**3GPP TSG-RAN WG2 Meeting #110 R2-200xxxx**

**Electronic, 1 June – 12 June 2020**

**Agenda item: 5.4.1.1**

**Source: Apple**

**Title: Summary of Offline-007: DC Configuration (Apple)**

**Document for: Discussion & Decision**

# Introduction

This is a summary of the following offline discussion on DC configuration:

* [AT110e][007][NR15] DC Configuration (Apple)

**Scope:** Treat R2-2005531, R2-2005532, R2-2005533, R2-2005534, R2-2005634, R2-2005635, R2-2004488, R2-2004489 (proponents are responsible to explain and drive)

**Part 1:** Decision whether to make corrections or not, identify agreeable corrections. Deadline: June 4, 0700 UTC.

**Part 2:** For agreeable parts, continuation to agree CRs. Deadline: June 10, 0700 UTC

This document covers the following contributions submitted to RAN2#110-e meeting:

PSCell Addition NR-DC - SMTC

[R2-2005531](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005531.zip) SMTC Configuration for PSCell Addition for NR-DC Apple, ZTE Corporation, Sanechips, Qualcomm Incorporated CR Rel-15 38.331 15.9.0 1675 - F NR\_newRAT-Core

[R2-2005532](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005532.zip) SMTC Configuration for PSCell Addition for NR-DC Apple, ZTE Corporation, Sanechips, Qualcomm Incorporated CR Rel-16 38.331 16.0.0 1676 - A NR\_newRAT-Core

[R2-2005533](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005533.zip) SMTC Configuration for PSCell Addition for NR-DC Apple, ZTE Corporation, Sanechips, Qualcomm Incorporated CR Rel-15 38.306 15.9.0 0340 - F NR\_newRAT-Core

[R2-2005534](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005534.zip) SMTC Configuration for PSCell Addition for NR-DC Apple, ZTE Corporation, Sanechips, Qualcomm Incorporated CR Rel-16 38.306 16.0.0 0341 - A NR\_newRAT-Core

4 Treated by email [007]

SCG establishment – MAC default

[R2-2005634](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005634.zip) MAC Default Configuration for SCG Qualcomm Incorporated CR Rel-16 38.331 16.0.0 1685 - A NR\_newRAT-Core

[R2-2005635](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005635.zip) MAC Default Configuration for SCG Qualcomm Incorporated CR Rel-15 38.331 15.9.0 1686 - F NR\_newRAT-Core

2 Treated by email [007]

Radio bearer config NR-DC NE-DC

[R2-2004488](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2004488.zip) Clarification for radioBearerConfig and radioBearerConfig2 vivo discussion

[R2-2004489](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2004489.zip) Clarification for radioBearerConfig and radioBearerConfig2 vivo CR Rel-15 38.331 15.9.0 1608 - F NR\_newRAT-Core

2 Treated by email [007]

Companies are invited to provide their views for each issue.

# Discussion: Part 1

## 2.1 Issue #1. SMTC Configuration for PSCell Addition for NR-DC ([R2-2005531](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005531.zip) to [R2-2005534](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005534.zip))

Regarding which issues that need resolution, it is suggested to use the reason for change from [R2-2005531](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005531.zip) to [R2-2005534](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005534.zip) as the input:

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| For EN-DC, the SMTC configuration for NR PSCell addition is provided in LTE *RRCConnectionReconfiguration* message.For NR PSCell change in MR-DC, the SMTC configuration is provided in *secondaryCellGroup* -> *SpCellConfig* -> *reconfigurationWithSync*.But for NR-DC, the SMTC configuration for NR PSCell addition and SN change is missing.  |

***Q1.1) Do companies agree with the reason for change in*** [***R2-2005531***](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005531.zip) ***to*** [***R2-2005534***](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005534.zip)***?***

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| --- | --- | --- |
| Company | Agree/Disagree | Comments (if any) |
| Ericsson | Disagree | Our understanding is that the *smtc* is received by the UE via the *reconfigurationWithSync* field. Having a look at the ASN.1 we have:CellGroupConfig ::=                        SEQUENCE {    cellGroupId                                CellGroupId,     rlc-BearerToAddModList                     SEQUENCE (SIZE(1..maxLC-ID)) OF RLC-BearerConfig                    OPTIONAL,   -- Need N    rlc-BearerToReleaseList                    SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity              OPTIONAL,   -- Need N     mac-CellGroupConfig                        MAC-CellGroupConfig                                                 OPTIONAL,   -- Need M     physicalCellGroupConfig                    PhysicalCellGroupConfig                                             OPTIONAL,   -- Need M     spCellConfig                               SpCellConfig                                                        OPTIONAL,   -- Need M    sCellToAddModList                          SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellConfig                   OPTIONAL,   -- Need N    sCellToReleaseList                         SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellIndex                    OPTIONAL,   -- Need N    ...,    [[    reportUplinkTxDirectCurrent                ENUMERATED {true}                                                   OPTIONAL    -- Cond BWP-Reconfig    ]], (fields omitted) SpCellConfig ::=                        SEQUENCE {    servCellIndex                       ServCellIndex                                               OPTIONAL,   -- Cond SCG    reconfigurationWithSync             ReconfigurationWithSync                                     OPTIONAL,   -- Cond ReconfWithSync    rlf-TimersAndConstants              SetupRelease { RLF-TimersAndConstants }                     OPTIONAL,   -- Need M    rlmInSyncOutOfSyncThreshold         ENUMERATED {n1}                                             OPTIONAL,   -- Need S    spCellConfigDedicated               ServingCellConfig                                           OPTIONAL,   -- Need M    ...} ReconfigurationWithSync ::=         SEQUENCE {    spCellConfigCommon                  ServingCellConfigCommon                                         OPTIONAL,   -- Need M    newUE-Identity                      RNTI-Value,    t304                                ENUMERATED {ms50, ms100, ms150, ms200, ms500, ms1000, ms2000, ms10000},    rach-ConfigDedicated                CHOICE {        uplink                              RACH-ConfigDedicated,        supplementaryUplink                 RACH-ConfigDedicated    }                                                                                               OPTIONAL,   -- Need N    ...,    [[    smtc                                SSB-MTC                                                     OPTIONAL    -- Need S    ]]The field condition linked to the *reconfigurationWithSync* it states that the field is mandatory present upon SpCell change and PSCell addition.

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| *ReconfWithSync* | The field is mandatory present in the *RRCReconfiguration* message:-     in each configured *CellGroupConfig* for which the SpCell changes,-     in the *masterCellGroup* at change of AS security key derived from KgNB,-     in the *secondaryCellGroup* at:-     PSCell addition,-     SCG resume with NR-DC or (NG)EN-DC, -     update of required SI for PSCell,; -     change of AS security key derived from S-KgNB while the UE is configured with at least one radio bearer with *keyToUse* set to *secondary*and that is not released by this *RRCReconfiguration* message,Otherwiseit is optionally present, need M. The field is absent in the *masterCellGroup*in *RRCResume*and *RRCSetup*messages. |

Therefore, we believe that the problem pointed out in the CRs does not exist. |
| Qualcomm | Agree | We have noticed the field condition cited by Ericsson, and agree it is possible to indicate SMTC for NR-DC PSCell addition in target cell’s *ReconfigurationWithSync*. However, we think the field description of *smtc* within *ReconfigurationWithSync* missed the cases of NR-DC PSCell addition and SN change:

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| **ReconfigurationWithSync field descriptions** |
| **smtc**The SSB periodicity/offset/duration configuration of target cell for NR PSCell change and NR PCell change. The network sets the periodicityAndOffset to indicate the same periodicity as ssb-periodicityServingCell in spCellConfigCommon. For case of NR PCell change, the smtc is based on the timing reference of source PCell. For case of NR PSCell change, it is based on the timing reference of source PSCell. If the field is absent, the UE uses the SMTC in the measObjectNR having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. |
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As highlighted above, it only described that cases of NR PSCell change and NR PCell change, i.e. the cases of NR PSCell addition and SN change are missing. Note that its corresponding timing reference is also missed, which may cause ambiguity.Thus, we think the issue of the CR is valid because there is something broken in the current spec. If Ericsson don’t prefer to change ASN.1, we think we can try another way we list in Q2 (keeping ASN.1 and adding missed descriptions on NR PSCell addition and SN change in field description of smtc)  |
| Apple | Agree | (proponent)The condition for *reconfigurationWithSync* includes the PSCell addition case, but the condition for smtc configuration in the *reconfigurationWithSync* doesnot include the PSCell addition case. That’s why we bring the CR set to correct it. For PSCell addition case, the *smtc* should be based on the timing reference of MCG PCell. > If the smtc is provided in *reconfigurationWithSync* of NR SCG configuration for PSCell addition by SN, SN is required to provide the smtc configuration based on MN PCell timing. I am not sure whether SN has the knowledge of UE’s PCell timing. > If the smtc is provided in RRCReconfiguration by MN, MN knows the timing and there is no problem to provide the smtc. In addition, for EN-DC PSCell addition, the smtc is provided by MN and in RRCReconfiguration. We assume SN may have problem to have the MN timing and could not provide the smtc based on MN timing. Therefore, we propose to follow the same way as EN-DC PSCell addition to provide the smtc configuration.  |
| Huawei | Agree | Although we hold the opinion that providing the smtc is just an optimization (since UE can use the SMTC in *measObjectNR* to facilitate the synchronisation with target SSB or even blindly detecting the SSB on the given frequency), it is ok for us to capture the missing scenario. |
| Nokia | Disagree | For Rel-15, we prefer to have a simple solution without any change in current specification. * For PSCell addtion and SN change in NR-DC, it is up to NW to configure measObjectNR (incl. SMTC configuration) having the same SSB frequency and subcarrier spacing before. Otherwise, new capability and new IE should be introduced which will bring more complex in NW implementation (i.e. to support two branches, with or without capability).

For Rel-16, we prefer to extend the scope of the SMTC configuration provided in secondaryCellGroup -> SpCellConfig -> reconfigurationWithSync, to include PSCell addtion and SN change in NR-DC. |
| Samsung | Disagree | Shared the view with the Ericsson. Cannot find any motivation to introduce new IE while the relevant IE is already there. We can consider updating field description if needed. |
| MediaTek | Agree | We think the intention is correct.Regarding to Ericsson’s comment, we have same understanding as Apple. It is the *reconfigurationWithSync* would be mandatory in case of PSCell addition case but smtc is not required to present. |
| vivo | Partly  | We agree that adding SpCell change and PSCell addition make the specification clearer. However based on Ericsson comments, we also agree that it is kind of clarification.  |
| Intel | Partly | Agree with Ericsson that it is possible to signal it with the current ASN.1 and we prefer not to introduce a new field now. The missing scenarios can be captured in the field description.  |
| NTT DOCOMO | Disagree | Same view as Ericsson and Samsung. The existing field can be used for NR-DC no matter what is described in the current spec. If it is just because of missing the proper text for NR-DC in the field description, it could be updated and clarified. We’re not fond of extending the ASN.1, unless there is a technical problem of using the existing field (seems not). |
| ZTE | Agree | We are one of the proponent companies. We noticed opponent companies suggest to reuse the “smtc” in reconfigurationWithSync in RRCReconfiguration generated by target PSCell, but we don’t think this is a good idea. For EN-DC, during SN addition, the smtc of target PSCell is provided by MN, and MN includes the smtc field in MN’s RRC message. And the smtc is provided based on the timing of MN PCell.Similarly, for NR-DC, we suggest to follow the same principle, that MN (who triggers SN addition) to provide the smtc of target PSCell. Thus it should be MN’s responsibility to provide the smtc field, and deliver it in MN’s RRC message (as shown in CR). In addition, considering MN knows the source measurement configuration, MN can decide whether additional “smtc” field is needed or not by itself.However, if we reuse the “smtc” in reconfigurationWithSync, then target PSCell has to provide the information but based on the timing of MN “PCell”, then it causes additional request to network that MN must deliver the SFTD results in CG-ConfigInfo during SN Addition Request (otherwise SN has no clue how to set the value). On the other hand, SN has no idea whether measurement on PSCell freq was configured by MN or not, thus SN has to always provide the smtc which maybe useless.  |
| NEC | Disagree | although we can agree with the concerns, as some companies said above, this can be solved by updating the field description rather than adding the new IE for frozen spec long time ago.. (only if the fd is not sufficient, then we can consider adding such IE.) |
| CATT | Agree | Based on current field descriptions, providing the SMTC configuration for NR PSCell addition and SN change is missing. |
| LG | Disagree | We have same view with Ericsson. Also it is better to capture in the field description. |

In [R2-2005531](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005531.zip) to [R2-2005534](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005534.zip), it is proposed to add the SMTC configuration in NR *RRCReconfiguration* message for NR PSCell addition and SN change.

If it is not approved, for PSCell addtion and SN change in NR-DC, the UE cannot know the timing information of the target PSCell for the initial cell search if UE is not configured with the *measObjectNR* (incl. SMTC configuration) having the same SSB frequency and subcarrier spacing before.

***Q1.2) If the answer to Q1.1 is “Yes”, do you agree with the changes made in*** [***R2-2005531***](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005531.zip) ***to*** [***R2-2005534***](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005534.zip)***?***

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| --- | --- | --- |
| Company | Agree/Disagree | Comments  |
| Ericsson | Disagree | See comment to Q1.1. We believe the problem pointed out by the CRs does not exist. |
| Qualcomm | Agree;And we are also fine with another solution  | We co-sourced this CR. So, we agree the change.In Ericsson have concern on its ASN.1 change. We provide another way:* **Alt-2:** add missed descriptions on NR PSCell addition and SN change in field description of smtc:

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| **ReconfigurationWithSync field descriptions** |
| **smtc**The SSB periodicity/offset/duration configuration of target cell for NR PSCell addition, SN change, NR PSCell change and NR PCell change. The network sets the periodicityAndOffset to indicate the same periodicity as ssb-periodicityServingCell in spCellConfigCommon. For case of NR PCell change, the smtc is based on the timing reference of source PCell. For case of NR PSCell change, it is based on the timing reference of source PSCell. For the cases of NR PSCell addition to NRDC and SN change, the smtc is based on the timing reference of source NR PCell. If the field is absent, the UE uses the SMTC in the measObjectNR having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. |
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Note that people may argue that *reconfiguratioWithSync* is generated by target PSCell, which may not have timing difference with source Cell. However, SFTD measurements have been introduced in *CG-ConfigInfo* message, so we understand source can forward SFTD to target upon NR PSCell addition. Thus, no further spec change is required.We are fine with either way |
| Apple | Agree | For the alt-2 provided by QC, we are fine with it if NW can provide the smtc based on MN PCell timing.  |
| Huawei | Agree | Considering the timing should be based on PCell, we prefer not to put extra burden for the PSCell to fetch the timing difference. |
| Nokia | Disagree | See response to Q1.1 |
| Samsung | Disagree | QC’s alt 2 seems the way to go. |
| MediaTek | Agree with comment | First we think that UE capability is not necessary. If the UE does not support the new field, the UE just ignores it as it is in non-critical extension. No functional problem will occur, as SMTC is supposed only to speed up (but not to enable) cell detection (i.e. it is used as additional assistance information).On the Alt-2 provide by QC, we prefer to add new signaling and follow the same principle as in EN-DC (i.e. original proposal). Alt-2 requires extra effort on exchange of SFTD information and seems not necessary. The current wording of Alt-2 is also confusing. The UE does really know the difference between “SN Change” and “PSCell Change”, so it determines the timing reference cell based on whether it is MCG configuration or SCG configuration. If SN change and PSCell change share the same smtc configuration, it would be unclear to the UE on how to use the field. |
| vivo |  | We have no strong view about the CR. |
| Ericsson2 | Disagree but | If companies really want to fix this now, we think that clarifying this in the field condition is the only way to go. We are not ok on adding any new field in the ASN.1 and we are not ok, in fact, to have any NBC change. For these reason, our compromise would be to modify the field description as follow (as similarly proposed by other companies):

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| ***smtc***The SSB periodicity/offset/duration configuration of target cell for NR PSCell change, NR PCell change, and NR PSCell addition. The network sets the *periodicityAndOffset* to indicate the same periodicity as *ssb-periodicityServingCell* in *spCellConfigCommon*. For case of NR PCell change and NR PSCell addition, the *smtc* is based on the timing reference of source PCell. For case of NR PSCell change, it is based on the timing reference of source PSCell. If the field is absent, the UE uses the SMTC in the *measObjectNR* having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. |

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| Intel |  | Update of the field description is sufficient. |
| NTT DOCOMO | Disagree but  | The same view as Ericsson and Alt.2 from Qualcomm that the issue can be fixed by updated the field description. |
| ZTE | Agree | We support the CR.We think UE capability would be helpful for network to make decision whether blind PSCell addition can be triggered or not. Especially when MN and SN are not synchronized. We understand MTK’s comments is that lack of smtc will only result in long latency, but from network’s perspective, for better performance, we would prefer to know the situation, in case a UE does not support the smtc field, then network can decide not trigger blind PSCell addition for that UE, then latency risk and potential failure can be avoid.  |
| NEC | Disagree but  | tend to agree with Ericsson and DOCOMO  |
| CATT |  | Either way is ok.  |
| LG | Alt.2 | We are fine with alt 2 proposed by QC.  |

### Summary

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| 14 companies provided their input, and two options were discussed during the offline discussion:* Option 1: Add the new parameter for smtc configuration under the RRCReconfiguration for PSCell addition, as the proposed CR(R2-2005531/R2-2005531); **(6/14)**
* Option 2: clarify in the field description of smtc configuration in *secondaryCellGroup* -> *SpCellConfig* -> *reconfigurationWithSync*, to indicate it can be used for PSCell addition. **(8/14)**

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| --- |
| ***smtc***The SSB periodicity/offset/duration configuration of target cell for NR PSCell change, NR PCell change, and NR PSCell addition. The network sets the *periodicityAndOffset* to indicate the same periodicity as *ssb-periodicityServingCell* in *spCellConfigCommon*. For case of NR PCell change and NR PSCell addition, the *smtc* is based on the timing reference of source PCell. For case of NR PSCell change, it is based on the timing reference of source PSCell. If the field is absent, the UE uses the SMTC in the *measObjectNR* having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. |

The rapporteur prefers to follow majority view (8 out of 14) to agree the RRC CRs to capture option 2 (i.e. update the field description of the smtc configuraiton in *reconfigurationWithSync*).**Proposal 1: Agree the RRC CRs to capture option 2, i.e. update the field description of smtc under the *reconfigurationWithSync* to cover PSCell addition case.**  |

## 2.2 Issue #2. MAC Default Configuration for SCG ([R2-2005634](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005634.zip), R2-20056345)

The *MAC-CellGroupConfig* IE is an optional Need M, therefore network may or may not include it when configuring or adding a cell group.

Per the spec, when configuring or adding the MCG (with FullConfig or during establishment or during IRAT HO to NR) the UE shall apply the default configuration.

***Q2.1) Do you agree that the spec has ensured when MCG is being established/configured, if MAC configuration is not provided UE applies the default MAC configuration as per the 9.2.2 table?***

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| Company | Agree/Disagree | Comments |
| Ericsson | Agree but | However, the reason of having it during the RRC establishment is because the UE did not get yet the *RRCReconfiguration* and thus it needs to use the MAC default configuration. In general, it will look a bit strange if the network does not include the *mac-CellGroupConfig* when sending the first *RRCReconfiguration*. |
| Apple | Agree |  |
| Qualcomm | Agree |  |
| Huawei | Agree but | Agree with Ericsson. MCG addition needs default configuration before UE acquires *RRCReconfiguration*. The case for SCG is different, because the network is able to include all the MAC configuration to the UE when adding SCG. |
| Nokia | Agree |  |
| Samsung | Agree | Minor comment to cover sheet of the CRs: the architecture option should also include '(NG)EN-DC', and NR-SA should be removed. |
| MediaTek | Disagree | Based on Ericsson and Huawei’s comment, we think better way is to say that the NW would provide *mac-CellGroupConfig* for SCG while establishing the SCG for the first time. |
| vivo | agree |  |
| Intel | Agree | While it is true that UE does not have to apply the default MAC configuration, in most cases it does, and configuration that the network provides (if any) is the delta to the default. |
| NTT DOCOMO | Agree but | Same view as Ericsson, Huawei and MediaTek. |
| ZTE | Agree but | We tend to agree with Ericsson and Huawei. In general, network will provide mac-CellGroupConfig when sending the first message.  |
| NEC | Agree but | we also agree that network provides it for the first message for configuring the MCG  |
| CATT | Agree but | Same view as Ericsson, Huawei and MediaTek. |
| LG | Agree |  |

***Q2.2) Do you agree that per the spec, when network adds an SCG, if MAC-CellGroupConfig IE was not included (or partially included) in the reconfiguration message, the expected UE behavior is not defined?***

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| --- | --- | --- |
| Company | Agree/Disagree | Comments |
| Ericsson | Maybe | As we stated in our previous comment, the situation on when adding the SCG is a bit different from when the UE initiates the RRC establishment. In general, we believe that there is no reason for the network to not add the *mac-CellGroupConfig* when sending the first *RRCReconfiguration*.However, if the other companies believe that this is good to have, we are fine to go with majority view. |
| Apple | Agree | From spec point of view, NW is allowed to not provide *mac-CellGroupConfig* wen adding the SCG. So it’s better to make the UE behaviour clear.  |
| Qualcomm | Agree | The expectation is always the network should include mac-CellGroupConfig, however since this IE is not mandatory (optional Need M), as a UE vendor, we’re not sure if UE should declare RLF due to misconfiguration or should UE fall back to default configuration.  |
| Huawei | Disagree | Agree with Ericsson that the network will always include the *mac-CellGroupConfig* upon SCG addition.Therefore nothing needs to be modified. We usually don’t add something simply due to wrong configuration of the NW.Employing a default MAC configuration for SCG addition will add extra UE requirement and is non-backward compatible. |
| Nokia | Agree | This is okay to be clarified otherwise may cause confusion |
| Samsung | Agree | From our recollection, to not include *mac-CellGroupConfig* is allowed to support SN-terminated MCG bearers only (i.e. PDCP in SN and RLC/MAC/PHY in MN), even though this scenario seems not common at all… So the specification should be clear when *mac-CellGroupConfig* is not configured. |
| MediaTek | See Comment | We think that a better way is just to specify “the network will always include this field for SCG cell group upon SCG addition” in the field description of *mac-CellGroupConfig*. Then we don’t have to discuss the UE behaviour due to wrong NW configuration. In case there is SN-terminated MCG bearers (as point out by Samsung), the whole *CellGroupConfig* is not configured. From UE point of view, the SCG does not exist and this is not the case we are discussing.  |
| vivo |  | There is no ambiguity in the current specification. Though it is not what implementations might have expected or implemented. |
| NTT DOCOMO | Agree | It is a proper configuration that MAC-CellGroupConfig is included whenever SCG is configured. If there is only SN terminated MCG bearer, SCG does not have to be configured. |
| ZTE | See comment | From spec point of view, we agree it is unclear how UE behaves when mac-CellGroupConfig is not provided. We understand applying default configuration provides opportunity for network to do delta configuration. So would be fine to support it as long as all UEs implement the same way.  |
| NEC | Agree |  |
| CATT | See comment | Agree with Ericsson, the NW can provide the *mac-CellGroupConfig* for the SCG always when SCG addition. |
| LG | Agree |  |

***Q2.3) as solution to address the concern in Q2.2, do you agree to let the UE applies the default MAC configuration upon SCG establishment if MAC-CellGroupConfig IE was not included (or partially included) in the reconfiguration message?***

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| --- | --- | --- |
| Company | Agree/Disagree | Comments |
| Ericsson | Maybe  | In general, we believe that there is no reason for the network to not add the *mac-CellGroupConfig* when sending the first *RRCReconfiguration*.However, if the other companies believe that this is good to have, we are fine to go with majority view. |
| Apple | Agree |  |
| Qualcofmm | Agree | If *mac-CellGroupConfig* IE was missed, and in order to handle this misconfiguration gracefully, allowing the UE to apply a default configuration is a preferred approach. |
| Huawei | Disagree | The network will always include the *mac-CellGroupConfig* upon SCG addition.Therefore nothing needs to be modified. We usually don’t add something simply due to wrong configuration of the NW.Employing a default MAC configuration for SCG addition will add extra UE requirement and is non-backward compatible. |
| Nokia | Agree | Okay to go with majority view |
| Samsung | Agree | - |
| MediaTek | Disagree | See our comment in Q2.2. There is no need to specify the UE behaviour for bad NW configuration.  |
| vivo | agree |  |
| Intel | Agree | Agree as mentioned above. But any compatibility issues needs to be discussed. |
| NTT DOCOMO | Agree | If such a case occurs. |
| ZTE | See comment | From spec point of view, we agree it is unclear how UE behaves when mac-CellGroupConfig is not provided. We understand applying default configuration provides opportunity for network to do delta configuration. So would be fine to support it as long as all UEs implement the same way.  |
| NEC | Agree  |  |
| CATT | Disagree | Same view as Huawei. |
| LG | Agree |  |

***Q2.4) if you don’t agree with the solution provided in Q2.3, please provide an alternate solution.***

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| --- | --- | --- |
| Company | Agree/Disagree | Comments |
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### Summary

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| The rapporteur prefers to follow majority view (11 out of 14) to agree the CRs. **Proposal 2: Agree the CR (R2-2005634/R2-20056345) on MAC Default Configuration for SCG.** |

## 2.3 Issue #3. Clarification for radioBearerConfig and radioBearerConfig2 ([R2-2004488](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2004488.zip), [R2-2004489](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2004489.zip))

In TS 38.331, the current field descriptions of *radioBearerConfig* and *radioBearerConfig2* in *RRCReconfiguration* are insufficient to clearly express the corresponding usage.

***radioBearerConfig* issue:**

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| ***radioBearerConfig***Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. In EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. |
| ***nr-SecondaryCellGroupConfig***Includes the NR *RRCReconfiguration* message as specified in TS 38.331 [82]. In this version of the specification, the NR RRC message only includes fields *iab-F1AP-TransferOverSRB-r16*, *secondaryCellGroup, conditionalReconfiguration* and/ or *measConfig*. If *nr-SecondaryCellGroupConfig* is configured, the network always includes this field upon MN handover to initiate an NR SCG reconfiguration with sync and key change. |

***Q3.1) Do companies agree that radioBearerConfig can also be used for NR-DC and NE-DC case?***

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| --- | --- | --- |
| Company | Agree/Disagree | Comments |
| Ericsson | Agree | We did not fully get the issue pointed out in these CRs. First, the clarification that the field *radioBearerConfig* is only absent is a very strange formulation and we would like to avoid it. The reason why we have the restriction for EN-DC is because the NR *radioBearConfig*, when SRB3 is not configured, is delivered within the E-UTRA *RRCConnectionReconfiguration* message (i.e., the SN sends the *radioBearConfig* via INM to the MN).Further, to our understanding, *radioBearerConfig* and *radioBearerConfig2* can be used inter-changeably in NR-DC and therefore, we do not see the need to have such restriction.For these reasons, unless there is a real need/issue for having this change, we prefer to not pursue these CRs. |
| Apple | Agree |  |
| Quacomm | Agree |  |
| Huawei | Agree |  |
| Nokia | Agree, nothing required to be clarified | It is same as Option 2 as indicated in email discussion R2-1814575 Summary on email discussion [103#48] on RRC details for NR-DC.Hence, nothing needed to be clarified. |
| Samsung | Agree | - |
| MediaTek |  | A little bit unclear on which *radioBearerConfig* in this question is refer to. Case 1 - (For NR-DC and NE-DC) The *radioBearerConfig* in MN RRC message 🡪 yes it could be used. Case 2 - (for NR-DC) The *radioBearerConfig* in SN RRC message sent via SRB3 🡪 yes it could be used Case 3 – (for NR-DC) The *radioBearerConfig* in SN RRC message embedded in MN RRC message and sent via SRB1 🡪 no it cannot be used. In this case, the *radioBearerConfig2* in MN RRC message is used.We understand the intention of the CR is to clarify the case 3 and we think the intention is correct. |
| vivo | agree | The issue is that it is not totally clear how the *radioBearerConfig is used* in NR-DC and NE-DC case. From our understanding that, *RadioBearerConfig* is only used as the below two cases for NR-DC. Case 1: configure MN terminated radio bearers via SRB1.Case 2: configure SN terminated radio bearers via SRB3. The network only uses *RadioBearerConfig2* to configure SN terminated radio bearers via SRB1. It is similar configuration operation with EN DC because we also have the similar description in ***mrdc-SecondaryCellGroup***.***mrdc-SecondaryCellGroup***Includes an RRC message for SCG configuration in NR-DC or NE-DC.For NR-DC (nr-SCG), *mrdc-SecondaryCellGroup* contains the *RRCReconfiguration* message as generated (entirely) by SN gNB. In this version of the specification, the RRC message can only include fields *secondaryCellGroup* and *measConfig*.For NE-DC (eutra-SCG), *mrdc-SecondaryCellGroup* includes the E-UTRA *RRCConnectionReconfiguration* message as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA RRC message can only include the field *scg-Configuration*.It is the reason why we give the CR to claim that only case1 and case2 should be supported by the sentence “In NR-DC, this field is only absent if the RRCReconfiguration is received within mrdc-SecondaryCellGroup.”  |
| Intel | Agree |  |
| NTT DOCOMO | Agree | As already explained by Ericsson, Nokia and MediaTek, it is the same as for EN-DC how to use radioBearerConfig and radioBearerConfig2. |
| ZTE | Agree |  |
| NEC | Agree |  |
| CATT | Agree |  |
| LG | Agree |  |

***Q3.2) Do companies agree the CR in R2-2004489, to clarify the field description of radioBearerConfig, that in NR-DC it is only absent if the RRCReconfiguration is received within mrdc-SecondaryCellGroup, like EN-DC case.***

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Comments |
| Ericsson | Disagree | We did not fully get the issue pointed out in these CRs. First, the clarification that the field *radioBearerConfig* is only absent is a very strange formulation and we would like to avoid it. The reason why we have the restriction for EN-DC is because the NR *radioBearConfig*, when SRB3 is not configured, is delivered within the E-UTRA *RRCConnectionReconfiguration* message (i.e., the SN sends the *radioBearConfig* via INM to the MN).Further, to our understanding, *radioBearerConfig* and *radioBearerConfig2* can be used inter-changeably in NR-DC and therefore, we do not see the need to have such restriction.For these reasons, unless there is a real need/issue for having this change, we prefer to not pursue these CRs. |
| Apple | Disagree | We do not think the change has UE impact. |
| Qualcomm | Partially Agree | the "only" word is causing confusion, and maybe it should be removed from statement, as the ***radioBearerConfig***IE may be absent when RRCReconfig doesn't involve any RB change. |
| Huawei | Disagree | Agree with QC that the “only” is wrong.Even if “only” is removed, the sentence seems quite obvious: In NR-DC, this field is absent if the RRCReconfiguration is received within mrdc-SecondaryCellGroup.There is no reason for the network to include radioBearerConfig in mrdc-SecondaryCellGroup.So we think nothing needs to be modified. |
| Nokia | Disagree, nothing is required to be clarified |  |
| Samsung | Disagree | We don’t see any problem with the current specification. Both radioBearerConfig and radioBearerConfig2 will not be included in RRC reconfiguration message of SCG-container, which is clear from the functionality of the IEs and the field descriptions. |
| MediaTek | Need rewording | Suggest to reword like this: "In NR-DC, this field can't be present if the *RRCReconfiguration* is received within *mrdc-SecondaryCellGroup*"Suggest also to add corresponding restriction to *radioBearerConfig2*: "In NR-DC or NE-DC, this field may only be present if the *RRCReconfiguration* is received via SRB1." |
| vivo | Agree  | Like the answer in Q3.1, we would like to cover the case1 and case2 by the sentence “In NR-DC, this field is only absent if the RRCReconfiguration is received within mrdc-SecondaryCellGroup.”Using “only” can also cover case2 i.e., SRB3 case.  |
| Intel |  | The suggested text is confusing with the “only absent” and we do not agree with the proposed text. The current text only covers EN-DC and some additions to cover MR-DC can be considered. |
| NTT DOCOMO | Disagree | Same view as the companies who commentes as “Disagree”. |
| ZTE | Disagree | We think nothing needs to be clarified. The field description of “mrdc-SecondaryCellGroup” already says “ For NR-DC, … the RRC message can only include fields secondaryCellGroup and measConfig”, thus it is clear radioBearerConfig will not be provided.  |
| NEC | Disagree | do not see a need for clarifications |
| CATT | Disagree | In current spec, the restriction has already capture in the field description of mrdc-SecondaryCellGroup:For NR-DC (nr-SCG), *mrdc-SecondaryCellGroup* contains the *RRCReconfiguration* message as generated (entirely) by SN gNB. In this version of the specification, the RRC message can only include fields *secondaryCellGroup* and *measConfig*.So there is no need to add extra restriction in the field description of the radioBearConfig. The NW will not include the radioBearConfig in the field of mrdc-SecondaryCellConfig |

***radioBearerConfig* and *radioBearerConfig2* issue*:***

Since that both *radioBearerConfig* and *radioBearerConfig2* can be used in NR-DC and NE-DC, it is not clear how to use them.

Clarify which of the following usages applies to *radioBearerConfig* and *radioBearerConfig2* in NE-DC and NR-DC:

- Option1: The usage of *RadioBearerConfig* and *radioBearerConfig2* in NE-DC and NR-DC are the same;

- Option2: *RadioBearerConfig* is used to configure MN terminated radio bearers via SRB1 and to configure SN terminated radio bearers via SRB3, while *RadioBearerConfig2* is only used to configure SN terminated radio bearer via SRB1.

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| ***radioBearerConfig2***Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. This field can only be used if the UE supports NR-DC or NE-DC. |
| ***radioBearerConfig***Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. In EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. |

***Q3.3) Do companies think which of the above usages applies to radioBearerConfig and radioBearerConfig2 in NE-DC and NR-DC.***

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| --- | --- | --- |
| Company | Option1/Option2 or other | Comments |
| Ericsson | Option 1 (no specification change) | To our understanding, *radioBearerConfig* and *radioBearerConfig2* can be used inter-changeably in NR-DC and therefore, we do not see the need to have such restriction.For these reasons, unless there is a real need/issue for having this change, we prefer to not pursue these CRs and not have any specification change. |
| Huawei | Option 1 | Agree with Ericsson |
| Nokia | Option 1  | Agree with above two network vendors |
| Samsung | Not sure anything is needed | The usage of IEs is already clear. It has in principle no dependency to architecture option |
| MediaTek | Option 1 | We agree that *radioBearerConfig* and *radioBearerConfig2* can be used inter-changeably. But we think the intention of the CR is not to prevent this use case. |
| vivo | Option2  | If majority is option 1, we would like to capture something to give a clarification.  |
| Intel | Option 1 | It has always been the fundamental concept since EN-DC that RadioBearerConfig and radioBearerConfig2 are two identical containers and there is no restriction or rule on when which one can be used.  |
| NTT DOCOMO | Option 1 | Agree with the companies who prefer Option 1. The rule has been introduced since EN-DC. Since then, there has not been an issue observed in the field. On that matter, we also share the same view as Samsung that it is already clear in the spec. |
| ZTE | Option 1 | Agree with Ericsson. |
| NEC | Option 1 |  |
| CATT | Option 1 | It should be align with EN-DC, in EN-DC there is no difference for nr-RadioBearerConfig1and nr-RadioBearerConfig2. No restriction was added in LTE. |
| LG | Option 1 | We prefer the option 1. |

### Summary

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| All companies (14/14) agreed that radioBearerConfig can also be used for NR-DC and NE-DC case, and most companies (10/14) think the spec change is not needed. **Proposal 3: CR(R2-2004489) is not pursued.** |

# Conclusion: Part 1

Based on the above, RAN2 is request to agree the following proposals:

**Proposal 1: Agree the RRC CRs to capture option 2, i.e. update the field description of smtc under the *reconfigurationWithSync* to cover PSCell addition case.**

**Proposal 2: Agree the CR (R2-2005634/R2-20056345) on MAC Default Configuration for SCG.**

**Proposal 3: CR (R2-2004489) is not pursued.**

# Reference