**3GPP TSG-CT WG1 Meeting #134-eC1-22XXXX**

**E-Meeting, 17th – 25th February 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.193** | **CR** | **0085** | **rev** | **1** | **Current version:** | **17.3.0** |  |
|  |
| *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)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Completion of PLR measurement procedure |
|  |  |
| ***Source to WG:*** | MediaTek Inc. |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | ATSSS\_Ph2 |  | ***Date:*** | 2022-02-21 |
|  |  |  |  |  |
| ***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:*** | One measurement procedure can contain multiple report procedure, but the figures in 5.4.6.1 / 5.4.7.1 do not reflect this. |
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| ***Summary of change:*** | Update figures in 5.4.6.1 / 5.4.7.1 to show “one measurement procedure can contain multiple report procedure” |
|  |  |
| ***Consequences if not approved:*** | Unclear whether “one measurement procedure can contain multiple report procedure” |
|  |  |
| ***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:*** |  |

**\*\*\*\*\*\*\***

\* \* \* 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 meaure 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: 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.

5-6. 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.

7-8. 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.

9. 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.

10. 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.

11. If UPF indicates to accept the restart of counting in the PMFP PLR report response message, the UE restarts counting the transmitted UL packets.

12. Same as step 5, if the UE restarts counting the transmitted UL packets as specified in step 11.

13. Same as step 6, if the UE restarts counting the transmitted UL packets as specified in step 11.

14. Same as step 7, if the UPF restarts counting the received UL packets as specified in step 9.

15. Same as step 8, if the UPF restarts counting the received UL packets as specified in step 9.

16. Same as step 10, if the UE restarts counting the transmitted UL packets as specified in step 11.

NOTE X: When the UE requests and the UPF accepts the restart of counting, there are multiple occurrences of step 9 and 11-16.

\* \* \* 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 UPF 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 meaure 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: 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.

5-6. 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.

7-8. 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.

9. 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.

10. 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.

11. If UE indicates to accept the restart of counting in the PMFP PLR report response message, the UPF restarts counting the transmitted DL packets.

12. Same as step 5, if the UPF restarts counting the transmitted DL packets as specified in step 11.

13. Same as step 6, if the UPF restarts counting the transmitted DL packets as specified in step 11.

14. Same as step 7, if the UE restarts counting the received DL packets as specified in step 9.

15. Same as step 8, if the UE restarts counting the received DL packets as specified in step 9.

16. Same as step 10, if the UPF restarts counting the transmitted DL packets as specified in step 11.

NOTE X: When the UPF requests and the UE accepts the restart of counting, there are multiple occurrences of step 9 and 11-16.

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