**3GPP TSG-RAN WG2 meeting #129 *R2-25xxxxx***

**Athens, Greece, 17 - 21 February, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | **Draft** | **rev** | **-** | **Current version:** | **18.4.0** |  |
|  | | | | | | | | |
| *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:*** | Running LTE RRC CR for R19 SON/MDT features | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ENDC\_SON\_MDT\_Ph4-Core | | | | |  | ***Date:*** | | | 2025-02-26 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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 can be 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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Introduction of R19 SON/MDT features in TS 36.331. | | | | | | | | |
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| ***Summary of change:*** | | Introduction of R19 SON/MDT features in TS 36.331. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | R19 SON/MDT features are not suported in TS 36.331. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.6.13a.3, 6.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 36.306 CRxxxx | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

### 5.6.13a NR SCG failure information

#### 5.6.13a.1 General



Figure 5.6.13a.1-1: NR SCG failure information

The purpose of this procedure is to inform E-UTRAN about an SCG failure the UE has experienced (e.g. SCG radio link failure, failure to successfully complete an SCG reconfiguration with sync), as specified in TS 38.331 [82], clause 5.7.3.2.

#### 5.6.13a.2 Initiation

A UE initiates the procedure to report NR SCG failures when neither E-UTRA MCG nor NR SCG transmission is not suspended and in accordance with TS 38.331 [82], clause 5.7.3.2. Actions the UE shall perform upon initiating the procedure, other than related to the transmission of the *SCGFailureInformationNR* message are specified in TS 38.331 [82], clause 5.7.3.2.

#### 5.6.13a.3 Actions related to transmission of *SCGFailureInformationNR* message

The UE shall set the contents of the *SCGFailureInformationNR* message as follows:

1> include *failureType* within *failureReportSCG-NR* and set it to indicate the SCG failure in accordance with TS 38.331 [82], clause 5.7.3.3;

NOTE 1: This may involve including both *failureType-r15* and *failureType-v1610*, see TS 38.331 [82], clause 5.7.3.3.

1> include and set *measResultSCG* in accordance with TS 38.331 [82], clause 5.7.3.4:

1> for each NR frequency the UE is configured to measure by *measConfig* for which measurement results are available:

2> set the *measResultFreqListNR* to include the best measured cells, ordered such that the best cell is listed first using RSRP to order if RSRP measurement results are available for cells on this frequency, otherwise using RSRQ to order if RSRQ measurement results are available for cells on this frequency, otherwise using SINR to order, and based on measurements collected up to the moment the UE detected the failure, and for each cell that is included, include the optional fields that are available;

NOTE 2: Field *measResultSCG* is used to report available results for NR frequencies the UE is configured to measure by NR RRC signalling.

1> if detailed location information is available, set the content of the *locationInfo* as follows:

2> include the *locationCoordinates*;

2> include the *horizontalVelocity*, if available;

1> if available, set the *logMeasResultListWLAN* to include the WLAN measurement results, in order of decreasing RSSI for WLAN APs;

1> if available, set the *logMeasResultListBT* to include the Bluetooth measurement results, in order of decreasing RSSI for Bluetooth beacons;

1> [if the UE supports SCG failure for mobility robustness optimization]:

2> if the *failureType* is set to *synchReconfigFailureSCG*; or

2> if the *failureType* is set to *randomAccessProblem* and the SCG failure was declared while T304 was running:

3> if the UE has NR RACH report information available in *VarRA-Report* of TS 38.331 [82] that is stored and the RPLMN is included in *plmn-IdentityList* stored in *VarRA-Report* of TS 38.331 [82], set the content of *rach-ReportNR* in the *UEInformationResponse message* as below:

4> set perRAInfoList-NR to indicate the performed random access procedure related information as specified in 5.7.10.5 of TS 38.331.

~~4> for each~~ *~~RA-Report~~* ~~of~~ *~~ra-ReportList~~* ~~in~~ *~~VarRA-Report~~* ~~of TS 38.331 [82]:~~

~~5> include it as part of~~ *~~rach-ReportListNR~~*~~;~~

3> set the *failedPSCellId* to the physical cell identity and carrier frequency of the target PSCell of the failed PSCell change or failed PSCell addition;

3> set the *previousPSCellId* to the physical cell identity and carrier frequency of the source PSCell associated to the last received *RRCReconfiguration* message including *reconfigurationWithSync* for the SCG, if available;

3> set the *timeSCGFailure* to the elapsed time since the last execution of *RRCReconfiguration* message including the *reconfigurationWithSync* for the SCG until declaring the SCG failure;

2> else:

3> set the *failedPSCellId* to the physical cell identity and carrier frequency of the PSCell in which the SCG failure was declared;

3> if the last *RRCReconfiguration* message including the *reconfigurationWithSync* for the SCG was received to enter the PSCell in which the SCG failure was declared:

4> set the *timeSCGFailure* to the elapsed time since the last execution of *RRCReconfiguration* message including the *reconfigurationWithSync* for the SCG until declaring the SCG failure;

4> set the *previousPSCellId* to the physical cell identity and carrier frequency of the source PSCell associated to the last received *RRCReconfiguration* message including *reconfigurationWithSync* for the SCG;

The UE shall submit the *SCGFailureInformationNR* message to lower layers for transmission.

*<Next modification>*

### 6.2.2 Message definitions

*<Partially omitted >*

#### – *SCGFailureInformationNR*

The *SCGFailureInformationNR* message is used to provide information regarding NR SCG failures detected by the UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

*SCGFailureInformationNR message*

-- ASN1START

SCGFailureInformationNR-r15 ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE {

scgFailureInformationNR-r15 SCGFailureInformationNR-r15-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

SCGFailureInformationNR-r15-IEs ::= SEQUENCE {

failureReportSCG-NR-r15 FailureReportSCG-NR-r15 OPTIONAL,

nonCriticalExtension SCGFailureInformationNR-v1590-IEs OPTIONAL

}

SCGFailureInformationNR-v1590-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

FailureReportSCG-NR-r15 ::= SEQUENCE {

failureType-r15 ENUMERATED {

t310-Expiry, randomAccessProblem,

rlc-MaxNumRetx,

synchReconfigFailureSCG, scg-reconfigFailure,

srb3-IntegrityFailure, dummy},

measResultFreqListNR-r15 MeasResultFreqListFailNR-r15 OPTIONAL,

measResultSCG-r15 OCTET STRING OPTIONAL,

...,

[[ locationInfo-r16 LocationInfo-r10 OPTIONAL,

logMeasResultListBT-r16 LogMeasResultListBT-r15 OPTIONAL,

logMeasResultListWLAN-r16 LogMeasResultListWLAN-r15 OPTIONAL,

failureType-v1610 ENUMERATED {t312-Expiry, scg-lbtFailure,

beamFailureRecoveryFailure, bh-RLF-r16,

beamFailure-r17,

spare3, spare2, spare1} OPTIONAL

]],

[[

previousPSCellId-r19 SEQUENCE {

physCellId-r19 PhysCellIdNR-r15,

carrierFreq-r19 ARFCN-ValueNR-r15

} OPTIONAL,

failedPSCellId-r19 SEQUENCE {

physCellId-r19 PhysCellIdNR-r15,

carrierFreq-r19 ARFCN-ValueNR-r15

} OPTIONAL,

timeSCGFailure-r19 INTEGER (0..1023) OPTIONAL,

perRAInfoListNR-r19 SEQUENCE {

perRAInfoListNR OCTET STRING OPTIONAL,

perRAInfoList-v1660-NR OCTET STRING OPTIONAL,

perRAInfoList-v1800-NR OCTET STRING OPTIONAL

}

~~rach-ReportListNR-r19 OCTET STRING~~

]]

}

MeasResultFreqListFailNR-r15 ::= SEQUENCE (SIZE (1..maxFreqNR-r15)) OF MeasResultFreqFailNR-r15

MeasResultFreqFailNR-r15 ::= SEQUENCE {

carrierFreq-r15 ARFCN-ValueNR-r15,

measResultCellList-r15 MeasResultCellListNR-r15 OPTIONAL,

...

}

-- ASN1STOP

| *SCGFailureInformationNR* field descriptions |
| --- |
| ***failedPSCellId***  This field indicates the physical cell id and carrier frequency of the cell in which SCG failure is detected or the target PSCell of the failed PSCell change or failed PSCell addition. |
| ***failureType***  Indicates the cause of the SCG failure. When the field *failureType-v1610* is included, the network ignores the field *failureType-r15*. |
| ***measResultFreqListNR***  The field contains available results of measurements on NR frequencies the UE is configured to measure by *measConfig*. |
| ***measResultSCG***  Includes the NR *MeasResultSCG-Failure* IE as specified in TS 38.331 [82]. The field contains available results of measurements on NR frequencies the UE is configured to measure by the NR RRCConfiguration message. |
| ***previousPSCellId***  This field indicates the physical cell id and carrier frequency of the cell that is the source PSCell of the last PSCell change. In case of PSCell addition failure, this field is absent. |
| ***~~rach-ReportListNR~~perRAInfoListNR***  ~~This filed is used to indicate the list of NR RACH report information, including the NR~~ *~~RA-ReportList~~* ~~IE, which is specified in TS 38.331 [82].~~  This field is used to indicate per RA information for NR RACH. The perRAInfoListNR IE includes PerRAInfoList-r16, and the perRAInfoList-v1660-NR IE includes PerRAInfoList-v1660, and the perRAInfoList-v1800-NR includes PerRAInfoList-v1800, which are specified in TS 38.331 [82]. |
| ***timeSCGFailure***  This field is used to indicate the time elapsed since the last execution of *RRCReconfiguration* with *reconfigurationWithSync* for the SCG until the SCG failure. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |

## MRO for MR-DC SCG failure

### RAN2#129

No agreements.

### RAN2#128

No agreements.

### RAN2#127-bis

4: Close the stage-2 work on MRO for MR-DC SCG failure.

1. Add reporting of the following parameters for SCG failure report in EN-DC scenario:

⁻ For failedPSCellId and previousPSCellId: frequency and the PCI of the PSCell;

⁻ For timeSCGFailure: value range 0-1023;

⁻ For failureType: Reuse the legacy field.

⁻ perRA-InfoList

### RAN2#127

* To support MRO for SCG failure in EN-DC, enhance SCGFailureInformationNR message to include previousPSCellId, failedPSCellId, timeSCGFailure.

### RAN2#126

* Reply to RAN3 that we will only do EN-DC. RAN2 understands that whether also supporting (NG)EN-DC has no additional RAN2 impact hence RAN3 can decide. If later we get time we can consider other options.

[R2-2405846](https://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_126/Docs//R2-2405846.zip) Reply LS on support of MRO for MR-DC SCG failure RAN2

* Approved

### RAN2#125-bis

No agreements.