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

**Online, May 9th –20th, 2022**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **36.331** | **CR** | **#** | **rev** | **-** | **Current version:** | **17.0.0**  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network |  |

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| ***Title:***  | Support of CHO with SCG configuration - 36331 [CHOwithDCkept] |
|  |  |
| ***Source to WG:*** | CATT |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** |  2022-05-13 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-17 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)**Rel-19 (Release 19)* |
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| ***Reason for change:*** | To capture the agreement of email discussion #036 in RAN#118-e, so that CHO with SCG is captured in the stage 3 specification. |
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| ***Summary of change:*** | 1) To include the *selectedCondReconfigurationToApply* within the RRC Reconfiguration Complete message should only be applied for R17 CPAC case, so the condition “the *RRCConnectionReconfiguration* message does not include the *mobilityControlInfo*” should be added.2) For the CHO with SCG case, when determing an applicable cell, the restriction that “*RRCConnectionReconfiguration* within *condReconfigurationToApply* does not include the *nr-SecondaryCellGroupConfig*” should be removed, and since “*ServingCellConfigCommon*” is IE defined in NR, it should be correct as “*MobilityControlInfo*”.3) For the CPAC case, it should be added that “the *RRCConnectionReconfiguration* within *condReconfigurationToApply* does not include the *MobilityControlInfo*", in order to exclude the case of CHO with SCG configuration. 4) Delete the restriction that” The RRCConnectionReconfiguration in condReconfigurationToApply cannot contain a target node SCG configuration for CHO.”**Impact analysis**Impacted 5G architecture options:EN-DCImpacted functionality:CHO with SCG configurationInter-operability: If the NW implementes the CR and the UE does not, there is interoperability issue, as the UE does not support CHO with SCG configuration, therefore UE shall consider the configuration is fault. If the UE implements the CR and the NW does not, there is no interoperability issue, as the NW shall not configure for UE with CHO with SCG configuration. |
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| ***Consequences if not approved:*** | If the CR is not approved, the CHO with SCG configuration is not supported. |
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| ***Clauses affected:*** | 5.3.5.3, 5.3.5.9.4, 6.3.4 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 37.340 CR xx, TS 38.331 CR xx, TS 38.306 CR xx, TS 36.306 CR xx |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

*START OF CHANGE*

5.3.5.3 Reception of an *RRCConnectionReconfiguration* not including the *mobilityControlInfo* by the UE

If the *RRCConnectionReconfiguration* message does not include the *mobilityControlInfo* and theUE is able to comply with the configuration included in this message, the UE shall:

1> if the *RRCConnectionReconfiguration* includes the *scg-State*:

2> perform SCG deactivation as specified in TS 38.331 [82], clause 5.3.5.18;

1> else:

2> perform SCG activation as specified in TS 38.331 [82], clause 5.3.5.19;

1> if the received *RRCConnectionReconfiguration* includes the *daps-SourceRelease*:

2> reset source MCG MAC and release the source MCG MAC configuration;

2> for each DAPS bearer:

3> re-establish the RLC entity or entities for the source PCell;

3> release the RLC entity or entities and the associated DTCH logical channel for the source PCell;

3> reconfigure the PDCP entity to release DAPS, as specified in TS 36.323 [8];

2> for each SRB:

3> release the PDCP entity for the source PCell;

3> release the RLC entity and the associated DCCH logical channel for the source PCell;

2> release the physical channel configuration for the source PCell;

1> if this is the first *RRCConnectionReconfiguration* message after successful completion of the RRC connection re-establishment procedure:

2> re-establish PDCP for SRB2 configured with E-UTRA PDCP entity and for all DRBs that are established and configured with E-UTRA PDCP, if any;

2> re-establish RLC for SRB2 and for all DRBs that are established and configured with E-UTRA RLC, if any;

2> if the *RRCConnectionReconfiguration* message includes the *fullConfig*:

3> perform the radio configuration procedure as specified in 5.3.5.8;

2> if the *RRCConnectionReconfiguration* message includes the *radioResourceConfigDedicated*:

3> perform the radio resource configuration procedure as specified in 5.3.10.0;

NOTE 1: Void

NOTE 2: Void

1> else:

2> if the *RRCConnectionReconfiguration* message includes the *radioResourceConfigDedicated*:

3> perform the radio resource configuration procedure as specified in 5.3.10.0;

NOTE 3: If the *RRCConnectionReconfiguration* message includes the establishment of radio bearers other than SRB1, the UE may start using these radio bearers immediately, i.e. there is no need to wait for an outstanding acknowledgment of the *SecurityModeComplete* message.

1> if the received *RRCConnectionReconfiguration* includes the *sCellToReleaseList*:

2> perform SCell release as specified in 5.3.10.3a;

1> if the received *RRCConnectionReconfiguration* includes the *sCellToAddModList*:

2> perform SCell addition or modification as specified in 5.3.10.3b;

1> if the received *RRCConnectionReconfiguration* includes the *sCellGroupToReleaseList*:

2> perform SCell group release as specified in 5.3.10.3d;

1> if the received *RRCConnectionReconfiguration* includes the *sCellGroupToAddModList*:

2> perform SCell group addition or modification as specified in 5.3.10.3e;

1> if the received *RRCConnectionReconfiguration* includes the *scg-Configuration*; or

1> if the current UE configuration includes one or more split DRBs configured with *pdcp-Config* and the received *RRCConnectionReconfiguration* includes *radioResourceConfigDedicated* including *drb-ToAddModList*:

2> perform SCG reconfiguration as specified in 5.3.10.10;

1> if the received *RRCConnectionReconfiguration* includes the *nr-Config* and it is set to *release*: or

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;

1> if the received *RRCConnectionReconfiguration* includes the *sk-Counter*:

2> perform key update procedure as specified in TS 38.331 [82], clause 5.3.5.7;

1> if the received *RRCConnectionReconfiguration* includes the *nr-SecondaryCellGroupConfig*:

2> perform NR RRC Reconfiguration as specified in TS 38.331 [82], clause 5.3.5.3;

1> if the received *RRCConnectionReconfiguration* includes the *nr-RadioBearerConfig1*:

2> perform radio bearer configuration as specified in TS 38.331 [82], clause 5.3.5.6;

1> if the received *RRCConnectionReconfiguration* includes the *nr-RadioBearerConfig2*:

2> perform radio bearer configuration as specified in TS 38.331 [82], clause 5.3.5.6;

1> if this is the first *RRCConnectionReconfiguration* message after successful completion of the RRC connection re-establishment procedure:

2> resume SRB2 and all DRBs that are suspended, if any, including RBs configured with NR PDCP;

NOTE 4: The handling of the radio bearers after the successful completion of the PDCP re-establishment, e.g. the re-transmission of unacknowledged PDCP SDUs (as well as the associated status reporting), the handling of the SN and the HFN, is specified in TS 36.323 [8].

NOTE 5: The UE may discard SRB2 messages and data that it receives prior to completing the reconfiguration used to resume these bearers.

1> if the received *RRCConnectionReconfiguration* includes the *systemInformationBlockType1Dedicated*:

2> perfom the actions upon reception of the *SystemInformationBlockType1* message as specified in 5.2.2.7*;*

1> if the received *RRCConnectionReconfiguration* includes the *systemInformationBlockType2Dedicated*:

2> perfom the actions upon reception of the *SystemInformationBlockType2* message as specified in 5.2.2.9;

1> if the *RRCConnectionReconfiguration* message includes the *dedicatedInfoNASList*:

2> forward each element of the *dedicatedInfoNASList* to upper layers in the same order as listed;

1> if the *RRCConnectionReconfiguration* message includes the *measConfig*:

2> perform the measurement configuration procedure as specified in 5.5.2;

1> perform the measurement identity autonomous removal as specified in 5.5.2.2a;

1> if the *RRCConnectionReconfiguration* message includes the *otherConfig*:

2> perform the other configuration procedure as specified in 5.3.10.9;

1> if the *RRCConnectionReconfiguration* message includes the *sl-DiscConfig* or *sl-CommConfig*:

2> perform the sidelink dedicated configuration procedure as specified in 5.3.10.15;

1> if the *RRCConnectionReconfiguration* message includes the *sl-V2X-ConfigDedicated*:

2> perform the V2X sidelink communication dedicated configuration procedure as specified in 5.3.10.15a;

NOTE 5a: If the *sl-V2X-ConfigDedicated* was received embedded within an NR *RRCReconfiguration* message, the UE does not build an E-UTRA *RRCConnectionReconfigurationComplete* message for the received *sl-V2X-ConfigDedicated*.

1> if the *RRCConnectionReconfiguration* message includes the *sl-ConfigDedicatedForNR*:

2> perform the related procedures for NR sidelink communication in accordance with TS 38.331 [82], clause 5.3.5.14 and clause 5.5.2;

1> if the *RRCConnectionReconfiguration* message includes *wlan-OffloadInfo*:

2> perform the dedicated WLAN offload configuration procedure as specified in 5.6.12.2;

1> if the *RRCConnectionReconfiguration* message includes *rclwi-Configuration*:

2> perform the WLAN traffic steering command procedure as specified in 5.6.16.2;

1> if the *RRCConnectionReconfiguration* message includes *lwa-Configuration*:

2> perform the LWA configuration procedure as specified in 5.6.14.2;

1> if the *RRCConnectionReconfiguration* message includes *lwip-Configuration*:

2> perform the LWIP reconfiguration procedure as specified in 5.6.17.2;

1> upon RRC connection establishment, if UE does not need UL gaps during continuous uplink transmission:

2> configure lower layers to stop using UL gaps during continuous uplink transmission in FDD for *RRCConnectionReconfigurationComplete* message and subsequent uplink transmission in RRC\_CONNECTED except for UL transmissions as specified in TS36.211 [21];

1> if the *RRCConnectionReconfiguration* message includes the *conditionalReconfiguration*:

2> perform conditional reconfiguration as specified in 5.3.5.9;

NOTE 6: In case of conditional reconfiguration the text "if the received *RRCConnectionReconfiguration. . .*" corresponds to applying the stored *RRCConnectionReconfiguration* message (according to 5.3.5.9.5).

1> set the content of *RRCConnectionReconfigurationComplete* message as follows:

2> if the *RRCConnectionReconfiguration* message includes *perCC-GapIndicationRequest*:

3> include *perCC-GapIndicationList* and *numFreqEffective*;

2> if the frequencies are configured for reduced measurement performance:

3> include *numFreqEffectiveReduced*;

2> if the received *RRCConnectionReconfiguration* message included *nr-SecondaryCellGroupConfig*:

3> include *scg-ConfigResponseNR* in accordance with TS 38.331 [82], clause 5.3.5.3;

3> if the *RRCConnectionReconfiguration* message is applied due to a conditional reconfiguration execution and the *RRCConnectionReconfiguration* message does not include the *mobilityControlInfo*:

4> include in *selectedCondReconfigurationToApply* the *condReconfigurationId* of the conditional reconfiguration which has been executed;

1> if the UE is configured to operate in EN-DC as result of this procedure, forward *upperLayerIndication*, as if the UE receives this field from SIB2, to upper layers, otherwise indicate upper layers absence of this field;

1> if the UE is configured with NE-DC:

2> if the received *RRCConnectionReconfiguration* message was included in an NR *RRCResume* message:

3> transfer the *RRCConnectionReconfigurationComplete* message via SRB1 embedded in NR RRC message *RRCResumeComplete* as specified in TS 38.331 [82], clause 5.3.13.4;

2> else:

3> transfer the *RRCConnectionReconfigurationComplete* message via SRB1 embedded in NR RRC message *RRCReconfigurationComplete* as specified in TS 38.331 [82], clause 5.3.5.3;

1> else:

2> submit the *RRCConnectionReconfigurationComplete* message to lower layers for transmission using the new configuration, upon which the procedure ends;

*NEXT CHANGE*

5.3.5.9.4 Conditional reconfiguration evaluation

If AS security has been activated successfully, the UE shall:

1> if *VarConditionalReconfiguration* includes at least one *condReconfigurationId*:

2> perform conditional reconfiguration evaluation;

1> for each *condReconfigurationId* within the *VarConditionalReconfiguration*:

2> if the *RRCConnectionReconfiguration* within *condReconfigurationToApply* includes the *MobilityControlInfo*:

3> consider the cell which has a physical cell identity matching the value indicated in the *MobilityControlInfo* within *condReconfigurationToApply* to be an applicable cell;

2> else if the *RRCConnectionReconfiguration* within *condReconfigurationToApply* includes the *nr-SecondaryCellGroupConfig* and the *RRCConnectionReconfiguration* within *condReconfigurationToApply* does not include the *MobilityControlInfo*:

3> consider the cell which has a physical cell identity matching the value indicated in the nr-*SecondaryCellGroupConfig* within the received *condReconfigurationToApply* to be an applicable cell;

2> if *triggerConditionSN* is configured (in case of SN initiated inter-SN CPC for EN-DC):

3> perform the conditional reconfiguration evaluation as specified in TS 38.331 [82], clause 5.3.5.13.4a;

3> the procedure ends;

2> for each *measId* included in the *measIdList* within *VarMeasConfig* indicated in the *triggerCondition* associated to *condReconfigurationId:*

3> if the entry condition(s) applicable for this event associated with the *condReconfigurationId*, i.e. the event corresponding with the *condEventId* of the corresponding *condReconfigurationTriggerEUTRA* within *VarConditionalReconfiguration*, or the event corresponding with the *condEventId* of the corresponding *condReconfigurationTriggerNR* within *VarConditionalReconfiguration*, is fulfilled for the applicable cell for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfiguration*:

4> consider the entry condition for the associated *measId* within *triggerCondition* as fulfilled;

3> if the *measId* for this event associated with the *condReconfigurationId* has been modified; or

3> if the leaving condition(s) applicable for this event associated with the *condReconfigurationId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condReconfigurationTriggerEUTRA* within *VarConditionalReconfiguration*, or the event corresponding with the *condEventId* of the corresponding *condReconfigurationTriggerNR* within *VarConditionalReconfiguration*, is fulfilled for the applicable cells for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfiguration*:

4> consider the event associated to that *measId* to be not fulfilled;

2> if trigger conditions for all associated *measId*(s) within *triggerCondition* are fulfilled:

3> consider the target cell candidate within the stored *condReconfigurationToApply*, associated to that *condReconfigurationId*, as a triggered cell;

3> initiate the conditional reconfiguration execution, as specified in 5.3.5.9.5;

*NEXT CHANGE*

– *CondReconfigurationToAddModList*

The IE *CondReconfigurationToAddModList* concerns a list of conditional reconfigurations (i.e. conditional handover, conditional PSCell addition or inter-SN conditional PSCell change) to add or modify, for each entry the *measId* (associated to the triggering condition configuration) and the associated *RRCConnectionReconfiguration*.

***CondReconfigurationToAddModList* information element**

-- ASN1START

CondReconfigurationToAddModList-r16 ::= SEQUENCE (SIZE (1.. maxCondConfig-r16)) OF CondReconfigurationAddMod-r16

CondReconfigurationAddMod-r16 ::= SEQUENCE {

 condReconfigurationId-r16 CondReconfigurationId-r16,

 triggerCondition-r16 SEQUENCE (SIZE (1..2)) OF MeasId

 OPTIONAL, -- Need ON

 condReconfigurationToApply-r16 OCTET STRING (CONTAINING RRCConnectionReconfiguration)

 OPTIONAL,-- Cond CondReconfigurationAdd

 ...,

 [[

 triggerConditionSN-r17 OCTET STRING OPTIONAL -- Need ON

 ]]

}

-- ASN1STOP

| ***CondReconfigurationToAddMod* field descriptions** |
| --- |
| ***condReconfigurationToApply***The RRCConnectionReconfiguration message to be applied when the condition(s) are fulfilled. For CPAC, the *RRCConnectionReconfiguration* message contained in *condReconfigurationToApply* cannot contain the field *scg-State*. |
| ***triggerCondition***The condition that needs to be fulfilled in order to trigger the execution of a conditional reconfiguration for CHO, CPA or MN initiated inter-SN CPC. When configuring two triggering events (MeasIds) for a candidate cell, the network ensures that both refer to the same *measObject*. For each *condReconfigurationId*, the network always configures either *triggerCondition* or *triggerConditionSN* (not both). |
| ***triggerConditionSN***Includes the NR *CondReconfigExecCondSN* as specified in TS 38.331 [82]. For each *condReconfigurationId*, the network always configures either *triggerCondition* or *triggerConditionSN* (not both). The field is applied to the case of SN initiated inter-SN CPC. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *CondReconfigurationAdd* | The field is mandatory present if a *condReconfigurationId* is being added. Otherwise it is optional, need ON. |

*END OF CHANGE*