**TSG SA Meeting #SP-105 SP-241362**

**10 – 13 September 2024, Melbourne, Australia (revision SP-241126)**

**Title: Terms of Reference for SA4 Sub Working Groups**

**Source: SA WG4**

**Document for: Approval | Information | Discussion | Endorsement**

**Agenda Item: 3.4**

**3GPP TSG SA Meeting #104SP-240721**

**Shanghai, CN, 18 - 21 June 2024**

1. **Introduction**

There have recently been some questions on the Working Procedures with regards to 3GPP Sub Working Groups. One of the questions related to SWG Terms of Reference. The Working Procedures (<https://www.3gpp.org/ftp/Information/Working_Procedures/3GPP_WP.htm>) read:

# *Article 36:     TSG Sub Working Groups*

*A Working Group may establish a Sub Working Group (SWG) with defined Terms of Reference. The Working Group shall appoint a SWG Chair. The SWG shall work by consensus. The meeting notice requirements for a SWG meeting are the same as for TSGs and WGs.*

Although SA4 SWGs have been established for long, with well-established ways of working and with clear scopes, Terms of Reference need to be documented. This document proposes such ToRs.

1. **Proposed SA4 SWG Terms of Reference**

Reminder: SA4 ToR are available at: [https://www.3gpp.org/3gpp-groups/service-system-aspects-sa/sa-wg4](https://urldefense.com/v3/__https%3A/www.3gpp.org/3gpp-groups/service-system-aspects-sa/sa-wg4__;!!HOHtwYw!BlWIGkGnTnkh4deqbbSJexK6oP4tJQMV75BE8S-c544rU3TO0qE0R28MYTw7sLcIFnXvYBATnaxfWQBLoLmN4zc$) for the webpage summary version and <https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGs_90E_Electronic/Docs/SP-200929.zip> for the latest approved ToR, used as baseline below.

# Multimedia Codecs, Systems, and Services

Name: 3GPP TSG SA WG4

Acronym: SA4

# Label: Multimedia Codecs, Systems, and Services

# Overview

Within the 3GPP Technical Specification Group Service and System Aspects (SA), the main objectives of the 3GPP TSG SA WG4 (SA4) are the specifications of codecs for speech, audio, video, graphics and other media types related to emerging services such as extended realities (XR) and gaming, as well as the system and delivery aspects of such contents. These objectives includes defining content formats and delivery protocols for unicast, multicast and broadcast streaming, cloud and edge computing architectures, media APIs, media handling in multimedia telephony, terminal acoustics requirements and performance testing, end-to-end service performance, objective and subjective quality testing, quality of experience (QoE) metrics, definition of traffic characteristics for media services, reporting for all services involving media aspects, and the use of artificial intelligence and machine learning models for multimedia.

SA WG4 is currently responsible for the XR-based services and traffic characteristics, Next Generation Video for 5G, Media Distribution over 5G unicast/multicast and broadcast, Media Cloud and Edge Processing in 5GS, Glass-based Augmented Reality, VR conferencing, Immersive Voice and Audio Services and Extension for headset interface tests of UE.

# Scope of Responsibilities

The TSG SA WG4 is responsible for:

* Development and maintenance of specifications of codecs for speech, audio, video, graphics and other newly emerging media types, as well as the transport and handling of such media including related session descriptions and storage formats;
* Definition of unicast and multicast/broadcast streaming and real-time communication media services and architectures (including media-centric cloud and edge computing architectures), interfaces and media APIs, media profiles, session descriptions, and content delivery protocols;
* Guidance to other 3GPP groups concerning required QoS parameters, traffic characteristics and other system implications, imposed by different multimedia codecs, systems and service needs;
* Speech, audio, video, and multimedia quality evaluation including new evaluation methods, testing, verification, characterisation, selection criteria, quality of experience (QoE) metrics & reporting, and UE media data analytics reporting;
* Support of third-party media services and applications to benefit from 3GPP defined system and associated radio functionalities pertaining to these services/applications by providing suitable network and client interfaces/APIs;
* End-to-end performance, including terminal characteristics, of speech, audio, video, and multimedia services;
* Interoperability aspects with existing mobile and fixed networks from codec and media transport point of view.

These responsibilities are specific to 3GPP multimedia services involving speech, audio, video, graphics or other media. Such services include, but are not limited to, multimedia telephony, mission critical services, multimedia unicast and multicast/broadcast streaming, content delivery, online gaming, as well as emerging services for extended realities (XR) and also those based on cloud and edge computing architectures and artificial intelligence (AI)/Machine Learning (ML) for multimedia.

In conducting its work, the Multimedia Codecs, Systems, and Services WG will strive to specify best possible technical solutions along with the global use of the codecs and other technologies with flexibility needs imposed by different regional requirements and preferences, including differences in quality/capacity trade-offs.

The TSG SA WG4 have 4 Sub Working Group established with following Terms of Reference:

Multimedia Broadcast Streaming (MBS) SWG: the main objectives of the Multimedia Broadcast Streaming Sub Working Group (SWG) of the 3GPP Technical Specification Group Service and System Aspects (SA) Working Group #4 (Multimedia Codecs, Systems, and Services) are the integration of codecs as well as the system and delivery aspects of such contents for download, streaming and messaging services. These objectives include defining content formats and delivery protocols for unicast, multicast and broadcast streaming, messaging, cloud and edge computing architectures, media APIs, quality of experience (QoE) and energy efficiency metrics reporting, and definition of traffic characteristics for such media services.

Real-Time Communication (RTC) SWG: the main objectives of the Real-Time Communication Sub-working Group (SWG) of the 3GPP Technical Specification Group Service and System Aspects (SA) Working Group #4 (Multimedia Codecs, Systems, and Services) are the integration of codecs as well as the system and delivery aspects of such contents for real-time communication services including multimedia telephony and XR communications. These objectives include defining content formats and delivery protocols for services with real-time constraints, related updates to cloud and edge computing architectures, media APIs, quality of experience (QoE) metrics reporting, and definition of traffic characteristics for such media services.

Video SWG: The main objectives of the Video Sub-Working Group (SWG) of the 3GPP Technical Specification Group Service and System Aspects (SA) Working Group #4 (Multimedia Codecs, Systems, and Services) are the specification of codecs for video, graphics and other visual media types including immersive formats. The objectives include the visual quality evaluation, test methodology and characterization of these formats, as well as related quality of experience (QoE) metrics definition. The objectives also include Artificial Intelligence (AI)/Machine Learning (ML) applied to multimedia scenarios, including neural network model formats and related optimization and compression aspects.

Audio SWG: The main objectives of the Audio Sub-Working Group (SWG) of the 3GPP Technical Specification Group Service and System Aspects (SA) Working Group #4 (Multimedia Codecs, Systems, and Services) are development and maintenance of specifications for speech/audio codecs and speech/audio quality evaluation. This includes the transport and media handling aspects, and covers testing, verification, characterization, selection criteria, and end-to-end performance such as terminal characteristics of speech/audio services. The objectives also include immersive audio formats for multimedia telephony and XR communications and cover both capture and rendering aspects of the audio media delivery.

The SA4 SWGs operate under the SA4 WG and decisions on all documents are to be confirmed at SA4 level.

# Annex (informative):

In conducting its work, the SA WG4 will regularly communicate with other 3GPP WGs, and also with other SDOs and industry groups that work on codecs and multimedia aspects such as ISO/IEC JTC 1/SC 29, DASH-IF, IETF and ITU-T Study Groups 12 and 16.