**3GPP TSG-RAN WG2 Meeting #110-eR2-20xxxxx**

**Electronic Meeting, 1st – 12th June 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **38.331** | **CR** | **1712** | **rev** | **1** | **Current version:** | **15.9.0** |  |
|  |
| *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:***  |  Introduction of CGI reporting capabilities |
|  |  |
| ***Source to WG:*** | vivo |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | [NR\_newRAT-Core](http://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750167) |  | ***Date:*** | 2020-06-17 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-15 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | During online discussion [[R2-1902687](file:///E%3A%5C3GPP%5CRAN2%5C2019%5C105%5Cdocs%5CR2-1902687.zip)], some companies raised one issue in EN-DC. Since NR sub6 and LTE are actually quite similar, in some (especially early) UE implementation, some RF / Baseband hardware is shared in LTE and NR sub6 for early product launch. Then if DRX offsets are not aligned in MN and SN, such UEs must wait for both LTE and NR being idle (i.e. common idle period in DRX cycles in MN and SN) before measuring CGI. This is hardware specific or chip set vendor specific limitation, which requires different UE capability with EN-DC or LTE SA. Note that UE capability of per-FR and independent gap is introduced with similar reason.   As a result, three UE capabilities, i.e. utra-GERAN-CGI-Reporting-ENDC /eutra-CGI-Reporting-ENDC /reportCGI-NR-EN-DC-r15 are introduced in TS36.306 for ANR configured by LTE towards GERAN / UTRA /E-UTRA/NR neighbor cells when DRX configurations are different between MN and SN.In the TS37.340, it states that “In MR-DC, both the MN and the SN can configure CGI reporting. The MN can configure CGI reporting for intra-RAT and inter-RAT cells but the SN can only configure CGI reporting of intra-RAT cells”.Similar issue also exists when ANR is configured by NR toward E-UTRA/NR neighbor cells in NE-DC and NR-DC cases, therefore should introduce extra UE capabilities (i.e. eutra-CGI-*Reporting*-*NEDC*, *eutra*-*CGI*-*Reporting*-NRDC, *nr-CGI-Reporting-NEDC* and *nr-CGI-Reporting-NRDC*) in NE-DC/NR-DC for ANR configured by NR towards E-UTRA neighbor cells, where *eutra-CGI-Reporting-NEDC* and *nr-CGI-Reporting-NEDC covers NE-DC* regardless of whether DRX is aligned between MN and SN, and *eutra-CGI-Reporting-NRDC,* and *nr-CGI-Reporting-NRDC* cover NR-DC with unaligned DRX between MN an SN*.* |
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| ***Summary of change:*** | **Section 6.3.3*** Add *eutra-CGI-Reporting-NEDC* whether the UE supports acquisition of relevant information from a neighbouring intra-frequency or inter-frequency NR cell by reading the SI of the neighbouring cell and reporting the acquired information to the network when the NE-DC is configured, regardless of wheter. DRX is aligned between MN and SN.
* Add *nr-CGI-Reporting-NEDC* whether the UE supports acquisition of relevant information from a neighbouring intra-frequency or inter-frequency NR cell by reading the SI of the neighbouring cell and reporting the acquired information to the network when the NE-DC is configured, regardless of wheter. DRX is aligned between MN and SN.
* Add *eutra-CGI-Reporting-NRDC* whether the UE supports acquisition of relevant information from a neighbouring E-UTRA cell by reading the SI of the neighbouring cell and reporting the acquired information to the network. This applies to NR-DC with unaligned DRX between MN and SN
* Add *nr-CGI-Reporting-NRDC* whether the UE supports acquisition of relevant information from a neighbouring intra-frequency or inter-frequency NR cell by reading the SI of the neighbouring cell and reporting the acquired information to the network when the NR-DC is configured. This applies to NR-DC with unaligned DRX between MN and SN

**Impact analysis:**Impacted architectures: NR-DC, NE-DCImpacted functionality: UE CGI reporting capabilityNo inter-operability issue is foreseen. |
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| ***Consequences if not approved:*** | If the CR is not approved UE CGI reporting capability is not supported for NE-DC and NR-DC scenarios |
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| ***Clauses affected:*** | 6.3,3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **x** |  |  Other core specifications  | TS 38.306 CR0345  |
| ***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 1st CHANGE*

#### – *MeasAndMobParameters*

The IE *MeasAndMobParameters* is used to convey UE capabilities related to measurements for radio resource management (RRM), radio link monitoring (RLM) and mobility (e.g. handover).

*MeasAndMobParameters* information element

-- ASN1START

-- TAG-MEASANDMOBPARAMETERS-START

MeasAndMobParameters ::= SEQUENCE {

 measAndMobParametersCommon MeasAndMobParametersCommon OPTIONAL,

 measAndMobParametersXDD-Diff MeasAndMobParametersXDD-Diff OPTIONAL,

 measAndMobParametersFRX-Diff MeasAndMobParametersFRX-Diff OPTIONAL

}

MeasAndMobParametersCommon ::= SEQUENCE {

 supportedGapPattern BIT STRING (SIZE (22)) OPTIONAL,

 ssb-RLM ENUMERATED {supported} OPTIONAL,

 ssb-AndCSI-RS-RLM ENUMERATED {supported} OPTIONAL,

 ...,

 [[

 eventB-MeasAndReport ENUMERATED {supported} OPTIONAL,

 handoverFDD-TDD ENUMERATED {supported} OPTIONAL,

 eutra-CGI-Reporting ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting ENUMERATED {supported} OPTIONAL

 ]],

 [[

 independentGapConfig ENUMERATED {supported} OPTIONAL,

 periodicEUTRA-MeasAndReport ENUMERATED {supported} OPTIONAL,

 handoverFR1-FR2 ENUMERATED {supported} OPTIONAL,

 maxNumberCSI-RS-RRM-RS-SINR ENUMERATED {n4, n8, n16, n32, n64, n96} OPTIONAL

 ]],

 [[

 nr-CGI-Reporting-ENDC ENUMERATED {supported} OPTIONAL

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 eutra-CGI-Reporting-NEDC ENUMERATED {supported} OPTIONAL,

 eutra-CGI-Reporting-NRDC ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting-NEDC ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting-NRDC ENUMERATED {supported} OPTIONAL

 ]]

}

MeasAndMobParametersXDD-Diff ::= SEQUENCE {

 intraAndInterF-MeasAndReport ENUMERATED {supported} OPTIONAL,

 eventA-MeasAndReport ENUMERATED {supported} OPTIONAL,

 ...,

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 handoverInterF ENUMERATED {supported} OPTIONAL,

 handoverLTE-EPC ENUMERATED {supported} OPTIONAL,

 handoverLTE-5GC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 sftd-MeasNR-Neigh ENUMERATED {supported} OPTIONAL,

 sftd-MeasNR-Neigh-DRX ENUMERATED {supported} OPTIONAL

 ]]

}

MeasAndMobParametersFRX-Diff ::= SEQUENCE {

 ss-SINR-Meas ENUMERATED {supported} OPTIONAL,

 csi-RSRP-AndRSRQ-MeasWithSSB ENUMERATED {supported} OPTIONAL,

 csi-RSRP-AndRSRQ-MeasWithoutSSB ENUMERATED {supported} OPTIONAL,

 csi-SINR-Meas ENUMERATED {supported} OPTIONAL,

 csi-RS-RLM ENUMERATED {supported} OPTIONAL,

 ...,

 [[

 handoverInterF ENUMERATED {supported} OPTIONAL,

 handoverLTE-EPC ENUMERATED {supported} OPTIONAL,

 handoverLTE-5GC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 maxNumberResource-CSI-RS-RLM ENUMERATED {n2, n4, n6, n8} OPTIONAL

 ]],

 [[

 simultaneousRxDataSSB-DiffNumerology ENUMERATED {supported} OPTIONAL

 ]]

}

-- TAG-MEASANDMOBPARAMETERS-STOP

-- ASN1STOP

*END OF1st CHANGE*