**3GPP TSG-CT WG1 Meeting #129-eC1-21xxxx**

**Electronic meeting, 19–23 April 2021 *was* C1-212076**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.193** | **CR** | **0029** | **rev** | **1** | **Current version:** | **17.0.1** |  |
|  | | | | | | | | |
| *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 |  | Core Network | **X** |

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| ***Title:*** | Introduction of performance measurement for a certain target QoS flow | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ATSSS\_Ph2 | | | | |  | ***Date:*** | | | 2021-04-19 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | PMFP is enhanced to support RTT and PLR (packet loss rate) measurement over a specific QoS flow. It has been specified in clause 5.32.5 of TS 23.501. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add "MAI" and "PLR" in the abbreviation list.  Provide general description on performance measurement for a certain target QoS flow. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | It is lack of introduction on performance measurement for a certain target QoS flow. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.2, 4.4, 5.4.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS 24.193 CR 0030 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* 1st Change \* \* \* \*

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5G-RG 5G Residential Gateway

ATSSS Access Traffic Steering, Switching, Splitting

ATSSS-LL ATSSS Low-Layer

MA PDU Multi-Access PDU

MAI Measurement Assistance Information

MPTCP Multi-Path TCP Protocol

PDU Protocol Data Unit

PLR Packet Loss Rate

PMF Performance Measurement Function

RTT Round Trip Time

SA PDU Single-Access PDU

SDF Service Data Flow

UPF User Plane Function

URSP UE Route Selection Policy

\* \* \* 2nd Change \* \* \* \*

## 4.4 Support of access performance measurements

The ATSSS capable UE can perform access performance measurements to decide how to distribute traffic over 3GPP access and non-3GPP access.

An ATSSS capable UE receives MAI from the network during the PDU session establishment procedure for an MA PDU session as described in clause 5.32.5 of 3GPP TS 23.501 [2]. The MAI can contain the addressing information of the PMF in the UPF, as well as the indicator on whether access availability/unavailability reports need to be sent to the network. The MAI can also indicate to the UE that the performance measurement is for the QoS flow(s) of the non-default QoS rule. The encoding of the MAI is specified in clause 6.1.5.

Editor's Note: It is FFS how the MAI indicates to the UE that the performance measurement is for the QoS flow(s) of the non-default QoS rule.

An ATSSS capable UE that supports the MPTCP steering functionality can use the measurements available at the MPTCP layer.

The following PMF protocol messages can be exchanged between the PMF in the UE and the PMF in the UPF:

a) messages for RTT measurements, only applicable for the ATSSS-LL steering functionality;

b) messages for reporting access availability/unavailability by the UE to the UPF; or

c) messages for PLR measurements, only applicable for the ATSSS-LL steering functionality.

An ATSSS capable UE does not apply the ATSSS rules to the PMF protocol messages.

The performance measurement function protocol procedures are specified with following procedures:

a) UE-initiated RTT measurement (see clause 5.4.3);

b) Network-initiated RTT measurement (see clause 5.4.4);

c) UE-initiated PLR measurement (see clause 5.4.x); and

d) Network-initiated PLR measurement (see clause 5.4.y).

The access availability/unavailability procedures are specified in clause 5.4.5.

\* \* \* 3rd Change \* \* \* \*

### 5.4.1 General

Performance measurement function protocol (PMFP) procedures are performed between a performance measurement function (PMF) in a UE and a PMF in the UPF.

The following UE-initiated PMFP procedures are specified:

a) UE-initiated RTT measurement procedure; and

b) access availability or unavailability report procedure; and

c) UE-initiated PLR measurement procedure.

The following UPF-initiated PMFP procedures are specified:

a) UPF-initiated RTT measurement procedure; and

b) UPF-initiated PLR measurement procedure.

The UE-initiated PMFP procedures and the UPF-initiated PMFP procedures can be performed in an MA PDU session only when the MAI is provided to the UE during establishment of the MA PDU session.

PMFP messages are transported in an IP packet or an Ethernet frame according to clause 5.3.2.

If the UE receives the MAI which indicates that the performance measurement is for the QoS flow(s) of the non-default QoS rule, the UE performs the RTT measurement procedure or the PLR measurement procedure over the QoS flow(s) of the non-default QoS rule as indicated in the received MAI. Otherwise, the UE performs the RTT measurement procedure or the PLR measurement procedure over the QoS flow of the default QoS rule.

Editor's Note: It is FFS how the MAI indicates to the UE that the performance measurement is for the QoS flow(s) of the non-default QoS rule.

If the UPF receives the indication from the SMF that the performance measurement is for QoS flow(s) of the non-default QoS rule, the UPF perfroms the RTT measurement procedure or the PLR measurement procedure over the QoS flow(s) of non-default QoS rule as indicated by the SMF. Otherwise, the UPF performs the RTT measurement procedure or the PLR measurement procedure over the QoS flow of the default QoS rule.

Editor's Note: It is FFS how the UE and the UPF negotiate the capability of performance measurement over the QoS flow of the non-default QoS rule. The corresponding indication from SMF to the UPF will be defined by CT4.

Editor's Note: It is FFS how the PMFP messages are transported over the QoS flow of the non-default QoS rule.

PMFP messages transported between the UE and the UPF (and vice versa) are protected using the security mechanisms protecting the user data packets transported over NG-RAN or non-3GPP access connected to the 5GCN and over the N3 and N9 reference points, specified in 3GPP TS 33.501 [14]. A PMFP-specific security mechanism is not specified.

NOTE: Even though transport of PMFP messages between the UE and the UPF is protected, a compromised UE can send false or incorrect PMFP messages.

PMFP is a standard L3 protocol according to 3GPP TS 24.007 [13], PMFP messages are standard L3 messages according to 3GPP TS 24.007 [13] and error behaviour specified for L3 protocol in according to 3GPP TS 24.007 [13] applies for PMFP.

The access availability or unavailability report procedure is performed over the QoS flow of the default QoS rule.

\* \* \* End of Changes \* \* \* \*