1/RAN4 requirements i.e. are they aligned with RAN2 specs per above)** |
| Samsung | See comments | Same view as Rapporteur |
| ZTE | No | We agree with rapporteur that the notes in RAN1/4 seem to be mis-aligned with RAN2. We think we should ask RAN1/RAN4 to update their specs and align with our specs instead (e.g. remove the above notes). |
| Sharp | No | Same view as Rapporteur |
| LG | No | Agree with Rapporteur. Moreover, it is weird to specify “paging occasion” in MAC specification. |
| Huawei, HiSilicon |  | We think this topic should be handled in RAN4 first, then w can check whether/what change is needed in RAN2. |
| Qualcomm | No | Same view with Rapporteur. |
| CATT | No | Same view as Rapporteur. |
| Xiaomi | No | We think RAN1/4 should update their specification (e.g. by removing the above notes) according to the RAN2 agreements. |
| Google | No | Same view as Rapporteur |
| vivo | No | Same view as Rapporteur. |
| NEC | No | Agree with Rapporteur |
| Ericsson | Proponent | The CR points to an issue due to inconsistency in core specifications that needs to be resolved, either by a clarification in RAN2 or elsewhere. Fine to discuss how to resolve. |
| MediaTek | No | Agree with the rapporteur |
| Nokia | No |  |
| Lenovo | No |  |
| Apple | No |  |
| Intel | No | Agree with Rapporteur |
| **Discussion Summary**   * Seems there is (almost) a consensus in RAN2 that there is no need for any change in RAN2 specs * Also, all those that added a comment seem to think there is some misalignment between RAN2 specs and RAN1/RAN4 specs. * We can try to send an LS to avoid the mis-alignment   **Proposal 3: Send an LS to RAN4/RAN1 to inform them that during SDT, the UE only monitors paging in any paging occasion once per modification period (for SI update). Can ask them to update the notes in their specs.** | | |

R2-2304179 Correction to RA-SDT initiation Google Inc. CR Rel-17 38.321 17.4.0 1610 - F NR\_SmallData\_INACTIVE-Core

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| **Rapporteur comments**  The change (to include a UE capability check, which we don’t normally include before other such “if” conditions) seems not essential perhaps? We can check company views. |

Q 3.1.4: Do you think the change in R2-2304179 is essential?

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Samsung | No | Agree with Rapporteur. |
| ZTE | No | Not essential and not the normal way to do this |
| Sharp | No | Same view as Rapporteur |
| LG | No | If the UE does not support RA-SDT, the UE would not check the RA-SDT condition by UE implementation. |
| Huawei, HiSilicon | No | We agree with the rapporteur. If we do it for this case, we would need to potentially apply the same change in many places, but that is really not needed and that is not what we normally do in the MAC specification. |
| Qualcomm | No | The CR is not needed. It can be left for UE implementation. |
| CATT | No | This change seems not needed. |
| Xiaomi | No | Agree with Rapporteur. |
| Google | Yes | Proponent |
| vivo | No | Same view as Rapporteur. |
| Ericsson | No |  |
| MediaTek | No | Same view as the rapporteur |
| Nokia | No |  |
| Lenovo | No |  |
| Apple | No |  |
| Intel | No | Agree with Rapporteur |
| **Discussion Summary**   * No support for this apart from the proponent.   **Proposal 4: CR in R2-2304179 is not pursued** | | |

## SDT CP corrections

R2-2302665 Correction on UAI Reporting During SDT vivo CR Rel-17 38.331 17.4.0 3957 - F NR\_SmallData\_INACTIVE-Core Late

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| Figure 5.7.4.1-1: UE Assistance Information while SDT procedure is not ongoing    Figure 5.7.4.1-2: UE Assistance Information while SDT procedure is ongoing**Rapporteur comments**  The change seems not essential. Check company views. |

Q 3.2.1: Do you think the change in R2-2302665 is essential?

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| **Company** | **Yes/No** | **Comments** |
| Samsung | - | Not essential. |
| ZTE | No | We think the stage-3 procedure is clear and there is no need to update the figure. |
| Sharp | No | Not essential. |
| LG | No | The CR is correct, but not essential. Do we capture all the possible scenarios in the figure? |
| Huawei, HiSilicon | No | Agree with the rapporteur. This change is not essential and we agreed previously that the figures do not have to capture each use case separately. The specifications text is clear. |
| Qualcomm | No |  |
| CATT | Comments | We think it is clear in UAI procedure. |
| Xiaomi | No | It seems that the procedural texts are already clear. |
| Google | No | The specification is clear. |
| vivo | Yes (proponent) |  |
| NEC | No |  |
| Ericsson | No | Agree w ZTE |
| MediaTek | No |  |
| Nokia | No |  |
| Lenovo | No |  |
| Apple | No |  |
| Intel | See comments | It is important to clarify that UAI is only used during SDT when UE informs that there is non-SDT data in UE’s buffers. UE’s behaviour is clearly defined in the procedural text captured (as other companies also explained). However, current figure can be misleading as before SDT feature, UAI was only used after the corresponding feature of UAI is configured in UE via *RRCReconfiguration* (which is not applicable for SDT). On summary, we understand that some clarification could be helpful. Suggested updates to proposed TP:   * 1) Not to refer to SDT when updating the title of current figure as normal UE may not support SDT, instead refer to “RRC\_CONNECTED” as follows “Figure 5.7.4.1-1: UE Assistance Information for a UE in RRC\_CONNECTED” * 2) If point 1) is acceptable, update title of new figure similarly e.g. "Figure 5.7.4.1-2: UE Assistance Information for a UE in RRC\_INACTIVE with ongoing SDT"   If the updated TP is acceptable, details in cover page would need to be updated as some parts are unclear to us. |
| **Discussion Summary**   * No support for this apart from the proponent.   **Proposal 5: CR in R2-2302665 is not pursued** | | |

R2-2303056 Correction on the restriction to periodicityExt NEC Corporation CR Rel-17 38.331 17.4.0 3981 - F NR\_SmallData\_INACTIVE-Core

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| **Rapporteur comments**  The intention is to exclude periodicityExt for CG-SDT. However, my understanding is that periodicityExt can also be used as long as the actual configuration of the periodicity is within allowed periodicities captured in RAN1 table. Is there a confusion regarding this? For instance, should we capture something like below?  In case of SDT, the network configures only the periodicity values included in Table 19.1-1 TS 38.213 [13], clause 19.1.  Check company views. |

Q 3.2.2: Do you agree with the change in R2-2303056? Please explain in comments if you think some clarification is needed.

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments (if you think some clarification is needed – e.g. as explained above in the rapporteur comments or something else, please explain in comments).** |
| Samsung | No | Not an essential change. |
| ZTE | No | We think periodicityExt can also be used. |
| Sharp | No | Our understanding is periodicityExt can also be used. |
| LG | No | The *periodicityExt* was introduced in R16 IIOT, and we think it is not configured for SDT. |
| Huawei, HiSilicon | No | As the rapporteur commented, there is no need to forbid usage of periodicityExt. We are also not sure that a clarification is needed. The network is implemented according to all specifications with an impact to a specific feature, so the network will make sure to only configure the values applicable to SDT, even without this change. |
| Qualcomm | No | The suggestion from Rapporteur is good. |
| CATT | No | Agree with Rapporteur. |
| Xiaomi | No | We are fine with the Rapporteur’s change. |
| Google | No | We don’t think the *periodicityExt* should be excluded. |
| vivo | No | *periodicityExt* can be used in case of CG-SDT in FR2-2. |
| NEC | Yes | In order to avoid some unavailable values, the restriction is needed. We are fine for Rapporteur’s suggestion. |
| Ericsson | No | Agree w Huawei |
| MediaTek | No | Implementors are expected to look at all the specs. If anything, only the rapporteur’s proposal is needed. |
| Nokia | No | Agree with others. |
| Lenovo | No |  |
| Apple | No |  |
| Intel | See comment | From companies’ comments here, it seems that there might be different understanding on whether UE can be configured (or not) for CG-SDT with periodicity values greater than 640ms. We suggest that RAN2 confirms what is the expected behaviour and based on that we can discuss whether any clarification (as suggested by Rapp. might be helpful). From our side, we share same understanding than Rapp. and would support updating the text as proposed:  In case of SDT, the network configures only the periodicity values included in Table 19.1-1 TS 38.213 [13], clause 19.1. |
| **Discussion Summary**   * No support for the proposal from anyone except the proponent * A number of companies were willing to accept a change as proposed by the rapporteur, but some companies rightly pointed out that this is already clear from RAN1 specs (all specs should be implemented correctly for a given feature). * So, seems we don’t need any change   **Proposal 6: CR in R2-2303056 is not pursued** | | |

R2-2303594 Control plane corrections for SDT Huawei, HiSilicon CR Rel-17 38.331 17.4.0 4017 - F NR\_SmallData\_INACTIVE-Core

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| First change:  3> restore the *RLC-BearerConfig* (except *configuredGrantType1Allowed* and *allowedCG-List*)associated with the RLC bearers of *masterCellGroup* and *pdcp-Config* from the UE Inactive AS context;  Second change:  The IE *ResumeCause* is used to indicate the resume cause in *RRCResumeRequest*, *RRCResumeRequest1* and *UEAssistanceInformation*.  **Rapporteur comments**  First change seems not needed since we already clarified at the last meeting that we have separate CG resource set for connected mode and for SDT, and have separate configuredGrantType1Allowed indication for SDT (see the field descriptions in R2-2302171). Is there still some confusion?  Second change seems fine. We can check if companies think this is essential. |

Q 3.2.3a: Do you think the first change in R2-2303594 is needed?

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| **Company** | **Yes/No** | **Comments** |
| Samsung | - | Not needed. |
| ZTE | No |  |
| Sharp | No |  |
| LG | No | Agree with Rapporteur. It is already clear. |
| Huawei, HiSilicon | Yes (proponent) | We think the first change is important. Currently, TS 38.300 says the following:  “Logical channel restrictions configured by the network while in RRC\_CONNECTED state and/or in *RRCRelease* message for radio bearers enabled for SDT, if any, are applied by the UE during SDT procedure.”  So even though we have separate CG resources, the UE uses LCH restrictions from both configurations. E.g. maxPUSCH-Duration from LCH configuration will be used, but only configuredGrantType1Allowed and allowedCG-List from CG-SDT config can be used, and not the ones from LCH configuration. As mentioned above, the confusion may emerge in particular for the case where *configuredGrantType1Allowed-r17* is not configured, but *configuredGrantType1Allowed* is configured in RLC bearer configuration. Should the UE use it in this case? (in our understanding, it shouldn’t).  We think this is a simple change which can help avoiding the confusion, but we are OK with another approach, e.g. capturing something is field descriptions. |
| Qualcomm | No |  |
| CATT | No |  |
| Xiaomi | No |  |
| Google | Yes |  |
| vivo | No | Agree with the analysis from the rapporteur. |
| NEC | No |  |
| Ericsson | No | Agree w Rapp. |
| MediaTek | No |  |
| Nokia | No |  |
| Lenovo | No |  |
| Apple | No |  |
| Intel | To discuss further | We understand that Huawei is addressing an scenario that was not fully discussed by RAN2 before and further discussion might be required on whether/how to address it.  RAN2 agreed that when UE is in RRC\_INACTIVE, CG-SDT should be initiated in CG-SDT specific resources. However, RAN2 has not discussed what UE should do during an SDT session if that UE in RRC\_CONNECTED was using CG in any of the DRBs which is later configured for SDT. In current specification, after UE initiates SDT, UE resumes all configurations associated with SDT RBs (which would include any configuration provided during RRC\_CONNECTED). Therefore, we understand that it is a valid//new question that RAN2 should further discuss – whether a UE is allowed to use CG configurations provided in RRC\_CONNECTED after UE initiates an SDT session. In our understanding, this question applies to both RA-SDT or CG-SDT. |
| **Discussion Summary**   * Only 2 companies think a change is needed * Proponent mentioned that some other way to solve this (e.g. update the field descriptions) is possible. Could try this approach if agreeable. For now, though not enough support to proceed with this.   **Proposal 7a: the first change in R2-2303594 is not pursued** | | |

Q 3.2.3a: Do you think the second change in R2-2303594 is needed?

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| **Company** | **Yes/No** | **Comments** |
| Samsung | Yes |  |
| ZTE | Yes |  |
| Sharp | Yes |  |
| LG | Yes |  |
| Huawei, HiSilicon | Yes (proponent) |  |
| Qualcomm | Yes |  |
| CATT | Yes |  |
| Xiaomi | Yes |  |
| Google | Yes |  |
| vivo | Yes with comments | A comma is missing, as shown below (revision in red):  The IE *ResumeCause* is used to indicate the resume cause in *RRCResumeRequest*, *RRCResumeRequest1*,and *UEAssistanceInformation*. |
| NEC | Yes |  |
| Ericsson | Yes |  |
| MediaTek | Yes |  |
| Nokia | Yes |  |
| Lenovo | Yes |  |
| Apple | Yes |  |
| Intel | Yes |  |
| **Discussion Summary**   * The second change seems agreeable   **Proposal 7b: Update R2-2303594 to keep only the second change (add the missing comma).** | | |

R2-2303687 Clarification on RRCReject handling with UL data Nokia, Nokia Shanghai Bell CR Rel-17 38.300 17.4.0 0658 - F NR\_SmallData\_INACTIVE-Core

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| **Rapporteur comments**  The proposal is to specify that when UE receives RRCReject during the SDT procedure, the UE shall not perform SDT procedure for a subsequent RRC resume procedure  We had a similar discussion in the past (see R2-2203732 – see Q11 - especially option 3 which also intends to exclude the possibility to perform another SDT after RRCReject). But at this time, companies were unwilling to deviate from how this is done in EDT (no one supported this option 3). So, it is unclear why we need to deviate from this agreed EDT like behaviour. Check if companies would have changed their minds. |

Q 3.2.4: Do you think the change in R2-2303687 is needed?

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| **Company** | **Yes/No** | **Comments** |
| Samsung | No | Agree with Rapporteur. |
| ZTE | No | The proposed option would result in some more extensive changes to stage-3 too (since the UE has the SDT configuration, it is not clear how it can be guaranteed that the UE will not initiate SDT the next time for instance). As noted by the rapporteur the option 3 in R2-2203732 would allow the implementation of this by removing the SDT configuration, but such configuration change at the UE based on an non-integrity protected message (RRCReject) is not allowed in general.  So, we think the EDT based approach as currently specified is fine and we can stick with this. |
| Sharp | No | Same view as Rapporteur |
| LG | No |  |
| Huawei, HiSilicon | No strong view | Perhaps we do not have to forbid the UE from always using SDT procedure, but we would be ok to have a note similar to the one as discussed previously (even though we were not favouring it back then), i.e.:  “UE shall avoid a consecutive SDT procedures with a different payload but same security key” |
| Qualcomm | No | Same view with Rapporteur. |
| CATT | No | Same view as Rapporteur |
| Xiaomi | Xiaomi | Agree with Rapporteur. |
| Google | No | Same view as Rapporteur |
| vivo | No | Same view as Rapporteur. |
| NEC | No | Same view as Rapporteur. |
| Ericsson | No | Was partly discussed in previous meeting and we think the current specification is sufficient. |
| MediaTek | No |  |
| Nokia | Yes | Proponent |
| Lenovo | No |  |
| Apple | No |  |
| Intel | No | This is a functional change; moreover, the proposed behaviour was also considered during the WI phase and companies agreed not to capture this |
| **Discussion Summary**   * Apart from the proponent, no other company supported this change * One company suggested we could capture the EDT like note here (this was discussed in the past but not agreed). Rapporteur thinks this may be fine (but since not many companies had a comment on this, we cannot really agree this now).   **Proposal 8: Changes in R2-2303687 are not pursued** | | |

R2-2303688 Clarification on unknown, unforeseen and erroneous protocol data Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.4.0 1593 - F NR\_SmallData\_INACTIVE-Core

|  |
| --- |
| **Rapporteur comments**  The proposal is to specify the UE behaviour for the case where data over non-SDT RBs is sent by network during SDT.  Is this change essential? |

Q 3.2.5: Do you think the change in R2-2303688 is essential?

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Samsung | - | Change seems correct |
| ZTE | No | We don’t think this is essential |
| Sharp | Yes |  |
| LG | No | We think the first paragraph of 5.13 covers this case.  *When a MAC entity receives a MAC PDU for the MAC entity's C-RNTI or CS-RNTI, or by the configured downlink assignment, containing a Reserved LCID or eLCID value, or an LCID or eLCID value the MAC Entity does not support, the MAC entity shall at least:*  *1> discard the received subPDU and any remaining subPDUs in the MAC PDU.*  Moreover, if the SDT UE receives an LCID or eLCID of non-SDT RBs, we think the whole MAC PDU shall be discarded instead of discarding only corresponding MAC subPDUs. |
| Huawei, HiSilicon | No | We are wondering why MAC would receive such PDUs? Doesn’t it mean such PDUs are coming from the network and that such network is implemented incorrectly. We normally do not address wrong network implementation cases. |
| Qualcomm | No | Not essential. |
| CATT | No | We don’t think this is essential |
| Xiaomi | No | Agree with the concern provided by Huawei |
| Google | No | Why does the network send data of non-SDT RB(s) during SDT? This should not happen in the network implementation. |
| vivo | No | We think the existing text has already covered this.  When a MAC entity receives a MAC PDU for the MAC entity's C-RNTI or CS-RNTI, or by the configured downlink assignment, containing an LCID or eLCID value which is not configured, the MAC entity shall at least:  1> discard the received subPDU. |
| NEC | No |  |
| Ericsson | No |  |
| MediaTek | Yes | The change is correct. On Huawei’s comment – by this reasoning, this entire section 5.13 would be unnecessary. |
| Nokia | Yes | Proponent.  It should be noted that either the parts indicated by LG or vivo do not correspond to the issue case: the LCID is both supported and configured for a non-SDT bearer.  Also, it should be noted that Huawei’s comment is odd in the sense that all the cases for unknown, unforeseen and erroneous protocol data are coming from the network. |
| Lenovo | No | Don’t consider it essential |
| Apple | No |  |
| Intel | Yes | It is an error/invalid scenario and UE’s behaviour seems reasonable to be clarified |
| **Discussion Summary**   * Proposed change seems technically correct * But no consensus to capture this in the specs * Rapporteur thinks it may be okay to capture this as we have captured similar things in the past as highlighted by the proponents, however we can first try the majority view.   **Proposal 9: change in R2-2303688 is not pursued (12/16)** | | |

## RACH partitioning correction

R2-2302668 Clarification on the Selected Set of RA Resources vivo CR Rel-17 38.321 17.4.0 1577 - F NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core Late

|  |
| --- |
| 1> perform initialization of variables specific to Random Access type as specified in clause 5.1.1a by using the selected set of Random Access resources;  1> if *RA\_TYPE* is set to *2-stepRA*:  2> perform the Random Access Resource selection procedure for 2-step RA type (see clause 5.1.2a) by using the selected set of Random Access resources.  1> else:  2> perform the Random Access Resource selection procedure (see clause 5.1.2) by using the selected set of Random Access resources.  **Rapporteur comments**  The intention is to clarify which RACH partition is used to initialise the variables for RACH and perform RACH.  Since the RACH partition selection happens ahead for this section, this should be already clear? Is this really essential? |

Q 3.3.1: Do you think the change in R2-2302668 is essential?

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Samsung | No | Not essential |
| ZTE | No |  |
| Sharp | No |  |
| LG | No | Isn’t it obvious that the UE performs RA procedure on the selected RA resource? |
| Huawei, HiSilicon | No | This is not needed. The following is already captured in 5.1.1 of MAC specs:  “When a Random Access procedure is initiated, UE selects a set of Random Access resources as specified in clause 5.1.1b and initialises the following parameters for the Random Access procedure according to the values configured by RRC for the selected set of Random Access resources:” |
| Qualcomm | No | This clarification is not needed, because which RACH partition is used to initialize the variables for RACH is specified in the section before it. |
| CATT | No |  |
| Xiaomi | No |  |
| Google | No |  |
| vivo | Yes (proponent) | Glad to see all think the current spec is clear. |
| NEC | No |  |
| Ericsson | No | The specification is clear as the selection occurs before. |
| MediaTek | No | Agree with Huawei |
| Nokia | No |  |
| Lenovo | No |  |
| Apple | No |  |
| Intel | No |  |
| **Discussion Summary**   * No support apart from the proponent   **Proposal 10: Change in R2-2302668 is not pursued** | | |

## SDT+REDCAP CRs

R2-2302660 Correction on SDT with separate initial BWP vivo, Huawei, HiSilicon, Guangdong Genius draftCR Rel-17 38.321 17.4.0 F NR\_redcap-Core, NR\_SmallData\_INACTIVE-Core R2-2301962

|  |
| --- |
| **Rapporteur comments:**  Seems that the intention is to clarify which BWP is used for SDT procedure. It is not clear that this is essential since the BWP operation (and hence the BWP on which CG/RA-SDT happens) should be clear in MAC spec anyway. Check if companies think this is needed. |

Q 3.4.1: Do you think the change in R2-2302660 is essential?

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Samsung | - | Ok to clarify |
| ZTE | No |  |
| Sharp | Yes |  |
| LGE | No | CG-SDT resource is configured on initial BWP, so it is clear that CG-SDT is performed on the initial BWP. We think the suggested change is not essential.  [vivo] But in case RedCap specific initial BWP is configured, SDT (including RA-SDT/CG-SDT) should be performed on RedCap specific initial BWP, if there is SDT resource on RedCap specific initial BWP, otherwise, UE should switch to RedCap speicifc initial BWP with no SDT.  However, if BWP operation in SDT procedure really needs to be clarified, it should be specified in clause 5.15 (BWP).  [vivo] We are fine to discuss other options as we discussed it in RAN2#121 meeting. |
| Qualcomm | - | The first change is clarification which is correct but is not critical/essential. similar CR was discussed in the last meeting and was not agreed. People believe it is clear in RRC spec already.  [vivo] We disagree with the statement “*similar CR was discussed in the last meeting and was not agreed. People believe it is clear in RRC spec already.*”, please see below chair note in RAN2#121 meeting:  [R2-2301962](file:///C:\Data\3GPP\RAN2\Inbox\R2-2301962.zip) Correction SDT with separate initial BWP, Guangdong Genius discussion Rel-17 NR\_redcap-Core   * Continue in the next meeting   The second change is already in the spec. Refer to the last paragraph of 5.15.1 TS 38.321 v17.4.0.  [vivo] In case there is no RA-SDT resource on RedCap specific initial BWP, it is not clear for UE whether to perform SDT according to the BWP switch paragraph in 5.15.1.  The third change is fine. |
| CATT | Yes |  |
| Xiaomi |  | No strong preference. We can follow the majority view. |
| Google | Yes |  |
| vivo | Yes (proponent) |  |
| NEC | No |  |
| Ericsson | No | We think the spec is already clear, no need for further clarification. |
| MediaTek | No | We don’t see a need for this change. We already have a generic statement in the field descriptions of RC specific initial DL/UL BWPs paraphrased below:  *If present, RedCap UEs use this UL/DL BWP instead of initialUplink/DownlinkBWP. If absent, RedCap UEs use initialUplink/DownlinkBWP provided that it does not exceed the RedCap UE maximum bandwidth*  [vivo] That is true, there is a statement in the field description on separate initial BWP in RRC. It is clear that UE should use separate initial BWP in case it is configured.  But it is not clear how to perform BWP selection and SDT initialization in the current MAC specification (i.e. which one should be performed firstly). We understand people have same understanding that BWP selection should be performed before SDT initialization, i.e. in case separate initial BWP is configured, no matter whether there is SDT configuration, RedCap UE should switch to the separate initial BWP, which is not clear according to current MAC specification. Thus, we would like to clarify such behaviour. |
| Nokia | No | NW would not configure RedCap+SDT resources on multiple BWPs so there is never any ambiguity in here so the first two changes are not needed. The third change can be considered but seems equally obvious. |
| Lenovo | No |  |
| Huawei, HiSilicon | Yes | It is reasonable that UE vendors prefer clear UE behaviour/understanding to the NW configuration.  Maybe the compromise can be to only agree the last change, since PDCCH monitoring behaviour should be clear in MAC (RRC cannot address this).  “If CG-SDT is selected above and after the initial transmission for CG-SDT is performed, the UE monitors PDCCH addressed to C-RNTI, on the BWP configured by *initialDownlinkBWP-RedCap*, if configured for a RedCap UE; otherwise, on the BWP configured by *initialDownlinkBWP*, as stored in UE Inactive AS context as specified in TS 38.331 [5] and CS-RNTI until the CG-SDT procedure is terminated.” |
| Apple | No | We think current spec is already clear. |
| Intel | No | Share the view that this does not need to be further clarified in SDT section within MAC spec |
| **Discussion Summary**   * The views are a bit split (8/16) * There is no technical disagreement (all companies agree on how the specs should be interpreted) * Since the change is not critical and there seems to be some willingness to accept (a subset of) these changes, the rapporteur propose the proponent to work on a minimal wording to clarify this and we can revisit this   **Proposal 11: Postpone R2-2302660.** | | |

R2-2303136 Corrections on SDT using NCD-SSB for RedCap Huawei, HiSilicon CR Rel-17 38.321 17.4.0 1584 - F NR\_redcap-Core

|  |
| --- |
| **Rapporteur comments:** Intention is to clarify that NCD-SSB can be used for SS-RSRP measurements during SDT. Can check if companies think this is essential. |

Q 3.4.2: Do you think the change in R2-2303136 is essential?

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Samsung | No | Current notes (Note 3 and 4) are sufficient |
| ZTE |  | We are okay with the proposed note to clarify this. |
| Sharp | No | Not essential |
| LGE | No | When the SSB (CD or NCD) is associated with RedCap-specific initial BWP, it is obvious that the RSRP measurement is performed using the SSB associated with the separated initial BWP. |
| Huawei, HiSilicon | Yes | From the legacy NOTE, a RedCap UE can only perform SS-RSRP measurement based on the CD-SSB in RRC\_IDLE or RRC\_INACTIVE mode.  However in RAN2#121 meeting, it is agreed that CG/RA-SDT can also be performed if the RedCap specific initial DL BWP includes NCD-SSB. According to this agreement and related CRs, the RedCap UE can also perform SS-RSRP based on NCD-SSB during the RA-SDT procedure (even for the msg1 transmission of RA-SDT).  This is the new behaviour which is different from legacy UE.  So the current NOTE needs to be updated accordingly to clarify/allow the SS-RSRP measurement using NCD-SSB during SDT. Without allowing this, the whole ‘RA-SDT using NCD-SSB’ feature may not work well. |
| Qualcomm | Yes | The change is fine. We support this CR. |
| CATT | No |  |
| Xiaomi | Yes |  |
| Google | Yes |  |
| vivo | Yes |  |
| NEC | Yes |  |
| Ericsson | - | We do not have any strong preference. If the CR is agreed, we suggest the following changes though:   * regarding the marking for “Proposed change affects”, RAN should not be marked. * Regarding the second and the third changes, SDT aspect should be emphasize, i.e., the change should only apply to RedCap UEs initiating access to the network for SDT. |
| MediaTek | Yes |  |
| Nokia | Yes | OK to clarify |
| Lenovo | Yes | Fine to clarify |
| Apple | Yes |  |
| Intel | Yes | Ok to clarify this in the NOTE |
| **Discussion Summary**   * It seems there is no technical disagreement on the actual change (i.e. everyone agree that that NCD-SSB can be used for SS-RSRP measurements during SDT) * Majority of companies seem comfortable with clarifying this, so, rapporteur thinks we can first try the majority view (CR to be updated per Ericsson comment above)   **Proposal 12: Update the CR R2-2303136 in R2-230xxxx and try to agree this (12/16)** | | |

R2-2304057 CR for Miscellaneous Corrections for initial BWP LG Electronics. CR Rel-17 38.321 17.4.0 1608 - F NR\_redcap-Core

|  |
| --- |
| **Rapporteur comments:** The intention seems to be to clarify the BWP used for CG-SDT. The change looks a bit strange since it seems to suggest CG-SDT can also be configured in DL BWP. Is this change needed? |

Q 3.4.3: Do you think the change in R2-2304057 is essential? (please comment on the wording if you think some change is needed).

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Samsung | No |  |
| ZTE | No |  |
| Sharp | No |  |
| LGE | Yes | Only here, BWP terminology is not aligned with RRC terminology and we think it should be fixed.  Regarding DL BWP, both UL BWP and DL BWP are configured for CG-SDT. If companies think DL BWP is not needed, we are OK to only specify UL BWP.  SDT-MAC-PHY-CG-Config-r17 ::= SEQUENCE {  -- CG-SDT specific configuration  cg-SDT-ConfigLCH-RestrictionToAddModList-r17 SEQUENCE (SIZE(1..maxLC-ID)) OF CG-SDT-ConfigLCH-Restriction-r17 OPTIONAL, -- Need N  cg-SDT-ConfigLCH-RestrictionToReleaseList-r17 SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity OPTIONAL, -- Need N  cg-SDT-ConfigInitialBWP-NUL-r17 SetupRelease {BWP-UplinkDedicatedSDT-r17} OPTIONAL, -- Need M  cg-SDT-ConfigInitialBWP-SUL-r17 SetupRelease {BWP-UplinkDedicatedSDT-r17} OPTIONAL, -- Need M  cg-SDT-ConfigInitialBWP-DL-r17 BWP-DownlinkDedicatedSDT-r17 OPTIONAL, -- Need M  cg-SDT-TimeAlignmentTimer-r17 TimeAlignmentTimer OPTIONAL, -- Need M  cg-SDT-RSRP-ThresholdSSB-r17 RSRP-Range OPTIONAL, -- Need M  cg-SDT-TA-ValidationConfig-r17 SetupRelease { CG-SDT-TA-ValidationConfig-r17 } OPTIONAL, -- Need M  cg-SDT-CS-RNTI-r17 RNTI-Value OPTIONAL, -- Need M  ...  } |
| Qualcomm | No | No ambiguity with "initial BWP" here. Don't see any need to change it. |
| CATT | No |  |
| Xiaomi | No |  |
| Google | No |  |
| vivo | No | Either legacy BWP or Redcap BWP can be regarded as initial BWP generally. |
| NEC | No |  |
| Ericsson | No | We think the spec is already clear, no further clarification is needed. |
| MediaTek | No | We see no value added with this change. |
| Nokia | No |  |
| Lenovo | No |  |
| Apple | No |  |
| Intel | No |  |
| * No support apart from the proponent for this CR   **Proposal 13: Changes in R2-2304057 are not pursued** | | |

# Conclusions and proposals – Phase-1

The following proposals are made:

**Proposal 1: Update R2-2302664 in R2-230xxxx as follows**

1> if *smallData* is set to *true* for a set of Random Access resources:

2> consider the set of Random Access resources as not available for the Random Access procedure which is not triggered for RA-SDT

**Proposal 2: Update R2-2302988 in R2-230xxxx as follows**

2> if, for each RB having data available for transmission, *configuredGrantType1Allowed*, if configured for CG-SDT, is configured with value *true* for the corresponding logical channel; and

**Proposal 3: Send an LS to RAN4/RAN1 to inform them that during SDT, the UE only monitors paging in any paging occasion once per modification period (for SI update). Can ask them to update the notes in their specs.**

**Proposal 4: CR in R2-2304179 is not pursued**

**Proposal 5: CR in R2-2302665 is not pursued**

**Proposal 6: CR in R2-2303056 is not pursued**

**Proposal 7a: the first change in R2-2303594 is not pursued**

**Proposal 7b: Update R2-2303594 (in R2-230xxxx) to keep only the second change (add the missing comma)**

**Proposal 8: Changes in R2-2303687 are not pursued**

**Proposal 9: change in R2-2303688 is not pursued (12/16)**

**Proposal 10: Change in R2-2302668 is not pursued**

**Proposal 11: Postpone R2-2302660.**

**Proposal 12: Update the CR R2-2303136 in R2-230xxxx (cover page and clarify the change is for SDT only) and try to agree this (12/16)**

**Proposal 13: Changes in R2-2304057 are not pursued**