**3GPP TSG-RAN3 Meeting #108 *R3-20xxxx***

**E-Meeting, 20th – 24th April 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.401** | **CR** | **0115** | **rev** | **4** | **Current version:** | **16.1.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | F1 support for positioning | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | RAN3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_POS-Core | | | | |  | ***Date:*** | | | 2020-05-21 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In order to support NR positioning, new function should be defined over F1 interferface. Current version does not support postioning function in F1AP. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the Stage 2 text description on positioning function over F1.  Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has isolated impact with the previous version of the specification (same release). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Positioning funciton cannot be supported in F1AP. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 3, 7.x (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 1 re-submission (no-change)  Rev2-3 re-submission for compromise  Rev4; Base endorsed | | | | | | | | |

<<<<<<<<<<<<<<<<<<<< Changes Begin >>>>>>>>>>>>>>>>>>>>

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.300: "NR; Overall description; Stage-2".

[3] 3GPP TS 23.501: "System Architecture for the 5G System".

[4] 3GPP TS 38.473: "NG-RAN; F1 application protocol (F1AP)".

[5] 3GPP TS 38.414: "NG-RAN; NG data transport".

[6] 3GPP TS 38.424: "NG-RAN; Xn data transport".

[7] 3GPP TS 38.474: "NG-RAN; F1 data transport".

[8] ITU-T Recommendation G.823 (2000-03): "The control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy".

[9] ITU-T Recommendation G.824 (2000-03): "The control of jitter and wander within digital networks which are based on the 1544 kbit/s hierarchy".

[10] ITU-T Recommendation G.825 (2001-08): "The control of jitter and wander within digital networks which are based on the synchronous digital hierarchy (SDH)".

[11] ITU-T Recommendation G.8261/Y.1361 (2008-04): "Timing and Synchronization aspects in Packet networks".

[12] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".

[13] 3GPP TS 33.501: "Security Architecture and Procedures for 5G System".

[14] 3GPP TS 38.410: "NG-RAN; NG general aspect and principles".

[15] 3GPP TS 38.420: "NG-RAN; Xn general aspects and principles"

[16] 3GPP TS 38.470: "NG-RAN; F1 general aspects and principles".

[17] 3GPP TS 38.460: "NG-RAN; E1 general aspects and principles".

[18] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP Network Layer Security".

[19] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA), Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[20] 3GPP TS 32.422: "Trace control and configuration management".

[21] 3GPP TS 37.470: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN) and NG-RAN; W1 general aspects and principles; Stage-2".

[xx] 3GPP TS 38.305: "NG Radio Access Network (NG-RAN); Stage 2 functional specification of User Equipment (UE) positioning in NG-RAN".

<<<<<<<<<<<<<<<<<<<< Unchanged Text Omitted >>>>>>>>>>>>>>>>>>>>

## 3.2 Abbreviations

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply.   
A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

5GC 5G Core Network

AMF Access and Mobility Management Function

AP Application Protocol

AS Access Stratum

CM Connection Management

CMAS Commercial Mobile Alert Service

ETWS Earthquake and Tsunami Warning System

F1-U F1 User plane interface

F1-C F1 Control plane interface

F1AP F1 Application Protocol

FDD Frequency Division Duplex

GTP-U GPRS Tunnelling Protocol

IP Internet Protocol

NAS Non-Access Stratum

O&M Operation and Maintenance

PWS Public Warning System

QoS Quality of Service

RET Remote Electrical Tilting

RNL Radio Network Layer

RRC Radio Resource Control

SAP Service Access Point

SCTP Stream Control Transmission Protocol

SFN System Frame Number

SM Session Management

SMF Session Management Function

TDD Time Division Duplex

TDM Time Division Multiplexing

TMA Tower Mounted Amplifier

TNL Transport Network Layer

<<<<<<<<<<<<<<<<<<<< Unchanged Text Omitted >>>>>>>>>>>>>>>>>>>>

## 7.3 Cross-Link Interference Management

The Cross-Link Interference Management function in non-split gNB case is specified in [2].

In case of split gNB architecture, the gNB-CU forwards the TDD DL/UL patterns received from neighboring nodes to each concerned gNB-DU. The gNB-DU reports the TDD DL/UL patterns of its serving cells to the gNB-CU if Cross-Link Interference is detected.

## 7.X Positioning

The NG-RAN supports the positioning functionality as specified in TS 38.305 [xx].

<<<<<<<<<<<<<<<<<<<< Changes End >>>>>>>>>>>>>>>>>>>>