3GPP TSG CT WG3 Meeting #137 C3-245084

Hefei, CN; 14 – 18 October 2024 (revision of xx-yyxxxx)

**3GPP TSG-CT WG1 Meeting #151C1-245457**

Hefei, CN; 14 – 18 October 2024 (revision of xx-yyxxxx)

**Source: China Mobile**

**Title: New WID on CT aspects of Application enablement for XRM Services Phase 2**

**Document for: Approval**

**Agenda Item: 19.2**

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 CT aspects of Application enablement for XRM Services Phase 2

Acronym: XRM\_Ph2\_App

Unique identifier: to be assigned

Potential target Release: Rel-19

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | X |  | X |  |
| No | 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 |
|  | Normative – Stage 2 |
| X | Normative – Stage 3 |
|  | Normative – Other\* |

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

## 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| XRM\_Ph2\_App | SA6 | 1040074 | Application enablement for XRM Services Phase 2 |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 810006 | Study on eXtended Reality (XR) in 5G | SA4’s work related to XR and media services |
| 930020 | Stage 1 of TACMM | SA1’s work about requirement for tactile and multi-modal communication service |
| 940068 | Study on architecture enhancement for XR and media services | SA2’s work about architecture enhancement for XR and media services |
| 950013 | Study on Smartly Tethering AR Glasses | SA4’s work related to Smartly Tethering AR Glasses |
| 950015 | Media Capabilities for Augmented Reality | SA4’s work about Media Capabilities for Augmented Reality |
| 980016 | (Stage 2 for XRM) Architecture Enhancements for XR (Extended Reality) and media service | SA2 Work Item on XRM Phase 1 in Rel-18 |
| 990006 | Architecture Enhancements for XR and media services | CT Work Item on XRM Phase 1 in Rel-18 |
| 1010032 | Study on Extended Reality and Media service (XRM) Phase 2 | SA2 Study Item on XRM Phase 2 in Rel-19. |
| 1020051 | Study on Application enabler for XR Services | SA6 Study Item on Application enabler for XR Services in Rel-19. |
| 1030007 | Study of 5G Real-time Transport Protocol Configurations, Phase 2 | SA4 Study Item on RTP transport of XR metadata and enhancements of RTP header extensions for PDU set marking |

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

N/A.

# 3 Justification

SA6 studied enhancements for the support of Application enabler for XR Services studies application enabling layer architecture requirements, key issues, and solution recommendations to support XR services. Aspects that were considered during the study include end to end Multi-Modal Communication flows, KPI optimization, measurement and exposure, Coordination between direct UE connection and network-based connection, application enablement layer capabilities usage, support the tethered UE, PDU set handling, etc.

The "Study on Application enabler for XR Services" has agreed conclusions for most of the key issues in 3GPP TR 23.700-23. In addition, TSG-SA has approved a normative stage 2 work item (in SP-241007) on "Application enablement for XRM Services Phase 2" in TSG SA Meeting #104 (June 2024) to capture the required stage 2 requirements and work.

A new CT work item is required to specify the stage 3 protocol enhancements to implement the stage 2 requirements on Application enablement for XRM Services Phase 2.

# 4 Objective

The objective of this work is to specify the CT aspects of Application enablement for XRM Services Phase 2 in CT WGs specifications based on the stage 2 normative work. The expected work per TSG CT working group includes:

For CT1:

1) Support of KPI optimization, measurement and exposure, e.g., multi-modal flows end-to-end delay difference, etc.

- Enhancement for support of SEALDD transmission quality measurement.

2) Enhancement to support E2E Multi-Modal Communication Flows. (e.g. Monitor, align and manage them)

- Potential update on supporting of manage the multi-flow synchronization.

3) Support of Application enablement layer capabilities usage to supporting the XR services.

- Enhancement of the QoS measurement of the SEALDD management for XR traffic;

4) Support the multi-modal service over tethered UE(s). Update the Application layer architecture.

- Enhancement to support tethered link measurement in SEALDD.

- Potential enhancements to other enablement frameworks (e.g. PINAPP, ADAES).

5) Enabler support for QoS/resource coordination (for avatar based communication).

For CT3:

1) Support of KPI optimization, measurement and exposure, e.g., multi-modal flows end-to-end delay difference, etc.

- Enhancement for support of SEALDD transmission quality measurement and exposure.

2) Enhancement to support E2E Multi-Modal Communication Flows. (e.g. Monitor, align and manage them)

- Configure of SEALDD (including SEALDD-S and SEALDD-Uu interface) to support Multi-Modal XR application.

3) Support of Application enablement layer capabilities usage to supporting the XR services.

- Update on CAPIF mechanism to support the XR service by invoking the northbound API exposed by the application enablement;

- Potential update on NSCE or SEAL NRM to support optimized QoS for XR applications.

4) Support the multi-modal service over tethered UE(s). Update the Application layer architecture.

- Enhancement to support tethered link measurement in SEALDD.

- Potential enhancements to other enablement frameworks (e.g. PINAPP, ADAES).

5) Enabler support for QoS/resource coordination (for avatar based communication).

Note: The following objective may be included depending on the working progress of stage 2, including

1) Enhancement for coordination between direct UE connection and network based connection for AR/VR services.

2) Enhancement of XR application server selection.

3) Support of E2E KPI optimization for XR service.

4) Support of PDU set handling for XR traffic.

# 5 Expected Output and Time scale

|  |
| --- |
| 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 |
| 24.543 | Updates to the SEALDD client and the SEALDD server to support stage-2 enhancements. | TSG CT#109 (September 2025) | CT1 |
| 24.548 | Possible update to XR Application enablement. | TSG CT#109 (September 2025) | CT1 |
| 29.548 | Updates to the SEALDD Server APIs to support the stage-2 enhancements. | TSG CT#109 (September 2025) | CT3 |
| 29.549 | Updates to the SEAL APIs provided by SEAL Servers | TSG CT#109 (September 2025) | CT3 |
| 29.558 | Updates to the Enabling Edge Applications APIs to support stage-2 enhancements. | TSG CT#109 (September 2025) | CT3. |

# 6 Work item Rapporteur(s)

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# 7 Work item leadership

CT3

# 8 Aspects that involve other WGs

SA2 for core network architecture aspects, SA3 for security aspects, SA4 for media aspects

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| China Mobile |
| CATT |
| Ericsson |
| Lenovo |
| Huawei |
| Nokia |
| vivo |
| ZTE |