**3GPP TSG-SA5 Meeting #145-e *S5-225110***

e-meeting, 15 - 24 Aug 2022

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.550** | **CR** | **0074** | **rev** | **-** | **Current version:** | **17.1.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **X** | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Rel-18 CR 28.550 GPB schema introduction for PM streaming | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Mavenir, Intel, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | PM\_KPI\_5G\_Ph3 | | | | |  | ***Date:*** | | | 2022-08-04 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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:*** | | GPB schema doesn’t exist for PM streaming | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduction of GPB schema for PM streaming | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No GPB schema for PM streaming | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | Annex G, Annex X (New) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

***Start of first change***

Annex G (normative):   
ASN.1 definition for performance data stream units

## G.1 ASN.1 definition rule

For performance data streaming, the type of WebSocket Data frame shall be binary (with opcode of 0x2).

This subclause specifies the abstract syntax notation one (ASN.1) definition for the Performance Data Stream Units (see Annex C) as Payload data of WebSocket Data frame.

The Performance Data Stream Units are described using ASN.1 as specified in ITU-T Rec. X.680 [15] and X.681 [16]. Transfer syntax for Performance Data Stream Units is derived from their ASN.1 definitions by use of Packed Encoding Rules (PER), aligned as specified in ITU-T Rec. X.691 [17].

The following encoding rules apply in addition to what has been specified in ITU-T Rec. X.691 [17]:

- When a bit string value is placed in a bit-field as specified in clause 15.6 to 15.11 in ITU-T Rec X.691 [c], the leading bit of the bit string value shall be placed in the leading bit of the bit-field, and the trailing bit of the bit string value shall be placed in the trailing bit of the bit-field;

- When decoding a BIT STRING or OCTET STRING constrained with a Contents Constraint, PER decoders are required to never report an error if there are extraneous zero or non-zero bits at the end of the BIT STRING or OCTET STRING.

NOTE: The terms 'leading bit' and 'trailing bit' are defined in ITU-T Rec. X.680 [15]. When using the 'bstring' notation, the leading bit of the bit string value is on the left, and the trailing bit of the bit string value is on the right.

## G.2 ASN.1 definition

-- ASN1START

PerformanceDataStreamUnits-Schema DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- PDSUs-START

PDSUs ::= SEQUENCE OF PDSU

PDSU ::= SEQUENCE {

streamId INTEGER,

granularityPeriodEndTime DATE-TIME,

standardizedMeasResults SEQUENCE OF MeasValue,

vendorSpecificMeasResults SEQUENCE OF MeasValue OPTIONAL -- may be omitted

}

MeasValue ::= CHOICE {

integerValue INTEGER,

realValue REAL,

stringValue VisibleString,

subCounters SubCounterListType,

... -- allow extension in futher version

}

-- uses recursion for the value to support multi-dimensional measurements

SubCounterListType ::= SEQUENCE {

subCounterIndex SubCounterIndexType,

subCounterValue MeasValue OPTIONAL -- "empty" bins are allowed

}

SubCounterIndexType ::= CHOICE {

sum VisibleString ("SUM"),

binIndex INTEGER,

qOS-5QI INTEGER,

qOS-QCI INTEGER,

cause INTEGER,

stringIndex VisibleString,

plMN OCTET STRING (SIZE(3)), -- definition from TS 38.413

sNSSAI SEQUENCE { -- definition from TS 38.413

sst OCTET STRING (SIZE(1)),

sd OCTET STRING (SIZE(3))

},

... -- allow extension in futher version

}

-- PDSUs-STOP

END

-- ASN1STOP

***Start of 2nd change***

Annex X (normative):   
GPB schema for performance data stream units

## X.1 Performance Data Stream Units (GPB) schema

Normative GPB schema for Performance Data Stream Units (see Annex C).

syntax = "proto3";

import "google/protobuf/timestamp.proto";

message PDSUs {

message PDSUType {

message SubCounterIndexType {

oneof type {

string sum = 1;

int32 bin\_index = 2;

int32 qOS\_5QI = 3;

int32 qOS\_QCI = 4;

int32 cause = 5;

string string\_index = 6;

bytes plmn = 7;

SNSSAI snssai = 8;

}

message SNSSAI {

bytes sst = 1;

bytes sd = 2;

}

}

message MeasValue {

oneof meas\_value\_type {

int64 integer\_value = 1;

double real\_value = 2;

string string\_value = 3;

SubCounterListType sub\_counters = 4;

}

}

// uses recursion for the value to support multi-dimensional measurements

message SubCounterListType {

SubCounterIndexType sub\_counter\_index = 1;

optional MeasValue sub\_counter\_value = 2;

}

int64 stream\_id = 1;

google.protobuf.Timestamp granularity\_period\_end\_time = 2;

repeated MeasValue standardized\_meas\_results = 3;

repeated MeasValue vendor\_specific\_meas\_results = 4; // may be omitted

}

repeated PDSUType pdsu = 1;

}

***End of changes***