**3GPP TSG-RAN WG2 Meeting # *R2-231XXXX***

**, , 9th – 18th, Oct. 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  |
| *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:***  | Introduction of UE capability for QoE enhancement |
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| ***Source to WG:*** | CMCC |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | NR\_QoE\_Enh-Core |  | ***Date:*** | 2023-10-18 |
|  |  |  |  |  |
| ***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 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | Introducing Rel-18 work item QoE enhancement on UE capability of NR QoE management and optimizations for diverse services to 38.331 |
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| ***Summary of change:*** | The following agreements related to UE capabilities for Rel-18 QoE enhancement are added:In RAN2#123:* Introduce a UE capability indicating whether UE can perform MBS QoE in RRC\_IDLE and RRC\_INACTIVE. FFS whether the same capability can be used for MBS QoE in RRC\_CONNECTED.
* Introduce a UE capability for the supported buffer size. It is conditionally mandatory if UE supports MBS QoE. The range is from 64 kB to 1024 kB (exact values can be discussed in RRC running CR discussion). FFS whether this is shared or additional to the Rel-17 buffer size requirement.

In RAN2#123bis:* For non-RedCap UE, minimum memory requirement for IDLE/INACTIVE reports is 64KB. This memory is in addition to 64KB used for QoE report storage during pause.
* Introduce an optional UE capability indicates whether UE supports 128, 256, 512 and 1024KB buffer size.
* Introduce UE capability of supporting QoE configuration in NR-DC framework with radio access capability parameter.
* Introduce UE capability of supporting SRB5 for QoE reporting with radio access capability parameters.
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| ***Consequences if not approved:*** | The network doesn’t know which Rel-18 QoE enhancement feature UE supports. |
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| ***Clauses affected:*** |  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS/TR 38.306 CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

*First Modified Subclause*

# 6 Protocol data units, formats and parameters (ASN.1)

## 6.3 RRC information elements

### 6.3.3 UE capability information elements

**/\* PARTIALLY OMITTED \*/**

*AppLayerMeasParameters*

The IE *AppLayerMeasParameters* is used to convey the capabilities supported by the UE for application layer measurements.

***AppLayerMeasParameters* information element**

-- ASN1START

-- TAG-APPLAYERMEASPARAMETERS-START

AppLayerMeasParameters-r17 ::= SEQUENCE {

 qoe-Streaming-MeasReport-r17 ENUMERATED {supported} OPTIONAL,

 qoe-MTSI-MeasReport-r17 ENUMERATED {supported} OPTIONAL,

 qoe-VR-MeasReport-r17 ENUMERATED {supported} OPTIONAL,

 ran-VisibleQoE-Streaming-MeasReport-r17 ENUMERATED {supported} OPTIONAL,

 ran-VisibleQoE-VR-MeasReport-r17 ENUMERATED {supported} OPTIONAL,

 ul-MeasurementReportAppLayer-Seg-r17 ENUMERATED {supported} OPTIONAL,

...,

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 qoe-IdleInactiveMeasReport-r18 ENUMERATED {supported} OPTIONAL,

 qoe-NRDC-MeasReport-r18 ENUMERATED {supported} OPTIONAL,

 qoe-AdditionalMemoryMeasReport-r18 ENUMERATED {kB128, kB256, kB512, kB1024} OPTIONAL

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}

-- TAG-APPLAYERMEASPARAMETERS-STOP

-- ASN1STOP

*Next Modified Subclause*

# 6 Protocol data units, formats and parameters (ASN.1)

## 6.3 RRC information elements

### 6.3.3 UE capability information elements

**/\* PARTIALLY OMITTED \*/**

– *UE-MRDC-Capability*

The IE *UE-MRDC-Capability* is used to convey the UE Radio Access Capability Parameters for MR-DC, see TS 38.306 [26].

***UE-MRDC-Capability* information element**

-- ASN1START

-- TAG-UE-MRDC-CAPABILITY-START

UE-MRDC-Capability ::= SEQUENCE {

 measAndMobParametersMRDC MeasAndMobParametersMRDC OPTIONAL,

 phy-ParametersMRDC-v1530 Phy-ParametersMRDC OPTIONAL,

 rf-ParametersMRDC RF-ParametersMRDC,

 generalParametersMRDC GeneralParametersMRDC-XDD-Diff OPTIONAL,

 fdd-Add-UE-MRDC-Capabilities UE-MRDC-CapabilityAddXDD-Mode OPTIONAL,

 tdd-Add-UE-MRDC-Capabilities UE-MRDC-CapabilityAddXDD-Mode OPTIONAL,

 fr1-Add-UE-MRDC-Capabilities UE-MRDC-CapabilityAddFRX-Mode OPTIONAL,

 fr2-Add-UE-MRDC-Capabilities UE-MRDC-CapabilityAddFRX-Mode OPTIONAL,

 featureSetCombinations SEQUENCE (SIZE (1..maxFeatureSetCombinations)) OF FeatureSetCombination OPTIONAL,

 pdcp-ParametersMRDC-v1530 PDCP-ParametersMRDC OPTIONAL,

 lateNonCriticalExtension OCTET STRING (CONTAINING UE-MRDC-Capability-v15g0) OPTIONAL,

 nonCriticalExtension UE-MRDC-Capability-v1560 OPTIONAL

}

-- Regular non-critical extensions:

UE-MRDC-Capability-v1560 ::= SEQUENCE {

 receivedFilters OCTET STRING (CONTAINING UECapabilityEnquiry-v1560-IEs) OPTIONAL,

 measAndMobParametersMRDC-v1560 MeasAndMobParametersMRDC-v1560 OPTIONAL,

 fdd-Add-UE-MRDC-Capabilities-v1560 UE-MRDC-CapabilityAddXDD-Mode-v1560 OPTIONAL,

 tdd-Add-UE-MRDC-Capabilities-v1560 UE-MRDC-CapabilityAddXDD-Mode-v1560 OPTIONAL,

 nonCriticalExtension UE-MRDC-Capability-v1610 OPTIONAL

}

UE-MRDC-Capability-v1610 ::= SEQUENCE {

 measAndMobParametersMRDC-v1610 MeasAndMobParametersMRDC-v1610 OPTIONAL,

 generalParametersMRDC-v1610 GeneralParametersMRDC-v1610 OPTIONAL,

 pdcp-ParametersMRDC-v1610 PDCP-ParametersMRDC-v1610 OPTIONAL,

 nonCriticalExtension UE-MRDC-Capability-v1700 OPTIONAL

}

UE-MRDC-Capability-v1700 ::= SEQUENCE {

 measAndMobParametersMRDC-v1700 MeasAndMobParametersMRDC-v1700,

 nonCriticalExtension UE-MRDC-Capability-v1730 OPTIONAL

}

UE-MRDC-Capability-v1730 ::= SEQUENCE {

 measAndMobParametersMRDC-v1730 MeasAndMobParametersMRDC-v1730 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Late non-critical extensions:

UE-MRDC-Capability-v15g0 ::= SEQUENCE {

 rf-ParametersMRDC-v15g0 RF-ParametersMRDC-v15g0 OPTIONAL,

 nonCriticalExtension UE-MRDC-Capability-v15n0 OPTIONAL

}

UE-MRDC-Capability-v15n0 ::= SEQUENCE {

 rf-ParametersMRDC-v15n0 RF-ParametersMRDC-v15n0 OPTIONAL,

-- Following field is only for REL-15 late non-critical extensions

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension UE-MRDC-Capability-v16e0 OPTIONAL

}

UE-MRDC-Capability-v16e0 ::= SEQUENCE {

 rf-ParametersMRDC-v16e0 RF-ParametersMRDC-v16e0 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

UE-MRDC-CapabilityAddXDD-Mode ::= SEQUENCE {

 measAndMobParametersMRDC-XDD-Diff MeasAndMobParametersMRDC-XDD-Diff OPTIONAL,

 generalParametersMRDC-XDD-Diff GeneralParametersMRDC-XDD-Diff OPTIONAL

}

UE-MRDC-CapabilityAddXDD-Mode-v1560 ::= SEQUENCE {

 measAndMobParametersMRDC-XDD-Diff-v1560 MeasAndMobParametersMRDC-XDD-Diff-v1560 OPTIONAL

}

UE-MRDC-CapabilityAddFRX-Mode ::= SEQUENCE {

 measAndMobParametersMRDC-FRX-Diff MeasAndMobParametersMRDC-FRX-Diff

}

GeneralParametersMRDC-XDD-Diff ::= SEQUENCE {

 splitSRB-WithOneUL-Path ENUMERATED {supported} OPTIONAL,

 splitDRB-withUL-Both-MCG-SCG ENUMERATED {supported} OPTIONAL,

 srb3 ENUMERATED {supported} OPTIONAL,

 dummy ENUMERATED {supported} OPTIONAL,

 ...,

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 srb5-r18

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}

GeneralParametersMRDC-v1610 ::= SEQUENCE {

 f1c-OverEUTRA-r16 ENUMERATED {supported} OPTIONAL

}

-- TAG-UE-MRDC-CAPABILITY-STOP

-- ASN1STOP

|  |
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| ***UE-MRDC-Capability* field descriptions** |
| ***featureSetCombinations***A list of *FeatureSetCombination*:s for *supportedBandCombinationList* and *supportedBandCombinationListNEDC-Only* in *UE-MRDC-Capability*. The *FeatureSetDownlink*:s and *FeatureSetUplink*:s referred to from these *FeatureSetCombination*:s are defined in the *featureSets* list in *UE-NR-Capability*. |

*End of Changes*