**3GPP TSG-SA4 Meeting #0-e (AH) RTC SWG post 130 *S4aR250027***

**Online, , 26th Nov 2024 - 5th Feb 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.522** | **CR** | **0009** | **rev** | **-** | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *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 | **x** | Radio Access Network |  | Core Network | **x** |

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| ***Title:*** | Guideline for PDU Handling marked and unmarked PDU | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_RTP\_Ph2 | | | | |  | ***Date:*** | | | 2025-01-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | TR 26.822 conclusions 7.2 state Consider guidelines for handling lone PDU in TS 26.522 [2]. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add a guideline on how to deal with lone PDU (i.e. marked and unmarked PDUs) in a network element such as UPF. | | | | | | | | |
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| ***Consequences if not approved:*** | | Goals for study item not complete, confusion on the “lone PDU” case | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A (new sub clause) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

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| \*\*\* CHANGE (new clause all new text)\*\*\* |

# A.X Obtaining PDU Set information from Marked and Unmarked (lone) PDU’s

Aguideline is provided to support this case both marked and unmarked packets exist in a stream to which RTP Header Extension for PDU Set marking is applied. Packets from some streams contain an RTP Header Extension while some packets do not contain an RTP Header extension. An example could be a stream of multiplexed audio and video packets with only video packets marked. In this case the video stream RTP packets include RTP Header Extension for PDU Set marking for each RTP Packet but on the other hand the audio stream RTP Packets do not contain the RTP Header Extension. Another example could be RTCP packets multiplexed in a stream, these packets do not contain RTP HE signalling PDU Set inforamtino.

In this case the network element in the 5G System (e.g. UPF) needs to map both marked and unmarked packets to PDU Sets including the PDU Set information, as PDU Set QoS, when enabled is applied to all packets in a flow. An example guideline for determining PDU Set information at the UPF from either RTP HE or unmarked PDU is given in Table A.X-1.

The middle column indicates how the UPF can derive PDU Set information for packets that include RTP HE for PDU Set information. The right most column indicates how UPF can derive PDU Set information for unmarked packets (lone PDUs). The left column lists the PDU Set information parameter.

Table 6.20.2.2-1: Determining PDU Set information at UPF from RTP HE and unmarked PDU

|  |  |  |
| --- | --- | --- |
| PDU Set information | RTP HE | Lone/unmarked PDU |
| PDU Set importance | Set by interpreting PSI field RTP HE | Set by 5G System to a configured value based on the payload/packet type (RTP Payload or RTCP packet type) |
| PDU Set Size | Optionally transmitted in additional PSSize field and derived from this field, otherwise this needs to be calculated. | PDU Size |
| End of Data Burst | Can be set by EoDB flag | N/A for lone PDU |
| PDU Sequence number (within a pdu set) | From PDU sequence number in RTP HE | Set to 0 |
| PDU Set Sequence number | Separate number space, e.g. PSSN field from RTP HE with most significant bit is set to 0 (another partition is also possible) | Separate number space e.g. ,set by UPF with most significant bit set to 1 (another partition is also possible) |
| end of PDU set | End of the PDU Set in RTP HE | Always 1 |

PDU Set importance can be set based on a configured value in the 5G system for unmarked and from the RTP HE for marked PDU’s.

The PDU Set size can be derived from the RTP HE if set, otherwise it needs to be calculated, for unmarked packets it equals the PDU Size.

The PDU Sequence number could be retrieved from the PSN in RTP HE, or when no RTP HE is present (lone PDU) it can be set to 0 as only a single PDU is present in the PDU Set.

Deriving the PDU Set Sequence Number includes some additional steps to enable using a different number space for marked and unmarked PDU’s. As an example, the UPF can only use the 9 least significant bits of the RTP HE to number marked PDU;s from RTP. In addition, for unmarked PDU’s it can use it own numbering of PSSN PDU Set Information information and set the most significant bit of PSSN in PDU Set information to 1.

End of data burst and end of PDU set should not be set for unmarked PDU’s.

NOTE 1: The RTP HE PSSN cannot map directly to PSSN for PDU Set information when lone PDU's are present as the UPF needs to assign numbers to both.

NOTE 2: This is solution is to show a possible mapping of PSSN from RTP HE and non RTP HE packets can be done at UPF to enable implementability at UPF. Other solutions can be equally valid and applicable by the UPF.