**3GPP TSG-SA5 Meeting #162 *S5-253314rev2***

**Goteborg, Sweden, 25 - 29 August 2025**

**Source: China Telecom**

**Title: New WID on Charging Aspects on XRM**

**Document for: Approval**

**Agenda Item: 7.2**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: New WID on Charging Aspects for XRM phase 2

Acronym: XRM\_PH2\_CH

Unique identifier: TBD

Potential target Release: Rel-20

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  |  | X |  |
| No | X | X | X |  | X |
| Don't know |  |  |  |  |  |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Study  |
|  | Normative – Stage 1 |
| X | Normative – Stage 2 |
| X | Normative – Stage 3 |
|  | Normative – Other\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 1080016 | [OAM support for Extended Reality and Media service (XRM) phase 2](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=1080016) | Management aspects of XRM |
| 1040032 | Extended Reality and Media service (XRM) Phase 2 | Architecture and feature enhancement of XRM |
| 1060027 | [CT3 aspects of Extended Reality and Media service (XRM) Phase 2](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=1060036) | Stage 3 of XRM features |

**Dependency on non-3GPP (draft) specification:**

Non-3GPP spec dependency

# 3 Justification

3GPP SA2 work items have already defined architectural requirements and core functionalities to enable advanced XR (Extended Reality) capabilities. These enhancements are documented in the normative specifications TS 23.501, TS 23.502, and TS 23.503, with related wireline aspects in TS 23.316.

The following XR enhancements are identified as having potential impact on charging:

**Multiple-Modal Traffic:**

Handling multiple related data flows within a multi-modal service that require strong application-level coordination.

**Multiplexed Data:**

Handling a multiplexed data stream contains different media flows, each with its own distinct QoS requirements. carried over a single transport layer connection.

**PDU Set:**

Introducing differentiated handling and QoS management for PDU Sets by identifying and marking packets based on protocol descriptors, allowing UPF and 5G access networks to apply differentiated treatment.

**QoS handling:**

* Supports expedited data transfer using reflective QoS, allowing an application to dynamically mark latency-sensitive packets within an SDF for prioritized transfer.
* Enhancements on QoS monitoring enable the observation and exposure of critical network information such as congestion, data rate and available bitrates for GBR QoS flows, to applications. This allows the applications to adapt their behaviors based on real-time network conditions and supports the SMF in making informed ECN marking decision.
* Enhancements specifically for power saving during XR sessions by providing NG-RAN with traffic characteristics (e.g., end of data burst, UL/DL periodicity) and associated N6 jitter measurements, enabling optimized UE power management.

To support these enhancements, corresponding work are required in charging aspects. Charging systems require more granular charging information to reflect the differentiated value of these new capabilities, such as multiplexed data streams, PDU sets, and dynamic traffic characteristics. Additionally, different services data flows within the same multiple-modal service should be associated for charging purpose. It is also important to evaluate the inclusion of new QoS monitoring parameters for reporting to charging system.

# 4 Objective

The objective of this work is to specify the charging message information enhancements required to support XRM sessions:

WT-1: Enhancements to support charging of Multiple-Modal Traffic.

* Association of service data flows that together constitute a specific Multiple-Modal Traffic for charging purpose.

WT-2: Enhancements to support charging of Multiplexed Data Streams.

* Potential differentiated charging of different media streams that are multiplexed into and carried over the same service data flow.

WT-3: Enhancements to support charging of PDU Set related features.

* QoS requirements per PDU sets of PDU Set handling for charging purpose.

WT-4: QoS handling

* Provides the charging system with QoS metrics for latency-sensitive packets that are dynamically marked by applications for expedited transfer using reflective QoS.
* Reporting to the charging systems of QoS monitoring information on network conditions, where such monitoring assists applications in adapting to real-time conditions and supports the SMF in making informed ECN marking decision.
* Reporting to the charging systems of QoS monitoring information related with UE power management optimization.

## TU estimates and dependencies

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Work Task ID | TU Estimate(Study) | TU Estimate(Normative) | RAN Dependency(Yes/No/Maybe)  | SA Dependency(Yes/No/Maybe) | Non-3GPP Dependency(Yes/No/Maybe) |
| WT-1 | 0 | 1 | No | No | No |
| WT-2 | 0 | 1 | No | No | No |
| WT-3 | 0 | 1 | No | No | No |
| WT-4 | 0 | 2 | No | No | No |

**Total TU estimates for the study phase: 0**

**Total TU estimates for the normative phase: 5**

**Total TU estimates: 5**

# 5 Expected Output and Time scale

***{If this WID covers both stage 2 and stage 3, clearly indicate the different completion dates.}***

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
| N/A |  |  |  |  |  |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| TS 32.255 | Enhancements to support charging of Multiple-Modal Traffic, Multiplexed Data Streams, PDU set and QoS handling related features for XRM sessions | TSGSA#115(Mar,2027) |  |
| TS 32.291 | Corresponding Stage 3 of Charging enhancementsin Open API | TSG SA#116(June, 2027) |  |
| TS 32.298 | Corresponding Stage 3 of Charging enhancements in the CHF CDR and ASN.1 | TSG SA#116(June, 2027) |  |

# 6 Work item Rapporteur(s)

# 7 Work item leadership

SA WG5

# 8 Aspects that involve other WGs

SA WG2

CT WG3

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| China Telecom |
| CATT |
| CSCN |
| ZTE |
| MATRIXX Software |
| Nokia? |