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| 3GPP TR 26.830 V0.1.0 (2024-11) |
| Technical Report |
| 3rd Generation Partnership Project;Technical Specification Group Services and System Aspects;Study on the enhancement for Immersive Real-Time communication for WebRTC;Phase 2;(Release 19) |
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# Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

# Introduction

This clause is optional. If it exists, it shall be the second unnumbered clause.

# 1 Scope

The present document …

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 26.113: "Enabler for Immersive Real-time Communication".

[3] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia telephony; Media handling and interaction".

[4] 3GPP TS 26.119: "Media Capabilities for Augmented Reality".

[5] 3GPP TS 26.531: "Data Collection and Reporting; General Description and Architecture".

[6] 3GPP TR 26.806: "Study on Tethering AR Glasses – Architectures, QoS and Media Aspects".

[7] 3GPP TR 26.812: "QoE Metrics for AR/MR Services".

[8] 3GPP TS 28.405: "Telecommunication management; Quality of Experience (QoE) measurement collection; Control and configuration".

# 3 Definitions of terms, symbols and abbreviations

This clause and its three (sub) clauses are mandatory. The contents shall be shown as "void" if the TS/TR does not define any terms, symbols, or abbreviations.

## 3.1 Terms

For the purposes of the present document, the terms given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

Definition format (Normal)

**<defined term>:** <definition>.

**example:** text used to clarify abstract rules by applying them literally.

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

Symbol format (EW)

<symbol> <Explanation>

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

Abbreviation format (EW)

<ABBREVIATION> <Expansion>

# 4 Architectural Assumptions and Requirements

## 4.1 General

Editor's note: This clause provides the RTC architecture and requirements including generalized media delivery architecture as the base of this study.

# 5 Key Issues

## 5.1 General

Editor's note: This clause will list the key issues of this study.

## 5.2 Key Issue#1: Media Profiles and Codecs for RTC

### 5.2.1 General

In the Rel-18 work, there was a discussion of the media capabilities, profiles, and codecs for RTC endpoints, but no specific codecs nor media capabilities have been derived. Therefore, this key issue addresses the specification of codecs and media capabilities for RTC endpoints.

### 5.2.2 Minimum requirements for RTC

While 3GPP TS 26.113 [2] mainly specifies the protocols and APIs for RTC (Real-Time media Communication), it also addresses the minimum requirements of media profiles for minimum service interoperability as follows;

A terminal implementing the protocols and APIs defined in 3GPP TS 26.113 [2] should implement:

- The UE codec requirements for speech as specified in 3GPP TS 26.114 [3], if speech/audio is supported.

- The UE codec requirements for video as specified in 3GPP TS 26.114 [3], if video is supported.

TS 26.114 provides the following list of codecs to be supported in MTSI clients in terminals;

- Speech codecs

- AMR speech codec (mandatory for offering speech communication)

- AMR-WB codec (mandatory for offering wideband speech communication)

- EVS codec (mandatory for offering super-wideband or fullband speech communication)

- IVAS codec (mandatory for offering immersive audio communication)

- Video codecs

- H.264 (AVC) Constrained Baseline Profile (CBP) Level 1.2 (mandatory for offering video communication)

- H.265 (HEVC) Main Profile, Main Tier, Level 3.1 (mandatory for offering video communication)

- H.264 (AVC) Constrained High Profile (CHP) Level 4.0 (recommended for offering video communication)

- H.265 (HEVC) Main Profile, Main Tier, Level 4.0 (recommended for offering video communication)

All the codecs above were identified for MTSI (Multimedia Telephony Service for IMS) services, they are assumed to have the capabilities of real-time encoding/decoding. Therefore, all of them may be considered as the candidate media codecs and profiles for RTC services as well.

## 5.3 Key Issue#2: RTC Signalling and Metadata

### 5.3.1 Description

In the Rel-18 work, it was specified in 3GPP TS 26.113 [2] that the media and associated metadata either to RTC AS at reference point RTC-4m or to an RTC Access Function in another RTC Client at reference point RTC-12. In addition, the signalling information is exchanged between the RTC Access Function and the WebRTC Signalling Function of an RTC AS at reference point RTC-4s.

During the development of 3GPP TS 26.113 [2], it was raised some essential metadata (e.g., depth sensors) and the signalling context which are required to support the immersive media and to configure the WebRTC connection. In addition, 3GPP TS 26.119 [4] provides the device type and media capabilities identifiers specifically for UEs with immersive media capabilities and available metadata formats for timed metadata of an immersive session, such as pose, action, or visualization space format. However, they should be further specified how to incorporate into RTC architecture.

In this Key Issue, it should be identified how to make them usable in RTC architecture. Especially how to deliver/exchange such information on the RTC architecture.

## 5.4 Key Issue#3: Tethering link delay reporting

### 5.4.1 EVEX approach

Clause 6.3 of 3GPP TR 26.806 [6] gives a solution that reports the tethering link delay as an event in the Event Exposure (EVEX) framework in 3GPP TS 26.531 [5].

### 5.4.2 QoE reporting approach

3GPP TR 26.812 [7] includes the round-trip time (RTT) and one-way delays as QoE metrics. The tethering link delay contributes to the RTT and one-way delays, and the knowledge of the tethering link delay may help optimize the communication system. Thus, it is beneficial to include the tethering link delay as a QoE metric. The current QoE measurement and reporting mechanisms in 3GPP TS 28.405 [8] can be leveraged for this purpose.

# 6 Solutions

## 6.1 General

Editor's note: This clause will list the solutions for a key issue(s) of this study.

# 7 Overall Analysis

## 7.1 General

Editor's note: This clause provides analysis of solutions.

# 8 Conclusions

## 8.1 General

Editor's note: This clause will list the conclusions that have been agreed during the study item activities.

Annex A:
Change history

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| **Change history** |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2024.1 | SA4#130 | S4-242088 |  |  |  | Initial draft of the TR.S4-242084, S4-242085 and S4aR240074 are incorporated. | 0.1.0 |