**3GPP TSG-RAN2 Meeting #104 *R2-1816477***

**Spokane, United States, 12th Nov 2018 - 16th Nov 2018**

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| *CR-Form-v11.1* |
| **CHANGE REQUEST** |
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|  | **38.331** | **CR** | **0295** | **rev** | **1** | **Current version:** | **15.3.0** |  |
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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:***  | Update of L1/RF capabilities |
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| ***Source to WG:*** | NTT DOCOMO, INC. |
| ***Source to TSG:*** | R2 |
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| ***Work item code:*** | NR\_newRAT-Core |  | ***Date:*** | 2018-11-08 |
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| ***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)* |
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| ***Reason for change:*** | In the last WG and RAN plenary meetings, L1/RF UE feature lists were updated by RAN1/4 ([R2-1813524](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103bis/LSin/R2-1813524.zip), [R2-1813533](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103bis/LSin/R2-1813533.zip), [R2-1813545](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103bis/LSin/R2-1813545.zip), [R2-1813547](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103bis/LSin/R2-1813547.zip) and [R2-1816216](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_104/LSin/R2-1816216.zip)). In their updates, some of the existing capabilities have been changed, as well as new additional capabilities. The NR UE capability signalling needs to be updated in accordance with their updates. |
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| ***Summary of change:*** | The following existing capabilities are modified in accordance with RAN1 inputs:- srs-AssocCS-RS (R1 2-15a)- pdsch-DifferentTB-PerSlot (R1 5-11/11a/11b)- pusch-DifferentTB-PerSlot (R1 5-12/12a/12b)- csi-ReportFramework (R1 2-35)- pucch-SpatialRelInfoMAC-CE (R1 4-24)- beamManagementSSB-CSI-RS (R1 2-24)- mux-SR-HARQ-ACK-CSI-PUCCH (R1 4-19)- pdsch-RE-MappingFR1/FR2 (R1 2-33a)- oneFL-DMRS-TwoAdditionalDMRS-DL (R1 2-6a)- twoFL-DMRS-TwoAdditionalDMRS-DL (R1 2-8)- oneFL-DMRS-ThreeAdditionalDMRS-DL (R1 2-9)- mimo-NonCB-PUSCH (R1 2-15)- beamCorrespondenceCA (R1 2-20)- BeamManagementSSB-CSI-RS (R1 2-24)- beamReportTiming (R1 2-25)- csi-RS-IM-ReceptionForFeedback (R1 2-33)- csi-ReportFramework (R1 2-35)- srs-TxSwitch (R1 2-55)The following new capabilities are introduced in accordance with RAN1/4 inputs:- csi-RS-ProcFrameworkForSRS (R1 2-15b)- pdsch-ProcessingType2 (R1 URLLC 1, 9, 10 and 11)- pusch-ProcessingType2 (R1 URLLC 3, 12, 13 and 14)- pdsch-ProcessingType2-Limited (R1 URLLC 2)- dl-MCS-TableAlt-DynamicIndication (R1 URLLC 7)- ul-MCS-TableAlt-DynamicIndication (R1 URLLC 8)- zeroSlotOffsetAperiodicSRS (R1 2-58)- pa-PhaseDiscontinuityImpacts (R1 6-23)- beamSwitchTiming (R1 2-28)- spatialRelations (R1 2-59/60/61/62)- rateMatchingCtrlResrsSetDynamic (R1 5-27a)- dl-SchedulingOffset-PDSCH-TypeA (R1 5-30)- dl-SchedulingOffset-PDSCH-TypeB (R1 5-30a)- ul-SchedulingOffset (R1 -5-31)- mux-SR-HARQ-ACK-CSI-PUCCH-Type2 (R1 4-19b)- mux-SR-HARQ-ACK-CSI-PUCCH-Type3 (R1 4-19c)- mux-SR-HARQ-ACK-PUCCH (R1 4-19a)- dl-SchedulingOffset-PDSCH-TypeA (R1 5-30)- dl-SchedulingOffset-PDSCH-TypeB (R1 5-30a)- ul-SchedulingOffset (R1 5-31)- dl-64QAM-MCS-TableAlt (R1 URLLC 4)- ul-64QAM-MCS-TableAlt (R1 URLLC 5)- cqi-TableAlt (R1 URLLC 6)- powerBoosting-pi2BPSK (R4 2-15)- maxNumberCSI-RS-RRM-RS-SINR (R1 1-13)- maxNumberResource-CSI-RS-RLM (R1 1-14)- additionalDMRS-DL-Alt (R1 2-6b)- maxNumberSearchSpaces (R1 3-8)- mux-MultipleGroupCtrlCH-Overlap (R1 4-27)- pdsch-SeparationWithGap (R1 5-32)- pusch-SeparationWithGap (R1 5-33)ASN.1 on both the new and existing capabilities are extended by backward compatible change.**Impact analysis:**Impacted functionality:NR UE capabilitiesInter-operability:On the additional new capabilities, if gNB implements this CR but UE does not, the UE does not report the new capability signalling. If UE implements this CR, but gNB does not, the gNB cannot comprehend the capability signalling reported by the UE and then ignore the uncomprehend part of signalling. In any cases, gNB regards that the corresponding feature is not supported by the UE. Therefore, no inter-operabiltiy problem is foreseen.In contrast, on the existing capabilities modified by this CR, especially for dummying the existing field and redefining the new field, if gNB implements this CR but UE does not, the UE reports obsoleted capabilities which the eNB regards as a dummy field. Given that the current specification does not specify how the gNB handles a dummy field, the consequence is unknown. If UE implements this CR, but gNB does not, the gNB cannot comprehend the capability signalling reported by the UE and then ignore the uncomprehend part of signalling.In light of the above analysis, **both gNB and UE shall implement this CR.** |
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| ***Consequences if not approved:*** | The UE cannnot report its functional capability in accordance with the latest L1/RF UE feature list. |
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| ***Clauses affected:*** | 6.3.3, 6.4 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 38.306 CR 0036 |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |