**3GPP TSG-RAN WG2 Meeting #124 *R2-231xxxx***

**Chicago, USA, 13-17 November 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.306** | **CR** | **-** | **rev** | **-** | **Current version:** | **17.6.0** |  |
|  | | | | | | | | |
| *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 CR 38306 for UE capability for R18 SONMDT | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT, Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ENDC\_SON\_MDT\_enh2-Core | | | | |  | ***Date:*** | | | 2023-10-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Introduction of R18 features on SON and MDT. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Based on the R2#123bis agreements, R18 UE capabilities for SON and MDT are defined as below:  1: Introduce an optional feature without signalling for NR RLF report for voice fallback in NR. This feature indicates whether the UE supports an explicit indication in RLF-report when mobility from NR fails and due to voice fallback.  3: Introduce a new UE capaiblity bit (optional with signalling) for SPR. This bit indicates whether the UE supports the storage and delivery of Successful PScell Change/Addition Report upon request from the network.  4: Introduce A new UE capability bit (optional with signalling) for SHR for a handover from NR to E-UTRA. This bit indicates whether the UE supports the storage and delivery of Successful Handover Report for Handover from NR to E-UTRA, upon request from the network.  5: Introduce A new UE capability bit (optional with signalling) for NPN in logged MDT. This bit indicates whether the UE supports the inclusion of NPN ID in logged MDT procedures, upon request from the network.  6: Introduce an optional feature without signalling for NPN in RLF report. This feature indicates whether the UE supports the inclusion of NPN ID in RLF report procedure, upon request from the network.  8: For RACH report about RACH partitioning information, this could be an optional feature without signalling.  10: For RLF for Fast MCG recovery, it is an optional feature without signalling.  11: For SON enhancements for NR-U: Introduce a new optional feature for NR-U in SON reports. The feature is optional without signalling, and it covers RA-report/SHR/RLF report.  13: For new UE capabilities for Rel-18 SON and MDT enhancements (except for NR-U SON capabilities), there is no need to differentiate FDD/TDD and FR1/FR2.  14: For NR-U SON capabilities, they are applicable only to FR1. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No R18 UE capabilities for SON and MDT are defined. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.17, 4.2.18, 5.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS38.331 CR TBD | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*First change*

4.2.17 SON parameters

| **Definitions for parameters** | **Per** | **M** | **FDD-TDD DIFF** | **FR1-FR2 DIFF** |
| --- | --- | --- | --- | --- |
| ***onDemandSI-Report-r17***  Indicates whether the UE supports delivery of on-Demand SI information upon request from the network as specified in TS 38.331 [9]. | UE | No | No | No |
| ***pscell-MHI-Report-r17***  Indicates whether the UE supports the storage of PSCell mobility history information and the reporting in *UEInformationResponse* message as specified in TS 38.331 [9]. | UE | No | No | No |
| ***rach-Report-r16***  Indicates whether the UE supports delivery of RA report upon request from the network. | UE | No | No | No |
| ***rlfReportCHO-r17***  Indicates whether the UE supports RLF-Report for conditional handover. | UE | No | No | No |
| ***rlfReportDAPS-r17***  Indicates whether the UE supports RLF-Report for DAPS handover. | UE | No | No | No |
| ***spr-Report-r18***  Indicates whether the UE supports the storage and delivery of Successful PScell Change/Addition Report upon request from the network. | UE | No | No | No |
| ***success-HO-Report-r17***  Indicates whether the UE supports the storage and delivery of Successful Handover Report upon request from the network as specified in TS 38.331 [9]. | UE | No | No | No |
| ***successIRAT-HO-Report-r18***  Indicates whether the UE supports the storage and delivery of Successful Handover Report for Handover from NR to E-UTRA, upon request from the network. | UE | No | No | No |
| ***twoStepRACH-Report-r17***  Indicates whether the UE supports the storage and delivery of 2-step RACH related information upon request from the network as specified in TS 38.331 [9]. | UE | No | No | No |

4.2.18 UE-based performance measurement parameters

| **Definitions for parameters** | **Per** | **M** | **FDD-TDD DIFF** | **FR1-FR2 DIFF** |
| --- | --- | --- | --- | --- |
| ***barometerMeasReport-r16***  Indicates whether the UE supports uncompensated barometeric pressure measurement reporting upon request from the network. | UE | No | No | No |
| ***earlyMeasLog-r17***  Indicates whether the UE supports the storage of Early Measurement Logging in logged measurements and the reporting upon request from the network as specified in TS 38.331 [9]. | UE | No | No | No |
| ***excessPacketDelay-r17***  Indicates whether the UE supports the UL PDCP excess packet delay measurement per DRB as specified in TS 38.314 [26]. A UE that supports the UL PDCP excess packet delay measurement shall also support the measurement configuration and reporting as specified in TS 38.331 [9]. | UE | No | No | No |
| ***gnss-Location-r16***  Indicates whether the UE is equipped with a GNSS or A-GNSS receiver that may be used to provide detailed location information along with SON, MDT, and NTN related measurements in RRC\_CONNECTED, RRC\_IDLE and RRC\_INACTIVE state. A UE shall set this field to *supported* if it indicates the support of *nonTerrestrialNetwork-r17*. | UE | CY | No | No |
| ***immMeasBT-r16***  Indicates whether the UE supports Bluetooth measurements in RRC\_CONNECTED state. | UE | No | No | No |
| ***immMeasWLAN-r16***  Indicates whether the UE supports WLAN measurements in RRC\_CONNECTED state. | UE | No | No | No |
| ***loggedMDT-NPN-r18***  Indicates whether the UE supports the inclusion of NPN ID in logged MDT procedures, upon request from the network. | UE | No | No | No |
| ***loggedMeasBT-r16***  Indicates whether the UE supports Bluetooth measurements in RRC\_IDLE and RRC\_INACTIVE state. | UE | No | No | No |
| ***loggedMeasurements-r16***  Indicates whether the UE supports logged measurements in RRC\_IDLE and RRC\_INACTIVE state. A UE that supports logged measurements shall support both periodical logging and event-triggered logging. The minimum memory size of MDT logged measurements is 64KB. | UE | No | No | No |
| ***loggedMeasWLAN-r16***  Indicates whether the UE supports WLAN measurements in RRC\_IDLE and RRC\_INACTIVE state. | UE | No | No | No |
| ***multipleCEF-Report-r17***  Indicates whether the UE supports the storage and delivery of multiple CEF reports upon request from the network as specified in TS 38.331 [9]. | UE | No | No | No |
| ***orientationMeasReport-r16***  Indicates whether the UE supports orientation information reporting upon request from the network. | UE | No | No | No |
| ***sigBasedLogMDT-OverrideProtect-r17***  Indicates whether the UE supports the override protection of the signalling based logged measurements configured in NR. | UE | No | No | No |
| ***speedMeasReport-r16***  Indicates whether the UE supports speed information reporting upon request from the network. | UE | No | No | No |
| ***ulPDCP-Delay-r16***  Indicates whether the UE supports UL PDCP Packet Average Delay measurement (as specified in TS 38.314 [26]) and reporting in RRC\_CONNECTED state. | UE | No | No | No |

*Next change*

5.7 MDT and SON features

| **Definitions for feature** |
| --- |
| **Mobility history information storage**  It is optional for UE to support the storage of PCell mobility history information and the reporting in *UEInformationResponse* message as specified in TS 38.331 [9]. |
| **Cross RAT RLF Report**  It is optional for UE to support the delivery of EUTRA RLF report to an NR node upon request from the network. |
| **Radio Link Failure Report for inter-RAT MRO EUTRA**  It is optional for UE to support:  - Inclusion of EUTRA CGI and associated TAC, if available, and otherwise to include the physical cell identity and carrier frequency of the target PCell of the failed handover as *failedPCellId* in *RLF-Report* upon request from the network as specified in TS 38.331 [9].  - Inclusion of EUTRA CGI and associated TAC as *previousPCellId* in *RLF-Report* as specified in TS 38.331 [9].  - Inclusion of *eutraReconnectCellId* in *reconnectCellId* in the *RLF-Report* as specified in TS 38.331 [9] upon UE has radio link failure or handover failure and successfully re-connected to an E-UTRA cell. |
| **SCG Failure Report for MRO**  It is optional for UE to support the delivery of the SCG failure related parameters for MRO in *SCGFailureInformation* message to the network. |
| **SpCell ID indication**  It is optional for UE to support the delivery of the *spCellID-r17* in the RA-Report, if the RA procedure is performed in a SCell of the MCG/SCG. |
| **RLF Report for Fast MCG Recovery**  It is optional for UE to support the delivery of the Fast MCG recovery related information in the RLF-Report. |
| **RLF Report for NPN**  It is optional for UE to support the delivery of the NPN ID in the RLF-report. |
| **RLF Report for Inter-system HO for Voice Fallback**  It is optional for UE to support the delivery of an explicit indication in the RLF-report when mobility from NR due to voice fallback fails. |
| **RACH Partitioning Report**  It is optional for UE to support the delivery of RACH partitioning related information via RACH report procedure, upon request from the network. |
| **SON enhancements for NR-U**  It is optional for UE to support the delivery of NR-U related information in RA-report/SHR/RLF report, upon request from the network. |

*End of change*

# Annex:

The following table is the potential R18 Layer-2 and Layer-3 feature list for NR\_ENDC\_SON\_MDT\_enh2-Core for reference in TR38.822.

[7.2.xx] NR\_ENDC\_SON\_MDT\_enh2-Core

**Table 7.2.xx-1: Layer-2 and Layer-3 feature list for NR\_ENDC\_SON\_MDT\_enh2-Core**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Features** | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** | **Field name in TS 38.331 [2]** | **Parent IE in TS 38.331 [2]** | **Need of FDD/TDD differentiation** | **Need of FR1/FR2 differentiation** | **Note** | **Mandatory/Optional** |
| xx. NR\_ENDC\_SON\_MDT\_enh2-Core | xx-1 | RLF Report for Inter-system HO for Voice Fallback | It is optional for UE to support the delivery of an explicit indication in the RLF-report when mobility from NR due to voice fallback fails. |  | *N/A* | *N/A* | No | No |  | Optional without capability signalling |
| xx-2 | Report for SPR | Indicates whether the UE supports the storage and delivery of Successful PScell Change/Addition Report upon request from the network. |  | *spr-Report-r18* | *SON-Parameters-r16* | No | No |  | Optional with capability signalling |
| xx-3 | Report for Inter-RAT SHR | Indicates whether the UE supports the storage and delivery of Successful Handover Report for Handover from NR to E-UTRA, upon request from the network. |  | *successIRAT-HO-Report-r18* | *SON-Parameters-r16* | No | No |  | Optional with capability signalling |
| xx-4 | RLF Report for NPN | It is optional for UE to support the delivery of the NPN ID in the RLF-report.  Editor’s note: Whether this capability should be restricted to SNPN network only can be discussed in open list of UE capabilist for SON/MDT. |  | *N/A* | *N/A* | No | No |  | Optional without capability signalling |
| xx-5 | RA report for RACH partitioning | Indicates whether the UE supports the storage and delivery of RACH partitioning related information via RACH report procedure, upon request from the network. |  | *rach-Partitioning-Report-r18* | *SON-Parameters-r16* | No | No |  | Optional without capability signalling |
| xx-6 | RLF Report for Fast MCG recovery | It is optional for UE to support the delivery of the Fast MCG recovery related information in the RLF-Report. |  | *N/A* | *N/A* | No | No |  | Optional without capability signalling |
| xx-7 | NR-U | It is optional for UE to support the delivery of NR-U related information in RA-report/SHR/RLF report, upon request from the network. |  | *N/A* | *N/A* | No | FR1 only |  | Optional without capability signalling |
| xx-8 | MRO CPAC | Editor’s note: this can be discussed in open issue list of UE capability for SON/MDT. |  |  |  | No | No |  |  |
| xx-9 | Logged MDT for NPN | Indicates whether the UE supports the inclusion of NPN ID in logged MDT procedures, upon request from the network.  Editor’s note : whether to define two separate capabilities for SNPN and PNI-NPN for logged MDTand how to unpdate the wording is an open issue. This can be discussed in open issues list of UE capability for SON/MDT. |  | *loggedMDT-NPN-r18* | *UE-BasedPerfMeas-Parameters-r16* | No | No |  | Optional with capability signalling |
|  |  |  |  |  |  |  |  |  |  |