**3GPP TSG SA4 Meeting #130S4-242xxx**

**Orlando, FL, U.S.A., 18 - 22 November 2024**

**Source: Nokia, AT&T, Interdigital Communications, Lenovo, Samsung Electronics CO., LTD, Huawei, Ericsson LM, China Mobile**

**Title: WID on 5G Real-time Transport Protocol Configurations, Phase 2**

**Document for:** **Approval**

**Agenda Item: 17**

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: Work Item on 5G Real-time Transport Protocol Configurations, Phase 2

Acronym: 5G\_RTP\_Ph2

Unique identifier:

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\* |

## 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) |
| 5G\_RTP | SA4 | 960046 | Real-Time Transport Protocol Configurations |
| FS\_5G\_RTP\_Ph2 | SA4 | 1030007 | Study of 5G Real-time Transport Protocol Configurations, Phase 2 |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 810006 | Extended Reality (XR) in 5G | Relevant XR use cases in the conversational space |
| 820003 | Support of Immersive Teleconferencing and Telepresence for Remote Terminals | Previous work in MTSI related to 360-degree immersive communication in IMS |
| 850042 | Study on evolution of IMS multimedia telephony service | Feasibility study on AR call |
| 880011 | Study on 5G Glass-type AR/MR Devices | Feasibility study on 5G support of AR/MR devices including AR conversational services |
| 920029 | Stage 1 of Evolution of IMS Multimedia Telephony Service | Requirements to support AR telephony communication as specified in TS 22.261 |
| 940066 | Study on system architecture for next generation real time communication services | Study on system architecture enhancement for next-generation real-time communication in IMS. |
| 950014 | Immersive Real-Time Communication for WebRTC | iRTCW is expected to reference a WebRTC configuration of RTP developed in this work item |
| 960042 | IMS-based AR Conversational Services | IBACS is expected to reference an IMS configuration of RTP developed in this work item |
| 960045 | Split Rendering Media Service Enabler | The Split Rendering Media Service Enabler spec is expected to reference an IMS configuration of RTP developed in this work item |
| 950013 | Study on Smartly Tethering AR Glasses | RTP header extensions are recommended in clause 7.2 and clause 8 of TR 26.806 for supporting in-band end-to-end delay measurements.  |
| 870013 | Traffic Models and Quality Evaluation Methods for Media and XR Services in 5G Systems | Aspects related to XR Split rendering and AR Conversational may be relevant as background information. |
| 1010032 | Study on Extended Reality and Media service (XRM) Phase 2 | Cross-layer aspects related to enhancing support of RTP configurations and extensions developed in this work item for extended reality and media services in 5G.  |

# 3 Justification

Earlier work on AR and MR, such as TR 26.998 (5G Glass-type AR/MR), identified multiple aspects of normative work to support “5G/AR Real-time Communication” (clause 8.4). TR 26.998 identified normative work needed to support delivery of immersive media via RTP for IMS-based and WebRTC-based conversational services. Such normative work has not been fully exploited during Release 18 when the 5G\_RTP WI was completed at the SA4 #127 meeting. TS 26.522 includes three new RTP header extensions and a new RTCP extended report for supporting traditional conversational media and the new XR media in 5G systems [1].

SA2 has studied enhanced PDU set based QoS handling and enhanced QoS handling for XR services in the Release-19 study FS\_XRM\_ph2. SA2 identified the key issues such as enhanced support of PDU set based QoS handling, PDU set information identification for end-to-end encrypted XRM traffic, traffic detection and QoS flow mapping for multiplexed data flows and QoS handling for dynamically changing traffic characteristics [TR 23.700-70]. SA2 required support from SA4 for handling the below key issues related to the RTP protocol perspective. For this reason, SA4 has launched and completed a Rel. 19 study item on the topic (FS\_5G\_RTP\_Ph2). The study conclusions recommended normative specification for several key issues related to RTP and RTCP in order to better support real-time media transport for conversational services in the 5G system for both WebRTC and IMS. The key issues are (please see the FS\_5G\_RTP\_Ph2 study item description and TR 26.822 for further details):

1. **Inaccuracy of the PDU Set Size (PSSize) information (\*).**
2. **QoS handling requirements for lone PDU (\*).**
3. Enhancements for application-layer FEC support. No normative work expected.
4. **AL-FEC awareness for PDU Set handling (\*).**
5. RTP transport of XR metadata. No normative work expected.
6. PDU Set marking for XR streams with RTP end-to-end encryption. No normative work expected.
7. RTCP messages to better support XR services in 5G. No normative work expected.
8. **RTP retransmission in supporting XR services in 5G. (\*)**
9. **Feasibility of RTP multiplexing options for transport of XR media streams. (\*)**
10. Use cases and intended deployment scenarios for enhancements of RTP header extension for PDU Set marking. No normative work expected.
11. Enhancements of RTP header extension for PDU Set marking. No normative work expected.
12. **Enhancements of data burst marking (and data traffic characteristics) (\*)**
13. **Applicability of the RTP header extension for PDU Set marking to different PDU Set types**
14. **Traffic detection and QoS flow mapping for multiplexed media stream data flows**
15. Media and metadata delivery over multiple sessions. No normative work expected.

**(\*) Subject to RAN2 and/or SA2 feedback and coordination.**

NOTE: The introduction of QUIC is not a subject of this work item.

This work item focuses on optimizing the use of RTP for the transport of real-time XR media (including conversational media) and associated metadata. The use of the IMS Data Channel is still supported by existing services such as MTSI but is outside the scope of this work.

# 4 Objective

The work item aims to:

1. Based on the results of the study item FS\_5G\_RTP\_Ph2, do normative specification work to TS 26.522. TS 26.510 and TS 26.113, TS26.114 in the above 5G RTP areas (1-15, except those for which normative work is not expected) for WebRTC and IMS-based XR services.
2. If time permits, consider any potential new key issues coming from SA2 that would fall under SA4’s scope.
	1. Identify gaps that require solutions for each of the key issues.
	2. Discuss candidate solutions and identify suitable ones for key issues requiring solutions.
3. Coordinate work with other 3GPP working groups and external organizations as needed.

# 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 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| TS 26.522 | Updates to the specification via change requests (all KIs subject to normative work) | SA#109 (September 2025) |  |
| TS 26.510 | Updates to the specification via change requests(KI #2, #4, #14) | SA#109 (September 2025) |  |
| TS 26.113 | Updates to the specification via change requests(KI #2, #4) | SA#109 (September 2025) |  |

# 6 Work item Rapporteur(s)

Igor Curcio, Nokia Corporation, igor.curcio@nokia.com

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

Coordination with SA2 and RAN groups may be necessary.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Nokia Corporation |
| AT&T |
| InterDigital Communications |
|  |
|  |
|  |
| Lenovo |
| Samsung Electronics CO., LTD |
| Huawei |
|  |
|  |
| Ericsson LM |
| China Mobile |