**3GPP TSG-SA2 Meeting #154 AHS2-2300241r14**

**E-meeting, Jan 20 - 24, 2023 (was S2-2210295)**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **23.501** | **CR** | **3759** | **rev** | **01** | **Current version:** | **18.0.0** |  |
|  |
| *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 | **X** | Core Network | **X** |

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|  |
| ***Title:***  | Support of XR and Media Services |
|  |  |
| ***Source to WG:*** | Tencent,Tencent Cloud, China Mobile, OPPO, Nokia, Nokia Shanghai Bell, CATT, Samsung, China Telecom, InteDigital Inc, Google Inc., Huawei, vivo, Xiaomi |
| ***Source to TSG:*** | SA2 |
|  |  |
| ***Work item code:*** | XRM |  | ***Date:*** | 2023-1-5 |
|  |  |  |  |  |
| ***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 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)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | Per TR 23.700-60 clause 8, study item for FS\_XRM has been completed and XRM WID has been approved in SA2#154 and SA#98. Support of XR and Media services need to be reflected in TS 23.501. |
|  |  |
| ***Summary of change:*** | Add general descriptions about support of XR and interactive media services in TS 23.501, also some definitions, abbrevations and related reference |
|  |  |
| ***Consequences if not approved:*** | Support of XR and interactive media services is not captured in TS 23.501 |
|  |  |
| ***Clauses affected:*** | 2, 3.1, 3.2, 5.37, 5.37.1(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 Changes \* \* \*

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## 3.1 Definitions

**Configured NSSAI:** NSSAI provisioned in the UE applicable to one or more PLMNs.

**CHF Group ID:** This refers to one or more CHF instances managing a specific set of SUPIs.

**Credentials Holder:** Entity which authenticates and authorizes access to an SNPN separate from the Credentials Holder.

**Data Burst:** A set of multiple PDUs generated and sent by the application in a short period of time.

NOTE X: A Data Burst can be composed by one or multiple PDU Sets.

**Default UE credentials:** Information configured in the UE to make the UE uniquely identifiable and verifiably secure to perform UE onboarding.

**PDU Connectivity Service:** A service that provides exchange of PDUs between a UE and a Data Network.

**PDU Session:** Association between the UE and a Data Network that provides a PDU connectivity service.

**PDU Session Type:** The type of PDU Session which can be IPv4, IPv6, IPv4v6, Ethernet or Unstructured.

**Periodic Registration Update:** UE re-registration at expiry of periodic registration timer as specified in clause 5.3.2.

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

## 3.2 Abbreviations

PPD Paging Policy Differentiation

PPF Paging Proceed Flag

PPI Paging Policy Indicator

PSA PDU Session Anchor

PSDB PDU Set Delay Budget

PSER PDU Set Error Rate

PSIHI PDU Set Integrated Handing Indication

PTP Precision Time Protocol

PVS Provisioning Server

QFI QoS Flow Identifier

QoE Quality of Experience

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

## 5.37 Support for high data rate low latency services extended reality (XR) and interactive media Services

### 5.37.1 General

This clause provides an overview of 5GS optimizations and functionalities for support of interactive media services that require high data rate and low latency communication, e.g. cloud gaming, AR/VR/XR services and tactile/multi-modal communication services according to service requirements documented in TS 22.261 [2]. The standardized 5QI characteristics for such interactive services are provided in Table 5.7.4-1 and TSCAI can be used to describe the related traffic characteristics as defined in clause 5.27.2. 5GS may further support enhancements for these XR services as described in the following aspects.

* According to traffic characteristics and requirements which may be acquired from the AF, the 5GS may provide QoS policy control for single and multiple UEs for multi-modal traffic as elaborated in clause 5.37.A.
* The 5GS may support network information exposure between the 5GS and the AF/AS for XR and interactive media services. Network congestion information exposure can be based on ECN markings for L4S or 5GS exposure API. ECN-based marking can be performed by NG-RAN or the PSA UPF as elaborated in clause 5.37.B. API-based information exposure to the AF is also supported to optimize XR and interactive media service experiences as elaborated in clause 5.37.C.
* PDU Set based QoS handling may be applied for XR and interactive media services. In order to support PDU Set based QoS handling, PDU Set identification and marking are also carried out for integrated and differentiated packet handling as elaborated in clause 5.37.D.
* The 5GS may support split round trip latency to UL PDB and DL PDB by considering round trip latency requirement provided by the AF and it may also consider QoS monitoring results to update the UL PDB and DL PDB as elaborated in 5.37.E.
* Jitter requirements relative to packet delay may be provided by AF to the 5GS so that the 5GS can perform per-flow jitter monitoring and policy control as elaborated in 5.37.F.
* The 5GC may provide traffic assistance information, e.g. periodicity, jitter range associated with periodicity and an indication of End of Data Burst, to the NG-RAN to enable power saving as elaborated in 5.37.G.
* Based on media codec information from the AF, 5GS may generate or update PCC rules.

Editor’s Note: The above bullets need to be updated according to the progress of each KI.

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