3GPP TSG-SA Meeting #128 S4-241317

Jeju, South Korea, 20-24 May 2024

**Source: Dolby Germany GmbH, Ericsson LM, Fraunhofer IIS, Huawei Technologies Co Ltd., Nokia Corporation, NTT, Orange, Panasonic Holdings Corporation, Philips International B.V., Qualcomm Incorporated, VoiceAge Corporation**

**Title: EVS Codec Extension for Immersive Voice and Audio Services, Phase 2**

**Document for: Approval**

**Agenda Item: 18**

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: EVS Codec Extension for Immersive Voice and Audio Services, Phase 2

Acronym: IVAS\_Codec\_Ph2

Unique identifier:

Potential target Release: Rel-19

# 1 Impacts

{For Normative work, identify the anticipated impacts. For a Study, identify the scope of the study}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | X |  | X |  |
| No | 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) |
| IVAS\_Codec | SA4 | 770024 | EVS Codec Extension for Immersive Voice and Audio Services |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 470030 | EVS\_Codec | Basis for the Codec |
| 830005 | ATIAS | ATIAS interfaces with IVAS on capture and on renderer sides  |
| 990025 | ISAR | Split Rendering operation is integrated into the IVAS codec |

# 3 Justification

The IVAS codec is completed in Rel-18, enabling services with immersive audio communication.

The task of converting the floating-point code to the fixed-point code is still ongoing.

Furthermore, full characterization can only be accomplished once the fixed-point specification is available.

Additionally, several areas for enhancement in the codec have been identified.

To address these points, a Phase 2 development for the IVAS set of specifications is proposed.

# 4 Objective

The overall objective of this work item is to enhance the set of IVAS specifications. The following objectives should be achieved with the work item:

* A fixed-point C-code to be part of TS 26.251 having:
	+ Same functionalities and equivalent performance as the floating-point C-code in TS 26.258.
	+ Full interoperability with floating-point C-code in TS 26.258.
	+ Comparable complexity as the floating-point C-code in TS 26.258.

This includes verification of 3rd party delivered code and necessary adaptation to the latest version of TS 26.258.

* Characterization of the IVAS codec based on the floating-point and fixed-point C-code to complement TR 26.997.
* Enhancements to the code conformance test procedures and criteria.
* Definition of relevant tiers of functionality to be implementable on a wide range of UEs with different capabilities, balancing user experience and implementation complexity/cost.
* Enhancements to the RTP payload format and SDP negotiation, including split rendering operation.
* Update relevant system specifications to make use of the enhancements.

# 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 |
| TS | 26.251 | Codec for Immersive Voice and Audio Services - C code (fixed-point) | SA#107 (March 2025) | SA#108 (June 2025) |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 26.114 | Support of enhancements for the IVAS Codec | SA#108 (June 2025) |  |
| 26.117 | Referencing TS 26.251 | SA#108 (June 2025) |  |
| 26.119 | Support of enhancements for the IVAS Codec | SA#108 (June 2025) |  |
| 26.249 | Enhancement; Moving ISAR Fixed-Point Code to 26.251 | SA#108 (June 2025) |  |
| 26.250 | Definition of relevant tiers for implementation | SA#108 (June 2025) |  |
| 26.252 | Enhancement of conformance procedures and criteria | SA#108 (June 2025) |  |
| 26.253 | Enhancements to the RTP Payload Format | SA#108 (June 2025) |  |
| 26.997 | Performance characterization of the IVAS Codec in fixed-point | SA#108 (June 2025) |  |

# 6 Work item Rapporteur(s)

Su, Huan-yu, Huawei Technologies Co Ltd., su.huanyu@huawei.com

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

None

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| Ericsson LM |
| Qualcomm Incorporated |
| Huawei Technologies Co Ltd |
|  |
| Dolby Germany GmbH |
| Nokia Corporation |
| Fraunhofer IIS |
| VoiceAge Corporation |
| Orange |
| Samsung Electronics Co., Ltd |
| ZTE Corporation |
| Philips International B.V. |
| Xiaomi |
| Panasonic Holdings Corporation |
| NTT |