**3GPP TSG- Meeting # *S5-247191***

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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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 |  | Core Network | **X** |

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| ***Title:***  |  |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | The ATSSS feature enables a multi-access PDU Connectivity Service, which is realized by establishing a MA PDU Session. Therefore, it is useful to monitor the performance of MA PDU session establishment. |
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| ***Summary of change:*** | Add measurement for mean time amd max time of MA PDU session establishment. |
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| ***Consequences if not approved:*** | Unable to monitor the performance of MA PDU session establishment mean time and max time. |
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| ***Clauses affected:*** | 5.3.1.13.x(new), 5.3.1.13.y(new), A.107 |
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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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| ***This CR's revision history:*** | Revison of S5-246553. |

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| **1st change** |

#### 5.3.1.13 MA PDU session management

##### 5.3.1.13.x Mean time of MA PDU session establishment

a) This measurement provides the mean time of MA PDU session establishment during each granularity period. The measurement is optionally split into subcounters per S-NSSAI.

b) DER(n=1)

c) This measurement is obtained by measuring the time interval for every successful MA PDU session establishment procedure per S-NSSAI between the receipt by SMF from AMF of " Nsmf\_PDUSession\_UpdateSMContext Request ", which includes N2 SM information received from (R)AN to the SMF and the sending of a " Nsmf\_PDUSession\_CreateSMContext Request or Nsmf\_PDUSession\_UpdateSMContext Request " message including "MA PDU Request" indication from AMF to the SMF over a granularity period using DER. The end value of this time will then be divided by the number of successful MA PDU session establishment observed in the granularity period to give the arithmetic mean, the accumulator shall be reinitialised at the beginning of each granularity period.

d) Each measurement is an integer value.(in milliseconds)

e) SM.MAPduSessionTimeMean; or optionally SM.MAPduSessionTimeMean.*SNSSAI*

f) SMFFunction

g) Valid for packet switched traffic

h) 5GS

i) One usage of this measurement is for monitoring the mean time of registration procedure during the granularity period.

##### 5.3.1.13.y Max time of MA PDU session establishment

a) This measurement provides the max time of MA PDU session establishment during each granularity period. The measurement is optionally split into subcounters per S-NSSAI.

b) DER(n=1)

c) This measurement is obtained by measuring the time interval for every successful MA PDU session establishment procedure per S-NSSAI between the receipt by SMF from AMF of " Nsmf\_PDUSession\_UpdateSMContext Request", which includes N2 SM information received from (R)AN to the SMF and the sending of a " Nsmf\_PDUSession\_CreateSMContext Request or Nsmf\_PDUSession\_UpdateSMContext Request " message including "MA PDU Request" indication from AMF to the SMF over a granularity period using DER. The high tide mark of this time will be stored in a gauge, the gauge shall be reinitialised at the beginning of each granularity period.

d) Each measurement is an integer value.(in milliseconds)

e) SM.MAPduSessionTimeMax; or optionally SM.MAPduSessionTimeMax.*SNSSAI*

f) SMFFunction

g) Valid for packet switched traffic

h) 5GS

i) One usage of this measurement is for monitoring the max time of registration procedure during the granularity period.

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| **2nd change** |

# A.107 Use case of monitoring of MA PDU session management for ATSSS

The ATSSS feature enables a multi-access PDU Connectivity Service, which can exchange PDUs between the UE and a data network by simultaneously using one 3GPP access network and one non-3GPP access network. The multi-access PDU Connectivity Service is realized by a Multi-Access PDU (MA PDU) Session.

When establishing an MA PDU session, the AMF informs the SMF that the request is for a MA PDU Session. The number and success rate of MA PDU session creations, mean/max time of MA PDU session establishment and the number of MA PDU sessions running on the SMF are some of the basic performance measurements for monitoring the performance of MA PDU session establishment and reflecting the effect of ATSSS. And the failed MA PDU session creations measured per cause are helpful to pinpoint and solve the network issues in case the performance is below the expectation.

When an ATSSS-capable UE requests to establish a single-access PDU Session, but no policy in the UE and no local restrictions mandate a single access, the 5GC network may decide to modify it to a Multi-Access PDU (MA PDU) Session. This decision may be taken when e.g. the SMF wants to offload some traffic of the requested PDU Session to non-3GPP access or when the SMF wants to apply MPTCP and/or MPQUIC to provide bandwidth aggregation for the requested PDU Session (see TS 23.502 [7]). Whether a requested PDU Session can be successful converted to a MA PDU Session by the network may help the analysis and update of ATSSS policy. Therefore the performance of UE requested PDU session establishment with network modification to MA PDU session procedures need to be monitored.

The MA PDU session release procedure is used to release the MA PDU Session, or release the MA PDU Session over a single access. The MA PDU Session Release over a single access may be triggered by the network due to e.g. when the UE is deregistered over an access or when the S-NSSAI of the MA PDU Session is no longer in the Allowed NSSAI over an access. Monitoring the access type over which the MA PDU session is requested to be released can help operators to optimize the traffic distribution across various accesses.

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| **End of changes** |