**3GPP TSG-CT WG1 Meeting #135-eC1-22xxxx-was2679**

**E-Meeting, 6th – 12th April 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.193**  | **CR** | **0090** | **rev** | **1** | **Current version:** | **17.4.1**  |  |
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| *For* [***HELP***](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:***  | PLR measurement procedure alignment |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | ATSSS\_Ph2 |  | ***Date:*** | 2022-03-30 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | From the statement of PLR measurement procedure, the restart of PLR measurement happens after PMFP PLR report request message, but the figure shows the restart of PLR measurement happens after the PMFP PLR report response message.And the UE/UPF handling for the request of restart PMFP PLR count is not accepted by the UPF/UE is unspecified. |
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| ***Summary of change:*** | 1). Align the figure of UE-initiated PLR measurement procedure with the text of UE-initiated PLR measurement procedure;2). Align the figure of network-initiated PLR measurement procedure with the text of network-initiated PLR measurement procedure;3). Clarify the UE/UPF handling if the restart of PMFP PLR count procedure is not accepted by the UPF/UE;4). Fix editorial errors in clauses 5.4.6.1 and 5.4.7.1. |
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| ***Consequences if not approved:*** | The figure of PLR measurement procedure and the text remains out of sync;The handling for the request of restart PMFP PLR count is not accepted by the UPF/UE remains unspecified. |
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| ***Clauses affected:*** | 5.4.6.1, 5.4.7.1 |
|  |  |
|  | **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:*** | Use C1-222996 (CR0085) as baseline. |

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\* \* \* First Change \* \* \* \*

#### 5.4.6.1 General

The purpose of the UE-initiated PLR measurement procedure is to enable the UE to measure the PLR of UL traffic to the UPF over an access of an MA PDU session.

The UE-initiated PLR measurement procedure can be performed over an access of an MA PDU session only when the UE has user-plane resources on the access of the MA PDU session. The UE-initiated PLR measurement procedure can be performed for the QoS flow of the default QoS rule or the QoS flow of the non-default QoS rule.

The UE-initiated PLR measurement procedure consists of following:

a) one UE-initiated PLR count procedure (see clause 5.4.6.2); and

b) one or more UE-initiated PLR report procedure (see clause 5.4.6.3).

If an indication to request restart of counting procedure is sent by the UE and accepted by the UPF, the UE-initiated PLR measurement procedure consists of more than one UE-initiated PLR report procedure. Otherwise, the UE-initiated PLR measurement procedure consists of one UE-initiated PLR report procedure.

The UE shall not initiate another PLR measurement procedure over the same QoS flow on the same access until current UE-initiated PLR measurement procedure is completed.

An example of UE-initiated PLR measurement procedure which consists of the two procedures is shown in figure 5.4.6.1-1.



Figure 5.4.6.1-1: UE-initiated PLR measurement procedure

1. The UE sends a PMFP PLR count request message to the UPF. If the UE-initiated PLR measurement is to measure the PLR of the SDF over a QoS flow of the non-default QoS rule, the PMFP PLR count request message is transported over the QoS flow of the non-default QoS rule. Otherwise, the PMFP PLR count request message is transported over the QoS flow of the default QoS rule.

NOTE  1: In the UE-initiated PLR measurement procedure, all the PMFP messages are transported over the same QoS flow on the same access.

2. Upon sending the PMFP PLR count request message, the UE starts counting the transmitted UL packets over the QoS flow.

3-4. Upon receiving the PMFP PLR count request message, the UPF starts counting the received UL packets over the QoS flow which the PMFP PLR count request message is received from and sends the PMFP PLR count response message to the UE.

5-7. The UE sends a PMFP PLR report request message to request the UPF to report the number of the counted UL packets and stops counting the transmitted UL packets over the QoS flow. If the UE intends to request the UPF to restart counting the UL packets, the UE can include an indication in the PMFP PLR report request message and restart counting the transmitted UL packets over the QoS flow.

8-10. Upon receiving the PMFP PLR report request message, the UPF stops counting the UL packets and sends PMFP PLR report response message which includes the number of the UL packets counted since the reception of the last PMFP PLR count request message. If an indication to request restart of counting procedure is received in the PMFP PLR report request message and accepted by the UPF, the UPF restarts counting the received UL packets.

11. The UE calculates the UL packet loss rate based on the local counting result of the number of transmitted UL packets and the reported number of received UL packets included in the PMFP PLR report response message. If the UE includes an indication in the PMFP PLR report request message, and if the UE receives PMFP PLR report response message with an indication of restart counting is not accepted or without an indication of restart counting, the UE shall abort the restart of PMFP PLR count procedure.

NOTE X: The steps 5 to 11 shall be repeated if the UE requests the restart of counting and the request is accepted by UPF.

\* \* \* Next Change \* \* \* \*

#### 5.4.7.1 General

The purpose of the network-initiated PLR measurement procedure is to enable the UPF to measure the PLR of DL traffic to the UE over an access of an MA PDU session.

The network-initiated PLR measurement procedure can be performed over an access of an MA PDU session only when there is user-plane resources on the access of the MA PDU session. The network-initiated PLR measurement procedure can be performed for the QoS flow of the default QoS rule or the QoS flow of the non-default QoS rule. In the latter case, the SMF shall provide the UE with the QoS rules including downlink only or bidirectional packet filter matching the SDF to be measured, unless reflective QoS is used for the SDF during the PDU session establishment procedure or PDU session modification procedure as specified in 3GPP TS 24.501 [6].

The network-initiated PLR measurement procedure consists of following:

a) one network-initiated PLR count procedure (see clause 5.4.7.2); and

b) one or more network-initiated PLR report procedure (see clause 5.4.7.3).

If an indication to request restart of counting procedure is sent by the UPF and accepted by the UE, the network-initiated PLR measurement procedure consists of more than one network-initiated PLR report procedure. Otherwise, the network-initiated PLR measurement procedure consists of one network-initiated PLR report procedure.

The network shall not initiate another PLR measurement procedure over the same QoS flow until current network-initiated PLR measurement procedure is completed.

An example of network-initiated PLR measurement procedure which consists of the two procedures is shown in figure 5.4.7.1-1.



Figure 5.4.7.1-1: Network-initiated PLR measurement procedure

1. The UPF sends a PMFP PLR count request message to the UE. If the network-initiated PLR measurement is to measure the PLR of the SDF over a QoS flow of the non-default QoS rule, the PMFP PLR count request message is transported over the QoS flow of the non-default QoS rule. Otherwise, the PMFP PLR count request message is transported over the QoS flow of the default QoS rule.

NOTE 1: In the network-initiated PLR measurement procedure, all the PMFP messages are transported over the same QoS flow on the same access of the MA PDU session.

2. Upon sending the PMFP PLR count request message, the UPF starts counting the transmitted DL packets over the QoS flow.

3-4. Upon receiving the PMFP PLR count request message, the UE starts counting the received DL packets over the QoS flow which the PMFP PLR count request message is received from and sends the PMFP PLR count response message to the UPF. In order to determine the QFI the counted DL packet is associated with, the UE:

- learns the QFI from the header of the received DL packet (e.g. in the SDAP header as specified in 3GPP TS 37.324 [15]); or

- maps the DL packet to the QFI by evaluating the QoS rules for downlink only or bidirectional packet filter(s) if no QFI is included in the header of the received DL packet.

5-7. The UPF sends a PMFP PLR report request message to request the UE to report the number of the counted DL packets. If the UPF intends to request the UE to restart counting the DL packets, the UPF can include an indication in the PMFP PLR report request message and restart counting the transmitted DL packets over the QoS flow.

8-10. Upon receiving the PMFP PLR report request message, the UE stops counting the DL packets and sends PMFP PLR report response message which includes the number of the DL packets counted since the reception of the last PMFP PLR count request message. If an indication to request restart of counting procedure is received in the PMFP PLR report request message and accepted by the UE, the UE restarts counting the received DL packets.

11. The UPF calculates the DL packet loss rate based on the local counting result of the number of transmitted DL packets and the reported number of received DL packets included in the PMFP PLR report response message. If the UPF includes an indication in the PMFP PLR report request message, and if the UPF receives PMFP PLR report response message with an indication of restart counting is not accepted or without an indication of restart counting, the UPF shall abort the restart of PMFP PLR count procedure.

NOTE X: The steps 5 to 11 shall be repeated if the UPF requests the restart of counting and the request is accepted by UE.

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