**3GPP TSG- SA2 Meeting #154-AH-e *S2-2300508r19***

**Janurary 16 – 20, 2023, Elbonia (revision of S2-2xxxxxx)**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **23.501** | **CR** | **3923** | **rev** | **-** | **Current version:** | **18.0.0** |  |
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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 | **X** | Core Network | **X** |

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| ***Title:***  | Network exposure support for XR services |
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| ***Source to WG:*** | Tencent, Tencent Cloud, Xiaomi, MediaTek, vivo, CATT, Ericsson? , Samsung?, Lenovo?, Huawei, China Mobile, OPPO?, Meta USA, ZTE |
| ***Source to TSG:*** | SA2 |
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| ***Work item code:*** | XRM |  | ***Date:*** | 2022-12-29 |
|  |  |  |  |  |
| ***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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | According to the conclusions of KI#3 in TR23.700-60, certain network information could be exposed to the XR applications via API. These kind of exposure information and capabilities need to be added in the related clauses. |
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| ***Summary of change:*** | In new clause 5.37.X, the general descriptions of API based network exposure support for XR/Media service is added. |
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| ***Consequences if not approved:*** | The network exposure solutions of XRM is incomplete. |
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| ***Clauses affected:*** | 5.37.X(new) |
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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:*** | This CR has a dependency to 4056 to TS 23.501 |

\* \* \* \* First change (all text new) \* \* \* \*

#### 5.37.X. Network Exposure of 5GS information

5GS and XR/media services cooperate to provide a better user experience using External Network Exposure.

Based on the AF request, the 5GS can report QoS Monitoring per QoS Flow information based on the QoS Monitoring as defined in clause 5.33.3 and/or clause 5.X:

* For the congestion information, based on the PCC rule from PCF, the SMF requests the NG-RAN to report via GTP-U header to UPF and to PSA UPF to expose the information described in 5.37.Y.3 (this NG-RAN information can be provided to support ECN marking for L4S in PSA UPF as described in 5.37.Y.3) via Nupf\_EventExposure service or via SMF/PCF/NEF as described in 5.8.2.X.
* For QoS Notification Control for GBR QoS Flow as defined in clause 5.7.2.4, upon SMF request, the NG-RAN may additionally support indicating that "GFBR can no longer (or can again) be guaranteed" via GTP-U to UPF and the PSA UPF exposes this information via Nupf\_EventExposure or via SMF/PCF/NEF as described in 5.8.2.X.

- Data rate information may be measured and exposed to the AF based on SMF request as one of the following:

- measured and reported by PSA UPF via Nupf\_EventExposure service or via SMF/PCF/NEF as described in 5.8.2.X.

- provided by RAN and reported or via SMF/PCF/NEF .

*Editor’s Note: It is for RAN3 to confirm whether providing QoS Notification Control for GBR QoS Flow and data rate information can be included in Release’18.*

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* Round trip delay for multiple QoS Flows of the XR service (e.g. the UL and DL are separated into two flows) is based on the information by the PSA UPF based on the QoS Monitoring for round trip delay measurement of individual QoS Flow as described in clause 5.33.3.

*Editor’s Note: How the PCF correlates the QoS Montoring measurements to provide this information is FFS.*

* PSA UPF exposes the information via Nupf\_EventExposure service or via SMF/NEF/PCF as described in 5.8.2.X..

*Editor’s Note: It is FFS whether all QoS monitoring requests can be addressed with the limitation of one QoS Monitoring control information per PCC*

The AF may provide the Alternative QoS parameter set requirements and Averaging Window to the NEF/PCF for the GBR QoS Flow as specified in clause 4.15.6.6 of TS 23.502 [3].

Estimated bandwidth for 5QI may be exposed by NWDAF (according to information described in clause 6.9.2 in TS 23.288 [59]) to AF.

\* \* \* \* End of changes \* \* \* \*