**Source: IVAS Rapporteur[[1]](#footnote-1)**

**Title: IVAS Permanent document IVAS-2b: IVAS\_Codec\_Ph2 Project Plan, v.0.1.0**

**Agenda Item: 7.5**

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1. Introduction

The IVAS\_Codec\_Ph2 work item has been approved at the SA plenary #104 in document SP-241000. The work item has the following objectives:

1. 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. This might include some alignment of floating-point C-code in TS 26.258.

1. Characterization of the IVAS codec based on the floating-point and fixed-point C-codes, and documentation of characterization results into TR 26.997.
2. Enhancements to codec conformance test procedures and criteria.
3. 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.
4. Enhancements to the RTP payload format and SDP negotiation, including split rendering operation.
5. Update relevant system and service specifications.
6. Timeplan

The timeplan for the execution of the IVAS\_Codec\_Ph2 work item objectives is in the following table.

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| Meeting | Objectives |
| ~~TSG SA#104 (18~~~~th~~ ~~– 21~~~~st~~ ~~June 2024)~~ | * ~~IVAS\_Codec\_Ph2 Work Item approved by SA Plenary~~
 |
| ~~SA4#129-e (16th – 23rd August 2024, online)~~ | * ~~Agree on initial time plan~~
 |
| ~~31st August 2024~~ | * ~~Delivery of IVAS fixed-point Decoder and Renderer by Ittiam to SA4, fulfilling the FL-to-FX requirements~~
 |
| ~~Audio SWG call~~~~(13th September 2024)~~ | * ~~Review progress of the fixed-point code conversion~~
 |
| ~~30th September 2024~~  | * ~~Delivery of IVAS fixed-point Encoder by Ittiam to SA4, fulfilling the FL-to-FX requirements, covering the following operation modes:~~
	+ ~~Mono (EVS)~~
	+ ~~ISM (core coder)~~
	+ ~~Stereo~~
	+ ~~MCT~~
 |
| ~~Audio SWG call~~~~(18th October 2024)~~ | * ~~Review progress of the fixed-point code conversion~~
 |
| ~~31st October 2024~~ | * ~~Delivery of IVAS fixed-point Encoder by Ittiam to SA4, fulfilling the FL-to-FX requirements, covering the following operation modes:~~
	+ ~~MASA~~
	+ ~~SBA~~
	+ ~~Parametric modes~~
 |
| ~~Audio SWG call, TBD~~ | * ~~Review progress of the fixed-point code conversion~~
 |
| ~~SA4#130~~~~(18th – 22nd November 2024)~~ | * ~~Verification and Agreement by SA4 on Delivery by Ittiam of IVAS fixed-point Decoder and Renderer, fulfilling the FL-to-FX requirements~~
* ~~Agreement on definition of IVAS Levels~~
 |
| ~~30th November 2024~~ | * ~~Delivery of IVAS fixed-point Encoder v1 to SA4, targeting fulfilment of FL-to-FX requirements~~
 |
| ~~Audio SWG call, TBD~~ | * ~~Review progress of the fixed-point code conversion~~
 |
| ~~TSG SA#106~~~~(10th – 12th December 2024)~~ | * ~~Approval by TSG SA (SA#106) of Delivery of IVAS fixed-point Decoder and Renderer, fulfilling the FL-to-FX requirements, based on agreement in SA4 (SP-241766)~~
 |
| ~~Audio SWG call,~~~~(17th January 2025, 12:00-15:00 CET) (Canceled)~~ | * ~~Review progress of the fixed-point code conversion~~
 |
| ~~31st January 2025~~ | * ~~Delivery of the fixed point Encoder v2, targeting fulfilment of FL-to-FX requirements, as basis for subjective verification~~
 |
| SA4#131(17th – 21st February 2025) | * Verification and Agreement by SA4 on Delivery by Ittiam of IVAS fixed-point Encoder, fulfilling the FL-to-FX requirements
* Finalization of IVAS characterization permanent documents, including:
	+ IVAS-7b Processing Plan for Characterization Phase
	+ IVAS-8b Test Plan for Characterization Phase
* Review the timeplan taking into account the status of fixed-point development
 |
| March 7th | * Delivery of Encoder v2.1
 |
| TSG SA#107(12th – 14th March 2025) | * Approval by TSG SA (SA#107) of Delivery of IVAS fixed-point Encoder, fulfilling the FL-to-FX requirements, based on agreement in SA4
 |
| Audio SWG call (14th March 2025) | * Pre-verification on Encoder v2.1
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| SA4#131-bis-e(7th – 11th April 2025) |  |
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| SA4#132(19th – 23rd May 2025) | * Verification by TSG SA WG 4 (SA4) on Encoder v2.1 (with potential additional bugfixes)
* Delivery of the fixed point Encoder v3 (addressing most severe issues identified by the verification)
* Agreement by TSG SA WG 4 (SA4) on Delivery of Encoder, fulfilling FL-to-FX requirements
 |
| May | * Verification of IVAS fixed-point C-code for 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.

Note: This includes necessary adaptation to the latest version of TS 26.258 on top of the delivery by Ittiam and might include some adaptation of the floating-point C-code in TS 26.258.* Decision on launching characterization tests
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| TSG SA#108(10th-13th June, 2025) | * Approval by TSG SA of Delivery of Encoder, fulfilling FL-to-FX requirements, based on agreement in SA4
 |
| 30th June, 2025 | * Delivery of Maintenance (further corrections and optimizations) to IVAS fixed-point Encoder/Decoder/Renderer
 |
| SA4#133-e (21st -25th July, 2025) | * Agreement by TSG SA WG 4 (SA4) on Delivery of Maintenance (further corrections and optimizations) to IVAS fixed-point Encoder/Decoder/Renderer
 |
| June 2025 | * IVAS characterization testing, first part (
 |
| SA4#133e(21st – 25th July 2025) | * Characterization test results available for analysis
* Agreement on TS 26.251 (IVAS fixed-point C-code)
* Agreement on characterization test results to be incorporated into TR 26.997
* Agreement on relevant CRs for:
	+ Enhanced conformance 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
* Agreement on CRs for update of relevant system and service specifications
 |
| TSG SA#109(16th-19th September, 2025) | * Approval on Delivery of Maintenance (further corrections and optimizations) to IVAS fixed-point Encoder/Decoder/Renderer
* TS 26.251 (IVAS fixed-point C-code), for approval
* CR to TR 26.997 on IVAS Codec characterization, for approval
* CR to TS 26.114 on enhanced support for the IVAS Codec, for approval
* CR to TS 26.117 with reference to TS 26.251, for approval
* CR to TS 26.119 on enhanced support for the IVAS Codec, for approval
* CR to TS 26.250 with definition of relevant tiers for implementation of IVAS, for approval
* CR to TS 26.252 on enhanced conformance procedures and criteria, for approval
* CR to TS 26.253 on enhanced RTP Payload Format and SDP negotiation, including split rendering operation
* Potential CR to TS 26.258 on alignment between floating-point code and fixed-point code in TS 26.251, for approval
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1. Revision history

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| --- | --- | --- | --- | --- |
| **Date** | **Meeting** | **Subject/Comment** | **Old** | **New** |
| 2025-02-19 | SA4#131 | Initial version based on S4-250085 and edits during SA4#131 |  | 0.1.0 |
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1. Imre Varga, Qualcomm Inc.; email: ivarga@qti.qualcomm.com [↑](#footnote-ref-1)