**3GPP TSG-SA5 Meeting #129e *S5-201335rev3***

**e-meeting, 24 February – 4 March 2020**

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| *CR-Form-v11.4* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **28.552** | **CR** | 0197 | **rev** | **1** | **Current version:** | **16.4.0** |  |
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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 |  | Radio Access Network | **x** | Core Network |  |

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| ***Title:*** | Add use case and definitions of RSRP measurements | | | | | | | | | |
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| ***Source to WG:*** | ZTE, China Mobile | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_SLICE\_ePA | | | | |  | ***Date:*** | | | 2020/2/10 |
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| ***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)* | |
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| ***Reason for change:*** | | NR supports the measurement of SS-RSRP (see TS 38.215 5.1.1), which is useful to monitor the quality of the coverage. The SS-RS resource can be related with beam, so the beam based measurement of SS-RSRP is necessary for the more accuracy and efficient network optimization.  This CR is line the agreed changes in S5-192379d3 CR. | | | | | | | | |
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| ***Summary of change:*** | | Definition of beam based RSRP distribution is added. | | | | | | | | |
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| ***Consequences if not approved:*** | | The DL signal strength measurement of RF signal and channel state information is not supported, and the corresponding network optimization approach is not supported. | | | | | | | | |
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| ***Clauses affected:*** | | 2, 3.4, 5.1.1.X (new), 5.1.1.X.1 (new), A.X (new) | | | | | | | | |
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|  | | **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 ... | | |
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| ***Other comments:*** | |  | | | | | | | | |

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| **1st modified section** |

# 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 32.401: "Telecommunication management; Performance Management (PM); Concept and requirements".

[3] 3GPP TS 32.404: "Performance Management (PM); Performance measurements - Definitions and template".

[4] 3GPP TS 23.501: "System Architecture for the 5G System".

[5] IETF RFC 5136: "Defining Network Capacity".

[6] 3GPP TS 38.473: "NG-RAN; F1 Application Protocol (F1AP)".

[7] 3GPP TS 23.502: "Procedures for the 5G System".

[8] 3GPP TS 28.554: "Management and orchestration; 5G end to end Key Performance Indicators (KPI)".

[9] 3GPP TS 32.425: "Performance Management (PM); Performance measurements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN)".

[10] 3GPP TS 32.451: "Key Performance Indicators (KPI) for Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Requirements".

[11] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[12] Void.

[13] 3GPP TS 38.423: "NG-RAN; Xn Application Protocol (XnAP)".[14] 3GPP TS 29.502: "5G System; Session Management Services; Stage 3".

[15] Void.

[16] 3GPP TS 29.244: "Technical Specification Group Core Network and Terminals; Interface between the Control Plane and the User Plane Nodes; Stage 3".

[17] ETSI GS NFV-IFA027 v2.4.1: "Network Functions Virtualisation (NFV); Management and Orchestration; Performance Measurements Specification".

[18] Void.

[19] 3GPP TS 38.214: "NR; Physical layer procedures for data".

[20] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".

[21] 3GPP TS 29.518: "5G System; Access and Mobility Management Services; Stage 3".

[22] 3GPP TS 29.413: "Application of the NG Application Protocol (NGAP) to non-3GPP access".

[23] 3GPP TS 29.122: "Technical Specification Group Core Network and Terminals; T8 reference point for Northbound APIs".

[24] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[25] ETSI ES 202 336-12 V1.2.1: "Environmental Engineering (EE); Monitoring and control interface for infrastructure equipment (power, cooling and building environment systems used in telecommunication networks); Part 12: ICT equipment power, energy and environmental parameters monitoring information model".

[26] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".

[27] 3GPP TS 29.274: "Evolved General Packet Radio Service (GPRS); Tunnelling Protocol for Control plane (GTPv2-C); Stage 3".

[28] 3GPP TS 29.510: "5G System; Network function repository services; Stage 3".

[x] 3GPP TS 38.214: "NR; Physical layer procedures for data".

[y] 3GPP TS 38.215: "NR; Physical layer measurements".

[z] 3GPP TS 38.133: "NR; Requirements for support of radio resource management".

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| **Next modified section** |

## 3.4 Measurement family

The measurement names defined in the present document are all beginning with a prefix containing the measurement family name. This family name identifies all measurements which relate to a given functionality and it may be used for measurement administration.

The list of families currently used in the present document is as follows:

- DRB (measurements related to Data Radio Bearer).

- RRC (measurements related to Radio Resource Control).

- UECNTX (measurements related to UE Context).

- RRU (measurements related to Radio Resource Utilization).

- RM (measurements related to Registration Management).

- SM (measurements related to Session Management).

- GTP (measurements related to GTP Management).

- IP (measurements related to IP Management).

- PA (measurements related to Policy Association).

- MM (measurements related to Mobility Management).

- VR (measurements related to Virtualized Resource).

- CARR (measurements related to Carrier).

- QF (measurements related to QoS Flow).

- AT (measurements related to Application Triggering).

- SMS (measurements related to Short Message Service).

- PEE (measurements related to Power, Energy and Environment).

- NFS (measurements related to NF sevice).

- PFD (measurements related to Packet Flow Description).

- L1M (measurements related to Layer 1 Measurement)

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| **Next modified section** |

#### 5.1.1.X RSRP Measurement

##### 5.1.1.X.1 SS-RSRP distribution per SSB

a) This measurement provides the distribution of SS-RSRP per SSB (see TS 38.215 [y]) received by gNB from UEs in the cell when SS-RSRP is used for L1-RSRP as configured by reporting configurations as defined in TS 38.214 [x], in case the L1-RSRP report function is enabled.

b) CC.

c) This measurement is obtained by incrementing the appropriate measurement bin using measured quantity value (See Table 10.1.6.1-1 in TS 38.133 [z]) when a RSRP value is reported by a UE when SS-RSRP is used for L1-RSRP as configured by reporting configurations as defined in TS 38.214 [x].

d) A set of integer.

e) L1M.SS-RSRP.BinX

where X represents the range of Measured quantity SS-RSRP value (-140 to -40 dBm)

NOTE: Number of bins and the range for each bin is left to implementation.

f) Beam

g) Valid for packet switched traffic

h) 5GS

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| **Next modified section** |

# A.x Monitoring of RF performance

Monitoring of the quality of RF signal in the cell is useful for the purpose of network planning and network optimization. Measurements of RSRP per beam reported by UEs is a useful metric reflecting RF signal strength. In 5G NR, gNB cells transmit many narrow beams targeting UEs in the cell that result in better link budget and lower interference. However, some areas between beams of neighbouring NR cells may experience poor coverage or coverage holes. Therefore, it is necessary to optimize the beam coverage by coordinating the beam management function across multiple neighboring NR cells.

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| **End of modifications** |