Video SWG Minutes during SA4#126

## 9.1 Opening of the session

Mr. Gilles Teniou (Tencent, Chairman of Video SWG) opens the Video SWG on November 13, 2023 at 14:00 local time Chicago.

Thomas Stockhammer and Eric Yip are assigned as scribes.

The minutes are shared [Video SWG Minutes during SA4#126](https://docs.google.com/document/d/13-HR_YFKl08YgASeqE2eU8x-KXOHHbRNAJK-9G7g8eQ/edit?usp=sharing).

Attendees are listed [here](#dpilyxvwa2oq).

All e-mail discussions during the meeting can be tracked here:

* https://list.etsi.org/scripts/wa.exe?A1=ind2311B&L=3GPP\_TSG\_SA\_WG4\_VIDEO

**SA4 Schedule:**



The agenda and the registration of documents are approved.

## 9.2 Registration of documents

| **TDoc** | **Title** | **Source** | **Agenda item** |
| --- | --- | --- | --- |
| [**S4-231648**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231648.zip) | Liaison statement reply to 3GPP on feasibility study on film grain synthesis [SC 29/WG 5 N 252] | ISO/IEC JTC 1/SC 29/WG 5 | 9.3 |
| [**S4-231649**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231649.zip) | [FS\_AI4Media] Scenario for sign language translation | CMCC, HuaWei Technologies Co., Ltd | 9.6 |
| [**S4-231650**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231650.zip) | [FS\_AVATAR] Voice driven avatar addition to TR 26.813 | HuaWei Technologies Co., Ltd., China Mobile Com. Corporation | 9.10 |
| [**S4-231651**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231651.zip) | [FS\_AVATAR] On Avatar Reference Architecture | HuaWei Technologies Co., Ltd | 9.10 |
| [**S4-231659**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231659.zip) | [FS\_FGS] Some updates on film grain synthesis testing | Dolby Laboratories Inc. | 9.8 |
| [**S4-231660**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231660.zip) | [FS\_FGS] Updated time and work plan | Dolby Laboratories Inc. | 9.8 |
| [**S4-231671**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231671.zip) | CR 26117-0005 on MeCAR Audio capabilities (Rel-18) | Dolby France SAS, Orange, Qualcomm, Fraunhofer IIS | 9.5 |
| [**S4-231672**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231672.zip) | pCR 26119 v0.3.0 on MeCAR Audio capabilities (Rel-18) | Dolby France SAS, Orange, Qualcomm, Fraunhofer IIS | 9.5 |
| [**S4-231675**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231675.zip) | [FS\_ARMRQoE] pCR on observation points | China Unicom, Huawei | 9.7 |
| S4-231692 | [MeCAR] Considering Rendering Capabilities | Qualcomm Incorporated | 9.5 |
| S4-231693 | [MeCAR] XR-Runtime - Renderer Control Loop | Qualcomm Incorporated | 9.5 |
| [**S4-231694**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231694.zip) | [MeCAR] Proposed Media Capabilities for MeCAR Devices | Qualcomm Incorporated | 9.5 |
| [**S4-231695**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231695.zip) | Background on Application Layer FEC in Split Rendering | Qualcomm Incorporated | 9.11 |
| [**S4-231696**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231696.zip) | [FS\_XRTraffic] Application Layer FEC Traffic characteristics | Qualcomm Incorporated | 9.11 |
| [**S4-231697**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231697.zip) | [FS\_XRTraffic] Application Layer FEC Traffic characteristics | Qualcomm incorporated | 9.11 |
| [**S4-231702**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231702.zip) | [MeCAR] A new device type - You see what I see and Audio-Rendering only | Qualcomm Tech. Netherlands B.V | 9.5 |
| [**S4-231708**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231708.zip) | [FS\_AVATAR] Social and classroom use cases and requirements | Tencent Cloud | 9.10 |
| [**S4-231712**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231712.zip) | The Discussion on Glasses-free 3D Real-Time Communication(FS\_G3D) for Release 19 | China Mobile Com. Corporation, HuaWei, ZTE, Lenovo | 9.14 |
| [**S4-231715**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231715.zip) | [FS\_AVATAR] Avatar sharing use case addition to TR26.813 | HUAWEI TECHNOLOGIES Co. Ltd. | 9.10 |
| [**S4-231716**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231716.zip) | [FS\_AVATAR] Updated requirements | Nokia Corporation | 9.10 |
| [**S4-231765**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231765.zip) | [FS\_AVATAR] Analysis on Use Cases for Avatar communication service | Samsung R&D Institute India | 9.10 |
| [**S4-231766**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231766.zip) | [FS\_AVATAR] pCR on Use Cases analysis for Avatar communication service | Samsung R&D Institute India | 9.10 |
| [**S4-231767**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231767.zip) | [FS\_AVATAR] on UE coverage of Avatar Processing Blocks | Samsung R&D Institute India | 9.10 |
| [**S4-231768**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231768.zip) | [FS\_AVATAR] pCR on UE coverage of Avatar Processing Blocks | Samsung R&D Institute India | 9.10 |
| [**S4-231769**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231769.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics Romania | 9.6 |
| [**S4-231770**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231770.zip) | [FS\_AI4Media] Evaluation PD v0.2.1docx | Samsung Electronics Romania | 9.6 |
| [**S4-231771**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231771.zip) | [FS\_AI4Media] Split inferencing scenario for human pose estimation (update) | Samsung Electronics Romania | 9.6 |
| [**S4-231772**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231772.zip) | [FS\_AI4Media] pCR on model data descriptive text | Samsung Electronics Romania, Interdigital Finland Oy | 9.6 |
| [**S4-231773**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231773.zip) | [FS\_AI4Media] Work progress discussions | Samsung Electronics Romania, Interdigital Finland Oy | 9.6 |
| [**S4-231774**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231774.zip) | [FS\_AI4Media] Draft TR: Proposed specification skeleton for evaluation TR 26.847 | Samsung Electronics Romania | 9.6 |
| [**S4-231779**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231779.zip) | pCR on Scene Description for MeCAR | Qualcomm Germany | 9.5 |
| [**S4-231787**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231787.zip) | On the availability of new film grain content | Apple Benelux B.V. - Belgium | 9.8 |
| [**S4-231790**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231790.zip) | Shared viewing experience | Nokia Corporation | 9.9 |
| [**S4-231794**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231794.zip) | [FS\_ARMRQoE] pCR AUR metrics | InterDigital Finland Oy | 9.7 |
| [**S4-231795**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231795.zip) | [MeCAR] pCR on latency metrics definition | InterDigital Finland Oy | 9.5 |
| [**S4-231797**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231797.zip) | Layered XR rendering | Nokia Corporation | 9.9 |
| [**S4-231803**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231803.zip) | [MeCAR] Device capabilities signaling | Tencent Cloud | 9.5 |
| [**S4-231808**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231808.zip) | [FS\_AI4Media] Split Inference for Object Detection | Qualcomm Technologies Ireland | 9.6 |
| [**S4-231810**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231810.zip) |  [FS\_AI4Media] Split inferencing scenario update | InterDigital Finland Oy | 9.6 |
| [**S4-231813**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231813.zip) |  [FS\_AI4Media] Intermediate metadata update | InterDigital Finland Oy | 9.6 |
| [**S4-231814**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231814.zip) | [FS\_AI4Media] pCR on intermediate data | InterDigital Finland Oy, Samsung Electronics Co., Ltd | 9.6 |
| [**S4-231816**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231816.zip) |  [FS\_AI4Media] pCR on missing architecture text | InterDigital Finland Oy | 9.6 |
| [**S4-231817**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231817.zip) | Trigger for split in MeCar | InterDigital, Europe, Ltd. | 9.5 |
| [**S4-231818**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231818.zip) | [FS\_HEVC\_Profiles] Updates on HEVC Multiview coding | Apple | 9.9 |
| [**S4-231819**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231819.zip) | [FS\_HEVC\_Profiles] Latency sensitive multiview applications | Apple, Qualcomm | 9.9 |
| [**S4-231820**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231820.zip) | [FS\_HEVC\_Profiles] Updates on scalable HEVC coding | Apple | 9.9 |
| [**S4-231821**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231821.zip) | [FS\_HEVC\_Profiles] Updates on 4:4:4 system level chroma support with HEIF | Apple | 9.9 |
| [**S4-231822**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231822.zip) | [FS\_HEVC\_Profiles] Providing scope and background | Apple | 9.9 |
| [**S4-231823**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231823.zip) | [FS\_HEVC\_Profiles] Editor's draft TR 26.966 v0.1.1 | Apple | 9.9 |
| [**S4-231824**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231824.zip) | [FS\_HEVC\_Profiles] Work Plan | Apple | 9.9 |
| [**S4-231825**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231825.zip) | draft LS on SA4 study on new HEVC profiles and operating points | Apple | 9.9 |
| [**S4-231826**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231826.zip) | [FS\_FGS] On the importance of manifest and prefix SEI messages for film grain | Apple | 9.8 |
| [**S4-231828**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231828.zip) | [MeCAR] Universal Scene Description (USD) | Apple | 9.5 |
| S4-231829 | [MeCAR] On WebXR | Apple | 9.5 |
| S4-231835 | Scripts for the evaluation of compression with finetuning | Qualcomm Germany | 9.6 |
| [**S4-231837**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231837.zip) | Updated AVATAR reference architecture | Qualcomm Germany | 9.10 |
| [**S4-231838**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231838.zip) | Updated TR26.813 0.1.5 | Qualcomm Germany | 9.10 |
| [**S4-231856**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231856.zip) | [MeCAR] MeCAR Permanent Document v9.0 | Xiaomi Communications | 9.5 |
| [**S4-231858**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231858.zip) | [MeCAR] MeCAR Work Plan | Xiaomi Communications | 9.5 |
| [**S4-231859**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231859.zip) | [MeCAR] MeCAR status overview | Xiaomi Communications | 9.5 |
| [**S4-231860**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231860.zip) | [MeCAR] Depth support and related decoding capabilities | Xiaomi Communications | 9.5 |
| [**S4-231861**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231861.zip) | [MeCAR] Alignment between MeCAR and Split Rendering MSE for metadata definition | Xiaomi Communications | 9.5 |
| [**S4-231862**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231862.zip) | [MeCAR] Audio capabilities and device support | Xiaomi Communications | 9.5 |
| [**S4-231863**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231863.zip) | [MeCAR] Updates on video capabilities definition and device support | Xiaomi Communications | 9.5 |
| [**S4-231864**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231864.zip) | [FS\_ARMRQoE] pCR On Pose Correction Error | Nokia Corporation | 9.7 |
| [**S4-231866**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231866.zip) | [FS\_AI4Media] Bit incremental model delivery call flows | Nokia Corporation | 9.6 |
| [**S4-231867**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231867.zip) | [Mecar] local interaction | InterDigital, Europe, Ltd. | 9.5 |
| [**S4-231868**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231868.zip) | [FS\_AI4Media] Bit incremental model delivery call flows for split model deployment | Nokia Corporation | 9.6 |
| [**S4-231876**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231876.zip) | [FS\_AVATAR] Updates to use cases and requirements | InterDigital Communications | 9.10 |
| [**S4-231877**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231877.zip) | [FS\_AVATAR] A reference 3D humanoid avatar model | InterDigital Communications | 9.10 |
| [**S4-231878**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231878.zip) | [FS\_AVATAR] On Avatar Representation Formats | InterDigital Communications | 9.10 |
| [**S4-231884**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231884.zip) | [FS\_AI4Media] pCR on AIML framework | Tencent | 9.6 |
| [**S4-231885**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231885.zip) | [FS\_AI4Media] pCR on AIML model data | Tencent | 9.6 |
| [**S4-231886**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231886.zip) | [FS\_AI4Media] pCR on Federated learning | Tencent | 9.6 |
| [**S4-231887**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231887.zip) | [FS\_AI4Media] Proposed KPIs for Federated learning | Tencent | 9.6 |
| [**S4-231888**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231888.zip) | [FS\_AVATAR] Avatar animation using Morph Target | Tencent | 9.10 |

## 9.3 Reports and liaisons from other groups

| [**S4-231648**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231648.zip) | Liaison statement reply to 3GPP on feasibility study on film grain synthesis [SC 29/WG 5 N 252] | ISO/IEC JTC 1/SC 29/WG 5 | Antoine Burckard |
| --- | --- | --- | --- |

**Presenter**: Brian Lee

**Online Discussion**:

* Thomas: do they indicate any timeline or work plan?
	+ Brian: we can also the rapporteur when he comes this meeting
* Gilles: don’t think we need to reply to it, but we can include details of interest into the PD

**Decision**:

* 2023/11/13: parked for now
* 2023/11/16: we will note it

[**S4-231648**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231648.zip) is **noted.**

| [**S4-231646**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231646.zip) | Liaison to ITU-T SG16, ISO/IEC JTC 1/SC 29/WG 1 and 3GPP SA4 on Feature Compression for Video Coding for Machines [SC 29/WG 2 N 322] | ISO/IEC JTC 1/SC 29/WG 2 | Antoine Burckard |
| --- | --- | --- | --- |

**Presenter**: Igor Curcio

**Online Discussion**:

* Gilles: we don’t have any activity today on VCM, some related things in SA1 but by the time they finish MPEG will have finished probably
* Stephane: compression aspects specified in FS\_AI4Media, there is a related contribution on intermediate data compression
* Gilles: keep an eye on this in case we need to reference it

**Decision**:

* noted.

[**S4-231609**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231609.zip) is **noted.**

## 9.4 CRs to Features in Release 17 and earlier

none

## 9.5 MeCAR (Media Capabilities for Augmented Reality)

*WID:* [*SP-220242*](https://www.3gpp.org/ftp/TSG_SA/TSG_SA/TSGs_95E_Electronic_2022_03/Docs/SP-220242.zip) *New WID on ‘Media Capabilities for Augmented Reality’*

| [S4-231671](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231671.zip) | CR 26117-0005 on MeCAR Audio capabilities (Rel-18) | Dolby France SAS, Orange, Qualcomm, Fraunhofer IIS | Frederic Gabin |
| --- | --- | --- | --- |

**Presenter**: Frederic Gabin

**Online Discussion**:

* Waqar: We do not understand the reason of AAC-LDv2.
	+ Frederic: this is not new, just a restructuring. No functional changes, just restructuring.
* Waqar: Why is encoding cap in decoding?
	+ Frederic: Ok, this may be out of context, we could have a different clause.
* Tomas: Capabilities binaural?
	+ Thomas: can change to stereo
	+ Tomas: ok
* Tomas: the IVAS decoding needs to be improved, the mapping may not be correct
	+ Frederic: agree, maybe offline. But we can remove this piece not talking about the mapping
	+ Stefan: I am to blame.
	+ Sujeet: It is in RFC, but likely outside the scope.
	+ Tomas: also some typos
* Thomas: 26.117 includes DASH/CMAF playback. RTP could be added at some stage.

**Decision**:

* 2023/11/14: it is revised based on the comments. Presented in SA4 plenary.

[S4-231671](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231671.zip) is **revised** to S4-231935.

| [S4-231935](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231935.zip) | CR 26117-0005 on MeCAR Audio capabilities (Rel-18) | Dolby France SAS, Orange, Qualcomm, Fraunhofer IIS | Frederic Gabin |
| --- | --- | --- | --- |

**Presenter**: Frederic Gabin

**Online Discussion**:

* 2023/11/16: Frederic presents
	+ No comments

**Decision**:

* Needs revision to remove the comments. Otherwise agreed.

[S4-231935](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231935.zip) is **revised** to [S4-232023](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232023.zip)**.**

| [S4-232023](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232023.zip) | CR 26117-0005 on MeCAR Audio capabilities (Rel-18) | Dolby France SAS, Orange, Qualcomm, Fraunhofer IIS | Frederic Gabin |
| --- | --- | --- | --- |

[S4-232023](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232023.zip) is **agreed and is presented to SA4 plenary**

| [S4-231672](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231672.zip) | pCR 26119 v0.3.0 on MeCAR Audio capabilities (Rel-18) | Dolby France SAS, Orange, Qualcomm, Fraunhofer IIS | Frederic Gabin |
| --- | --- | --- | --- |

**Presenter**: Frederic Gabin

**Online Discussion**:

* Frederic: I am the best. I used the OFFICIAL pCR template from the template folder.
* Tomas: On XR device in the UE. Is it the UE?
	+ Frederic: It is it elsewhere in the spec
	+ Stephane: We should clarify this. It is important that we do not
	+ Gilles: Device types are well defined.
* Emmanuel: We can do device type fine tuning this week
* Emmanuel: Can we align with 26.511?
	+ Thomas: there is some history. Video capabilities are NOT centralized. Audio capabilities are. We should do this eventually - Rel-19 bookmark
* Waqar: We are concerned about AAC-ELDv2 as a shall.
	+ Frederic: it is a bracket. We can check good capabilities.
	+ Thomas: just to clarify that the shall does not come without context. It was agreed as a long discussion. The reason is for split rendering
	+ Gilles: But this is not agreed
	+ Waqar: the use cases is not clear.
	+ Frederic: as a chair I would call it a working assumption from the Berlin meeting. As proponent,
	+ Thomas: I disagree that this depends on a service scenario, because you want devices to be capable be used in different context
* Atti: EVS-2 replaced by IVAS capability. What would this bring?
	+ Frederic: An IVAS capability may be exactly this
	+ Atti: But this is not a new feature
	+ Tomas: IVAS is a more complete codec, and may cover more details.
	+ Thomas: I understand the comment, we are only asking for a specific capability, not full IVAS.
	+ Stefan: This editor’s note is not essential. EVS simultaneous decoding is probably not the best. IVAS may do this in a single instance.
	+ Frederic: It is an Editor’s Note an go away.
* Thomas: Why do we have a capability for 4 channels?
	+ Gilles: defer to offline

**Decision**:

* 2023/11/14: will be revised taking into account the comments.

[S4-231672](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231672.zip) is **revised to** [S4-23](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231672.zip)1945.

| [S4-23](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231672.zip)1945 | pCR 26119 v0.3.0 on MeCAR Audio capabilities (Rel-18) | Dolby France SAS, Orange, Qualcomm, Fraunhofer IIS | Frederic Gabin |
| --- | --- | --- | --- |

**Presenter**: Frederic Gabin

**Online Discussion**:

* Thomas: the names are breaking what is already documented
	+ Frederic: we don’t state encoding or decoding. We can go back to 117 also
	+ Giles: we’re debating on labels

**Decision**:

* No further comments - agreed.

[S4-23](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231672.zip)1945 is **agreed.**

| S4-231692 | [MeCAR] Considering Rendering Capabilities | Qualcomm Incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

S4-231692 is **withdrawn.**

| S4-231693 | [MeCAR] XR-Runtime - Renderer Control Loop | Qualcomm Incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

S4-231693 is **withdrawn.**

| [S4-231694](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231694.zip) | [MeCAR] Proposed Media Capabilities for MeCAR Devices | Qualcomm Incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Not presented

**Decision**:

* Merged with revision of 1863.

[S4-231694](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231694.zip) is **merged.**

| [S4-231702](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231702.zip) | [MeCAR] A new device type - You see what I see and Audio-Rendering only | Qualcomm Tech. Netherlands B.V | Thomas Stockhammer |
| --- | --- | --- | --- |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* 2023/11/15: Thomas presents
	+ Emmanuel: this device type is also very relevant for us to address, but is MeCAR the right place for this since there is no display?
		- Thomas: it has tracking and pose which is used. It has immersive aspects - this is where we are, but this device type is missing at the moment. Aligning our spec with current market trends would be nice
		- Emmanuel: we can check whether capabilities can be mapped to the device here instead of adding a device type
		- Gilles: do we want to address this device type in MeCAR?
		- Emmanuel: we can call these smart glasses not AR glasses

**Decision**:

* No agreement to add - noted for now.

[S4-231702](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231702.zip) is **noted.**

| [S4-231779](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231779.zip) | pCR on Scene Description for MeCAR | Qualcomm Germany | Imed Bouazizi |
| --- | --- | --- | --- |

**Presenter**: Imed Bouazizi

**Online Discussion**:

* Waqar: The problem is that there are shall to device types.
	+ Imed: It would be good understand where the problems are. We want to create joint spaces and people can talk to each other. I invite to check the capabilities and rediscuss. Understand the concerns.
	+ Dimitri: We do not disagree that we need a scene description. But a specific one should not be mandated.
	+ Gilles: we need some amount of interoperability.
* Rufael: there is an ability to do AR without a scene description.
	+ Imed: agree, but still need a glTF, and still for other scenarios like online gaming etc we need a scene description
* Gaelle: point is to specify device support, not on the service to use
* Thomas: we can condition it to try and make everyone happy
* Gilles: propose to document capabilities only for now
* Sujeet: for the visual parts can we have some justification, audio parts discussion with audio group
	+ Imed: yes we can check with audio, for other stuff it’s matching with the decoding capabilities. 4 materials is based on the decoding capabilities
	+ Dimitri: agree on conditioning
	+ Thomas: it needs to be a “smart” conditioning
	+ Saba: would be nice to have extra explanations on the other numbers (100k faces etc)

**Decision**:

* 2023/11/14: will be revised taking into account the comments.

[S4-231779](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231779.zip) is **revised** to [S4-231940](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231940.zip).

| [S4-231940](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231940.zip) | pCR on Scene Description for MeCAR | Qualcomm Germany | Imed Bouazizi |
| --- | --- | --- | --- |

**Presenter**: Imed Bouazizi

**Online Discussion**:

* 2023/11/16: Imed presents
	+ Does it still have the audio related stuff?
		- Imed: yes
		- Can it be discussed with audio experts
		- Imed: we can leave it in brackets
	+ Gaelle: maybe “4” in brackets?
		- Whole sentence in brackets preferred
		- Not convinced why specific numbers are present
		- Imed: they correspond to… 4 decoders… etc… we need a minimum capability
		- The numbers should be better understood
		- Waqar: Apple would like more time
		- Gilles: agreed with square brackets and note for audio part

**Decision**:

* Revised taking into account the above comments. Revision is agreed.

[S4-231940](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231940.zip) is **revised to** [S4-232022](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232022.zip)**.**

| [S4-232022](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232022.zip) | pCR on Scene Description for MeCAR | Qualcomm Germany | Imed Bouazizi |
| --- | --- | --- | --- |

[S4-232022](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232022.zip) is **agreed.**

| [S4-231795](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231795.zip) | [MeCAR] pCR on latency metrics definition | InterDigital Finland Oy | Stephane Onno |
| --- | --- | --- | --- |

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/11/15: Stephane presents r1
	+ Thomas: this is good but not complete, is this ok?
		- Stephane: not sure how to provide more details of the contents in brackets, if you want we can remove it
		- Thomas: leave it to the editor if it’s ok to work with it
		- Gilles: it’s ok
		- Thomas: we also need to improve the overall editorial layout, fonts etc

**Decision**:

* 2023/11/16: agreed to the TR

[S4-231795](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231795.zip) is **agreed.**

| [S4-231803](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231803.zip) | [MeCAR] Device capabilities signaling | Tencent Cloud | Iraj Sodagar |
| --- | --- | --- | --- |

**Presenter**: Iraj Sodagar

**Online Discussion**:

* 2023/11/15: Iraj presents
	+ Thomas: there is a commented version uploaded. Let’s define the capabilities/profiles before the capability exchange mechanism (JSON object). OK to document the table but not as JSON.
		- Iraj: OK
	+ Ahmed: what is the difference between the profile and the capabilities
		- Iraj: this allows additional info on optional aspects specified by profiles
	+ Gilles: revise to list the capabilities, to be put into the PD
* 2023/11/16: Iraj presents revision
	+ Agreed to PD

**Decision**:

* 2023/11/15: Revised according to comments above
* 2023/11/16: Revision agreed.

[S4-231803](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231803.zip) is **revised to** [S4-231990](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231990.zip)**.**

| [S4-231990](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231990.zip) | [MeCAR] Device capabilities signaling | Tencent Cloud | Iraj Sodagar |
| --- | --- | --- | --- |

[S4-231990](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231990.zip) is **agreed.**

| [S4-231817](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231817.zip) | Trigger for split in MeCar | InterDigital, Europe, Ltd. | Gaelle Martin-Cocher |
| --- | --- | --- | --- |

**Presenter**: Gaelle Martin-Cocher

**Online Discussion**:

* Imed: we should separate OpenXR action sets with interactivity actions
	+ Gaelle: in section 6.2.3 the sentence should be moved to the right place
	+ Emmanuel: we have a contribution on that text which should be in SR\_MSE
	+ Gaelle: this contribution could hopefully trigger other split rendering profiles
* Dimitiry: can we not directly mention OpenXR…

**Decision**:

* Noted taking into account MeCAR and SR\_MSE clarifications.

[S4-231817](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231817.zip) is **noted**

| [S4-231828](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231828.zip) | [MeCAR] Universal Scene Description (USD) | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* No comments

**Decision**:

* agreed

[S4-231828](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231828.zip) is **agreed.**

| S4-231829 | [MeCAR] On WebXR | Apple | Waqar Zia |
| --- | --- | --- | --- |

S4-231829 is **withdrawn.**

| [S4-231856](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231856.zip) | [MeCAR] MeCAR Permanent Document v9.0 | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* There were no updates during the adhocs.

**Decision**:

* agreed.

[S4-231856](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231856.zip) is **agreed.**

| [S4-231965](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231965.zip) | [MeCAR] MeCAR Permanent Document v10.0 | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

[S4-231965](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231965.zip) is **presented to SA4 plenary.**

| [S4-231858](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231858.zip) | [MeCAR] MeCAR Work Plan | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

[S4-231858](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231858.zip) is **revised** to S4-231964**.**

| [S4-231964](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231964.zip) | [MeCAR] MeCAR Work Plan | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

[S4-231964](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231964.zip) is **presented to SA4 plenary.**

| [S4-231859](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231859.zip) | [MeCAR] MeCAR status overview | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* 2023/11/15: Emmanuel presents
	+ Gilles: table could be put into the PD
	+ Iraj: let’s do minimum changes in terms of CR
	+ Thomas: on 5), we can do this at the next meeting
		- Emmanuel: not sure if we can make it due to the timeline. If we don’t have it I don’t consider MeCAR to be incomplete
	+ Gilles: keep track of the table in the PD. Way forward is agreed with 5) to be seen according to progress at the end of the WI period

**Decision**:

* 2023/11/15: agreed to the PD

[S4-231859](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231859.zip) is **agreed**

| [S4-231860](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231860.zip) | [MeCAR] Depth support and related decoding capabilities | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* Saba: This is in conflict with HEVC specification. Can provide details. Prefer to use MV-HEVC.
	+ Emmanuel: Auxiliary picture can be used, would be better.
	+ Saba: we do not see this as a viable solution
	+ Emmanuel: Without SEI, you still have the concern
* Thomas: refer to the comments inline
* Imed: Confirm that we are not using auxiliary picture. Also the ranges are fixed, can we not signal externally. Imed repeats Qualcomm comment.
	+ Emmanuel: should is ok with us.
* Alexis: If you use auxiliary picture, you can add it to MV-HEVC bitstream. Same applies to alpha channels
	+ Emmanuel: agree with this - public information. We can come back with MV-HEVC once it is specified.
	+ Imed: We are using depth streams as separate streams. We need something like this. We also need to carry transparency and alpha.
	+ Emmanuel: good point. If this is an agreeable way forward, we can also an alpha map. Likely contribution for an upcoming meeting
* Waqar: there is a proper solution with MV-HEVC. Just a patch work creates fragmentation.
	+ Alexis: The shall may be misleading as it would be the only option.
	+ Thomas: agree that the text can be improved
	+ Dimitri: MV-HEVC is just firmware updates
* Thomas: Qualcomm supports
* 2023/11/16 Emmanuel presents r1:
	+ Saba: there is a discussion paper in 1992, there are concerns.
	+ Gilles: there is agreement to put contents into PD as possible solution
	+ Emmanuel: SEI and MV-HEVC conflict can be addressed by defining an override
	+ Emmanuel: can we have an output document (not TS)
		- Gilles: the PD is well defined, we can get a tdoc for the revision and note it
	+ Thomas: Qualcomm supports this (signaling SEI information out of band)
	+ Dimitry: this could cause confusion in the industry since SEI is defined for MV-HEVC
		- Gilles: source is asking about none SEI related text
	+ Gilles: revised

**Decision**:

* 2023/11/14: revision based on the comments. We will do an r1.
* 2023/11/16: revised

[S4-231860](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231860.zip) is **revised to** [S4-232039](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232039.zip)

| [S4-232039](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232039.zip) | [MeCAR] Depth support and related decoding capabilities | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

**Decision**:

* Noted, but the content is added to the PD.

[S4-232039](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232039.zip) is **noted.**

| [S4-231861](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231861.zip) | [MeCAR] Alignment between MeCAR and Split Rendering MSE for metadata definition | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* 2023/11/15: Emmanuel presents
	+ Iraj: in SR\_MSE we had some changes (pose rate interval), they need to be reflected here. The update was actually only for the configuration which is not this table (withdraws comment)
		- Emmanuel: yes
	+ Imed: we had an update to the format where the action identified is a number/integer, also needs to be synced
	+ Gaelle: there are also offline agreements
	+ Gilles: also add an editor’s note (that we need to keep track of SR\_MSE moving targets)

**Decision**:

* 2023/11/16: Agreed to the TS

[S4-231861](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231861.zip) is **agreed**

| [S4-231862](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231862.zip) | [MeCAR] Audio capabilities and device support | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* Erik: AR Glasses is repeated multiple times.
	+ Emmanuel: Copy and paste error.
* Discussion: does clause 8 stay or not?
	+ Will be addressed in offline
* Stephane: we may have a subset on EVS, negotiated in SDP exchange
	+ Gilles: needs to be checked.

**Decision**:

* Merged with revision of 1672.

[S4-231862](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231862.zip) is **merged.**

| [S4-231863](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231863.zip) | [MeCAR] Updates on video capabilities definition and device support | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* Emmanuel presents revision with merge with 1694
* Mauricio: Why to have quality so low for glasses? You want to offload.
	+ Emmanuel: not expect to have glasses with high resolution glasses.
* Thomas: carefully check again with existing/emerging chipsets etc, we had slightly different ones in 1694
	+ Emmanuel: checking not this week though right?
* Alexis: Having multiple codecs may not be a good idea, looking at the area constraints.
* Mauricio: does the device include a 5G modem or is it tethered?
	+ Emmanuel: we’re trying to be agnostic here
	+ Maurico: but the capability may be related to the device type
* Thomas: I would support getting rid of AVC but unrealistic. It seems that HEVC is the choice for compression efficiency, AVC is the fallback. HEVC and AVC are not that much of a problem as they share lots of commonalities and area may not be an issue.
* Alexis: Propose that in the encoding it should be at least one.
	+ Thomas: agree
	+ Emmanuel: agree
* 2023/11/16: Emmanuel presents merged version
	+ Add a note and square brackets to clause 7.1.2
	+ Gilles: what does one or the other mean
	+ Thomas: there is a constrained device which can choose to support one or the other

**Decision**:

* 2023/11/14: Revision expected taking into account the above comments.
* 2023/11/16: Revised (square brackets and note to clause 7.1.2)

[S4-231863](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231863.zip) is **revised** to [S4-232031](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232031.zip).

| [S4-232031](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232031.zip) | [MeCAR] Updates on video capabilities definition and device support | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

[S4-232031](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232031.zip) is **agreed.**

| [S4-231867](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231867.zip) | [Mecar] local interaction | InterDigital, Europe, Ltd. | Gaelle Martin-Cocher |
| --- | --- | --- | --- |

**Presenter**: Gaelle Martin-Cocher

**Online Discussion**:

* Imed: collisions are important
	+ Gaelle: can put it back in
* Dimitry: who is deploying MPEG scene description today?
	+ Gaelle: this is related to the previous discussion, this is for device 3 and 4. You need interactivity in AR
	+ Imed: glTF is widely deployed - MPEG extended glTF, and they are supported by Kronos
	+ Gilles: the comment is related to the recommendations
	+ Dimitry: work seems rushed

**Decision**:

* 2023/11/14: agreed in principle, merged with S4-231779

[S4-231867](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231867.zip) is **merged.**

| [S4-231976](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231976.zip) | Draft TS 26.119 v0.4.0 | Tencent (Editor) | Gilles Teniou |
| --- | --- | --- | --- |

[S4-231976](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231976.zip) is **sent to SA4 plenary.**

## 9.6 FS\_AI4Media (Feasibility Study on Artificial Intelligence (AI) and Machine Learning (ML) for Media)

*WID:* [*SP-220328*](https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_95E_Electronic_2022_03/Docs/SP-220328.zip) *New SID on Artificial Intelligence (AI) and Machine Learning (ML) for Media*

| [S4-231649](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231649.zip) | [FS\_AI4Media] Scenario for sign language translation | CMCC, HuaWei Technologies Co., Ltd | Huan-yu Su |
| --- | --- | --- | --- |

**Presenter**: Huan-yu Su

**Online Discussion**:

* Imed: Which PD is this going to? Is this for evaluation or just as a use case?
	+ Huan-yu: No evaluation, just use case
	+ Gilles: What is the specific issue of this use case? Usage of split inference?
	+ Huan-yu: yes
* Eric: Is this a separate scenario?
	+ Huan-yu: subclause for object detection
	+ Eric: This is no longer evaluation (cf. telco)?
	+ Huan-yu: yes
* Gilles: Is the scenario in the PD backed by use cases?
	+ Eric: This would be under object recognition
	+ Gilles: Proposal seems to be to add a different use case to object recognition
* Gilles: Is it a valid use case? Unclear what are the impacts to implement the use case.
	+ Imed: justification is weak. You could run it locally.
* Stephane: Scenario was originally UE to UE. Now network to UE. Unclear about the exact use case? Does network get image of UE?
	+ Huan-yu: Parts of processing on network. Natural progression of flow.
* Gilles: No consensus to add it, better justification and description is needed
	+ Huan-yu: seems clearly defined
	+ Rufael: no objection observed
	+ Gilles: it is vague, more details would be needed
* Mary-Luc: Use case is not lacking description, but motivation is weak. Just for privacy? Why would you use split inference for this. Justification needs to be added.

**Decision**:

* Expect better motivation. Noted for now, expect revision in telco

[S4-231649](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231649.zip) is **noted.**

| [S4-231769](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231769.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics Romania | Eric Yip |
| --- | --- | --- | --- |

[S4-231769](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231769.zip) is **revised to** [**S4-231954**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231954.zip)**.**

| [S4-231954](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231954.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics Romania | Eric Yip |
| --- | --- | --- | --- |

**Presenter**: Eric Yip

**Online Discussion**:

* No discussion - but updates needed

**Decision**:

* Needs further revision

[S4-231954](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231954.zip) is **revised to** [S4-232027](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232027.zip)**.**

| [S4-232027](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232027.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics Romania | Eric Yip |
| --- | --- | --- | --- |

[S4-232027](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232027.zip) is **agreed and presented to SA4 plenary.**

| [S4-231770](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231770.zip) | [FS\_AI4Media] Evaluation PD v0.2.1 | Samsung Electronics Romania | Eric Yip |
| --- | --- | --- | --- |

**Presenter**: Eric Yip

**Online Discussion**:

* No comments

**Decision**:

* agreed

[S4-231770](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231770.zip) is **agreed.**

| [S4-231771](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231771.zip) | [FS\_AI4Media] Split inferencing scenario for human pose estimation (update) | Samsung Electronics Romania | Eric Yip |
| --- | --- | --- | --- |

**Presenter**: Eric Yip

**Online Discussion**:

* Imed: thanks for the update. This is for human pose detection. Just to detect labels?
	+ Eric: yes
* Imed: Struggling to see data size w/o split. Not shown. Would be good to add!
	+ Eric: ok will do
* Imed: Would be good to transfer to 5G-MAG gitlab
	+ Eric: ok
	+ Imed: can help

**Decision**:

* Agreed to be included in the PD together with a note addressing the above comments, as well as a cross-check is needed.
* We also create a template in the PD to document the status

[S4-231771](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231771.zip) is **agreed.**

| [S4-231772](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231772.zip) | [FS\_AI4Media] pCR on model data descriptive text | Samsung Electronics Romania, Interdigital Finland Oy | Eric Yip |
| --- | --- | --- | --- |

**Presenter**: Eric Yip

**Online Discussion**:

* No discussion

**Decision**:

* Agreed to the TR excluding the state of the art table

[S4-231772](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231772.zip) is **agreed**

| [S4-231773](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231773.zip) | [FS\_AI4Media] Work progress discussions | Samsung Electronics Romania, Interdigital Finland Oy | Eric Yip |
| --- | --- | --- | --- |

**Presenter**: Eric Yip

**Online Discussion**:

* Some online discussion, but is noted for now.

**Decision**:

* noted

[S4-231773](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231773.zip) is **noted**

| [S4-231774](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231774.zip) | [FS\_AI4Media] Draft TR: Proposed specification skeleton for evaluation TR 26.847 | Samsung Electronics Romania | Eric Yip |
| --- | --- | --- | --- |

**Presenter**: Eric Yip

**Online Discussion**:

* Thomas: suggest adding the methodology.
	+ Eric: can add it to the General clause
* Gazi: Criteria to move from pd to TR
	+ Gilles: Everything stable from pd. Contribution driven.
	+ Imed: Results cross-checked
	+ Gilles: May indicate results are cross checked or not

**Decision**:

* Agreed. In update document the methodology used.

[S4-231774](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231774.zip) is **agreed.**

| [S4-231933](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231933.zip) | [FS\_AI4Media] TR26.847v0.1.0 | Samsung Electronics Romania | Eric Yip |
| --- | --- | --- | --- |

**Presenter**: Eric Yip

**Online Discussion**:

* No comments

**Decision**:

* No comments - agreed

[S4-231933](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231933.zip) is **agreed and presented to SA4 plenary.**

| [S4-231808](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231808.zip) | [FS\_AI4Media] Split Inference for Object Detection | Qualcomm Technologies Ireland | Ma Liangping |
| --- | --- | --- | --- |

**Presenter**: Ma Liangping

**Online Discussion**:

* Eric: On the intermediate data, what is it? You are not splitting on bottlenecks
	+ Liangping: you have unknown in the processing
* Stephane: Is this a workaround to compute the second part.
	+ Liangping: checked code and graph. It not about cutting graph in 2 parts. More is done
	+ Imed: not a single bottleneck. With multiple layers, you have multiple regressors and different metadata.
	+ Liangping: similar networks as FCVCM. Not starting from graph, but code.
* Gilles: Qualcomm has shown that using Retina-Net, when splitting, performance is the same. Intermediate data is still pretty big.
	+ Imed: Also the headache to split correctly.
	+ Gilles: We may identify that some models are not easy to split. Intermediate data may be big. We add to the PD.
	+ Imed: no recommendations.

**Decision**:

* Agreed for PD.

[S4-231808](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231808.zip) is **agreed.**

| [S4-231810](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231810.zip) |  [FS\_AI4Media] Split inferencing scenario update | InterDigital Finland Oy | Stephane Onno |
| --- | --- | --- | --- |

**Presenter**: Stephane Onno

**Online Discussion**:

* Eric: Do you use the same device for both evaluations?
	+ Stephane: we use just one device
* Imed: support adding this - good to move this. Are they generic enough or just specific to the model?
	+ Stephane: good question. This is generic. But you have to identify bottlenecks in the model.

**Decision**:

* Agreed to be added to the PD
* The code should be cross-checked. Qualcomm will do so. Information will be sent to e-mail list.

[S4-231810](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231810.zip) is **agreed.**

| [S4-231813](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231813.zip) |  [FS\_AI4Media] Intermediate metadata update | InterDigital Finland Oy | Stephane Onno |
| --- | --- | --- | --- |

**Presenter**: Stephane Onno

**Online Discussion**:

* Eric: What is the split point flag?
	+ Stephane: In a network, you may split before or after.
	+ Gilles: split point where you cut. Cut before or after node?!
* Imed: I have a problem with the entire concept. In ONNX you do not split on layers, you split on outputs. Also PyTorch. Work on input and output. Do not need flag. Reference output
	+ Stephane: refers to code. Pretty obvious. SW does the function. API is straightforward. Name of node is used.
	+ Imed: worked on this.
	+ Stephane: You have to specify the split node, and both are possible.
	+ Imed: will check
* Eric: seems very solution driven, We should identify how this is done.
* Gilles: no agreement on split point flag.
* Imed: ok to PD, but some fields are optional. Depends on model and framework.

**Decision**:

* Agreed to PD - note exists. Some checking.

[S4-231813](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231813.zip) is **agreed.**

| [S4-231814](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231814.zip) | [FS\_AI4Media] pCR on intermediate data | InterDigital Finland Oy, Samsung Electronics Co., Ltd | Stephane Onno |
| --- | --- | --- | --- |

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/11/15: Stephane presents
	+ Imed: is this the right time for this as conclusions, we need evaluation on the compression techniques
	+ Eric: how about 6.3.1 into the PD

**Decision**:

* Noted, but 6.3.1 integrated into PD

[S4-231814](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231814.zip) is **noted.**

| [S4-231816](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231816.zip) |  [FS\_AI4Media] pCR on missing architecture text | InterDigital Finland Oy | Stephane Onno |
| --- | --- | --- | --- |

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/11/15: Stephane presents r1

**Decision**:

* R1 is agreeable, revision needed.

[S4-231816](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231816.zip) is **revised to** [S4-231959](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231959.zip)**.**

| [S4-231959](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231959.zip) |  [FS\_AI4Media] pCR on missing architecture text | InterDigital Finland Oy | Stephane Onno |
| --- | --- | --- | --- |

[S4-231959](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231959.zip) is **agreed.**

| [S4-231835](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231835.zip) | Scripts for the evaluation of compression with finetuning | Qualcomm Germany | Imed Bouazizi |
| --- | --- | --- | --- |

**Presenter**: Imed Bouazizi

**Online Discussion**:

* Imed: we prepared compression scripts for finetuning
* Gerhard: we need more time

**Decision**:

* Noted, but please pay attention for future work.

[S4-231835](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231835.zip) is **noted.**

| [S4-231866](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231866.zip) | [FS\_AI4Media] Bit incremental model delivery call flows | Nokia Corporation | Gazi Karam Illahi |
| --- | --- | --- | --- |

**Presenter**: Gazi Karam Illahi

**Online Discussion**:

* 2023/11/14: original doc presented
	+ Eric: quite generic. Needs details. Ok for PD.
	+ Imed: Ok for PD. After step 11 something is missing. I get an update and then?
		- Gazi: not proposing any technology for update. Depends on compression. If bitshift, you add it.
		- Imed: replace?
		- Gazi: not an update. How to build reconstruction is not specified
	+ Stephane: Quite generic. When delivering, we need to know that this is bit incremental model, and not full model
		- Gazi: valid question. Not discussed how UE selects a model.
	+ Gilles: request to add more details on update. Also maybe call it differently.
		- Gazi: incremental model.
		- Thomas: Progressive delivery
* 2023/11/16: Gazi presents r01
	+ No comments

**Decision**:

* 2023/11/14: expect a revision 1 taking into account the comments. Parked.
* 2023/11/16: revision 1 agreed - revised.

[S4-231866](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231866.zip) is **revised to** [S4-232025](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232025.zip)

| [S4-232025](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232025.zip) | [FS\_AI4Media] Bit incremental model delivery call flows | Nokia Corporation | Gazi Karam Illahi |
| --- | --- | --- | --- |

[S4-232025](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232025.zip) is **agreed.**

| [S4-231868](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231868.zip) | [FS\_AI4Media] Bit incremental model delivery call flows for split model deployment | Nokia Corporation | Gazi Karam Illahi |
| --- | --- | --- | --- |

**Presenter**: Gazi Karam Illahi

**Online Discussion**:

* Gilles: in the split configuration, how does it work. If you update the split model, do you need the same to other part.
	+ Gazi: in the network.
* Imed: overcomplicating things. We do not need an extra call flow. We deliver a model. Should not mix different aspects that are orthogonal.
* Stephane: Network and UE data source may be generalized. Generally an update of the partial model. Have one call flow that is more generic.
* Gilles: Propose to focus on model delivery. Once this is completed, we can recheck with split.

**Decision**:

* Focus on model delivery now. Once this is completed, we can recheck with split.

[S4-231868](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231868.zip) is **noted.**

| [S4-231884](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231884.zip) | [FS\_AI4Media] pCR on AIML framework | Tencent | Gilles Teniou |
| --- | --- | --- | --- |

**Presenter**: Gilles Teniou

**Online Discussion**:

* Thomas: Any references?
	+ Gilles: good point.

**Decision**:

* Agreed with adding references

[S4-231884](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231884.zip) is **agreed.**

| [S4-231885](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231885.zip) | [FS\_AI4Media] pCR on AIML model data | Tencent | Gilles Teniou |
| --- | --- | --- | --- |

**Presenter**: Gilles Teniou

**Online Discussion**:

* No discussion - agreed

**Decision**:

* agreed

[S4-231885](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231885.zip) is **agreed**

| [S4-231886](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231886.zip) | [FS\_AI4Media] pCR on Federated learning | Tencent | Gilles Teniou |
| --- | --- | --- | --- |

**Presenter**: Gilles Teniou

**Online Discussion**:

* Eric: can we change messages to information
* Imed: can we check consistency with existing distributed system platforms like SPARK, and update in subsequent meetings

**Decision**:

* Agreed, comments to be taken into account by editor.

[S4-231886](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231886.zip) is **agreed.**

| [S4-231887](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231887.zip) | [FS\_AI4Media] Proposed KPIs for Federated learning | Tencent | Gilles Teniou |
| --- | --- | --- | --- |

**Presenter**: Gilles Teniou

**Online Discussion**:

* Gazi: good parameters. On update time, this is for a specific model
	+ Gilles: How much time does it take a UE to provide feedback. When you have a feedback. Service specific.
* Gazi: Model generation and accuracy - is it the same?
	+ Gilles: not really - learning phase
* Imed: Do you have plan to create a test scenario? What frameworks? Spark for example
* Thomas: invented or literature
	+ Gilles: internal information
	+ Thomas: seems to be for systems
	+ Gilles: yes
	+ Thomas: What to be used for?
	+ Gilles: for now just FYI
* Stephane: Some aspects are measurable, some are more general. May be used for other AI/ML systems.
	+ Gilles: Add to KPI

**Decision**:

* Agreed to add it to PD. Maybe a table would be better. Note will be added that it is applicable also for other purposes.

[S4-231887](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231887.zip) is **agreed**

## 9.7 FS\_ARMRQoE (Feasibility Study on AR and MR QoE Metrics)

*WID:* [*SP-220616*](https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_96_Budapest_2022_06/Docs/SP-220616.zip) *New SID on Feasibility Study on AR and MR QoE Metrics*

| [S4-231675](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231675.zip) | [FS\_ARMRQoE] pCR on observation points | China Unicom, Huawei | Shuai Gao |
| --- | --- | --- | --- |

**Presenter**: Shuai Gao

**Online Discussion**:

* No comments.

**Decision**:

* agreed

[S4-231675](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231675.zip) is **agreed**

| [S4-231794](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231794.zip) | [FS\_ARMRQoE] pCR AUR metrics | InterDigital Finland Oy | Stephane Onno |
| --- | --- | --- | --- |

**Presenter**: Stephane Onno

**Online Discussion**:

* No comments.

**Decision**:

[S4-231794](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231794.zip) is **agreed.**

| [S4-231864](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231864.zip) | [FS\_ARMRQoE] pCR On Pose Correction Error | Nokia Corporation | Gazi Karam Illahi |
| --- | --- | --- | --- |

**Presenter**: Gazi Karam Illahi

**Online Discussion**:

* Qi: which entity in the client will perform this measurement (image similarity)?
	+ Gazi: graphics API for image similarity
	+ Qi: can we have a note to indicate which entity in the UE can measure the metrics
	+ Liangping:
		- Gazi: you receive the frame then apply the frame correction
		- Liangping: if this needs to be collected there’s no API in XR runtime that can expose this info
		- Gazi: yes these are black box techniques - so we are proposing a proxy for it
	+ Gilles: use allow or may for clarification in revision
* 2023/11/16: Gazi presents r1
	+ Thomas: concerns about the metric, it is not implemented
		- Gazi: as of now there is no method of measuring pose correction error, just saying that it may be useful with other metrics
		- Thomas: all of this is happening away from anything that you can compare it with, it doesn’t exist
		- Qualcomm does not think that it is a realistic metric. We will not agree to have an status that the metric needs to be implemented in a later stage.

**Decision**:

* 2023/11/14: expect a revision taking into account the comments.
* 2023/11/16: revision is agreed despite the concerns raised.

[S4-231864](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231864.zip) is **revised to** [S4-232032](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232032.zip)**.**

| [S4-232032](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232032.zip) | [FS\_ARMRQoE] pCR On Pose Correction Error | Nokia Corporation | Gazi Karam Illahi |
| --- | --- | --- | --- |

[S4-232032](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232032.zip) is **agreed.**

| [S4-231943](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231943.zip) | Presentation of Specification/Report to TSG: TR26.812, Version 1.0.0 ( Draft TR 26.812 V0.8.0) | China Unicom, Huawei | Shuai Gao |
| --- | --- | --- | --- |

[S4-231943](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231943.zip) is **presented to SA4 plenary.**

| [S4-232016](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232016.zip) | [FS\_ARMRQoE] Work Plan | China Unicom (Rapporteur) | Shuai Gao |
| --- | --- | --- | --- |

**Presenter**: Shuai Gao

**Online Discussion**:

* Gilles: please move the time of SA plenary to be sequential

**Decision**:

* Agreed in principle - revision

[S4-232016](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232016.zip) is **revised to** [S4-232016](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232016.zip).

| [S4-232016](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232016.zip) | [FS\_ARMRQoE] Work Plan | China Unicom (Rapporteur) | Shuai Gao |
| --- | --- | --- | --- |

[S4-232016](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232016.zip) is **agreed.**

## 9.8 FS\_FGS (Feasibility Study on Film Grain Synthesis)

*WID:* [*SP-230539*](https://www.3gpp.org/ftp/TSG_SA/TSG_SA/TSGS_100_Taipei_2023-06/Docs/SP-230539.zip) *New SID on Feasibility Study on Film Grain Synthesis*

| [S4-231659](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231659.zip) | [FS\_FGS] Some updates on film grain synthesis testing | Dolby Laboratories Inc. | Brian Lee |
| --- | --- | --- | --- |

**Presenter**: Brian Lee

**Online Discussion**:

* Brian: we have consensus on focusing on subjective testing, not objective testing
* Alexis: for subjective testing what are you asking? SImilar to the original? or good enough?
	+ Rajan: would be good to know the plan of what will be done, we need consensus on how to do before sharing the results
* Thomas: are we planning to do something different from JVET? Worried about complexity/workload and timeplan aspects
	+ Gilles: expect a revision
	+ Brian: we’re trying to minimize the additional work, we’ll move forward according to consensus
* Rajan: clarification on the metric on the encoder-side. Companies usually have proprietary tools to mask artifacts etc, on receiver side, we need testing to take this into account
	+ Alexis: objectively optimized encoder vs subjectively optimized encoder. Please don’t use material from Netflix, there is no copyright permit.
* 2023/11/16: Brian presents r3
	+ Rajan: Samsung comment in last section is not addressed
		- Brian: we can discuss further at the next telco
		- Gilles: let’s include the pending comments on the side into the main text as notes

**Decision**:

* 2023/11/14: Parked to be revised
* 2023/11/16: Revised to S4-232041, revision is agreed to the PD

[S4-231659](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231659.zip) is **revised to** [S4-232041](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232041.zip)**.**

| [S4-232041](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232041.zip) | [FS\_FGS] Some updates on film grain synthesis testing | Dolby Laboratories Inc. | Brian Lee |
| --- | --- | --- | --- |

[S4-232041](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232041.zip) is **agreed**

| [S4-231660](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231660.zip) | [FS\_FGS] Updated time and work plan | Dolby Laboratories Inc. | Brian Lee |
| --- | --- | --- | --- |

**Presenter**: Brian Lee

**Online Discussion**:

* Gilles: intention is to delay the completion
	+ Thomas: do we not expect any normative work in Rel-18 then?
	+ Brian: yes
	+ Thomas: if subjective testing is to be done we need more more details of it in the work plan/test plan
* 2023/11/16:
	+ Brian: need to add the telcos
		- Gilles: please add the three telcos
	+ Thomas: ensure that we have a realistic time plan.
		- Walt: no detailed work plan is available.

**Decision**:

* 2023/11/14: Parked for now.
* 2023/11/16: create revision taking into comments above.

[S4-231660](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231660.zip) is **revised to** [S4-232018](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231660.zip)**.**

| [S4-232018](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232018.zip) | [FS\_FGS] Updated time and work plan | Dolby Laboratories Inc. | Brian Lee |
| --- | --- | --- | --- |

[S4-232018](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231660.zip) is **presented to SA4 plenary.**

| [S4-231787](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231787.zip) | On the availability of new film grain content | Apple Benelux B.V. - Belgium | Dimitri Podborski |
| --- | --- | --- | --- |

**Presenter**: Dimitri Podborski

**Online Discussion**:

* Thomas: would it be ok to upload to the Akamai server?
	+ Alexis: yes
* Thomas: why is it so much data?
	+ Alexis: 27 noise variants on the same material
* Thomas: with content like this there’s lots of work needed to be done, very unrealistic timeframe
	+ Gilles: our objectives are different from JVET
	+ Alexis: just making the content available for information here, not asking for anyone to do anything
	+ Thomas: then we don’t need to upload it
	+ Gilles: any intention to use these for the subjective testing?
	+ Brian: interested in getting a copy of the content, we’ll need to select a few, 27 is too much
* Gilles: document into the PD; draft wording to be provided

**Decision**:

* Agreed into the PD, wording to be done offline

[S4-231787](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231787.zip) is **agreed**

| [S4-231826](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231826.zip) | [FS\_FGS] On the importance of manifest and prefix SEI messages for film grain | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* Rajan: what is the purpose/intention of sending this SEI?
	+ Alexis: we’re not specifying the application, only whether it is essential or not
	+ Alexis: this is only to make the group aware of this
	+ It’s important that semantic behaviour is specified in unity in both JVET and SA4
	+ Rajan: it would be nice to have differentiation between essentiality and application
* Thomas: alignment is important - one organization should do and others reference, instead of doing parallel in different organizations
* Gilles: agreement to work on things surrounding SEI message (application, essentiality etc)

**Decision**:

* Agreed to work on related aspects surrounding film grain.

[S4-231826](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231826.zip) is **agreed**

| [S4-232017](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232017.zip) | FS\_FGS Permanent document | Dolby Laboratories Inc. | Brian Lee |
| --- | --- | --- | --- |

[S4-232017](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232017.zip) is **presented to SA4 plenary.**

## 9.9 FS\_HEVC\_Profiles (Feasibility Study on new HEVC profiles and operating points)

*WID:* [*SP-230540*](https://www.3gpp.org/ftp/TSG_SA/TSG_SA/TSGS_100_Taipei_2023-06/Docs/SP-230540.zip) *New SID on Feasibility Study on HEVC profiles and operating points*

| [S4-231790](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231790.zip) | Shared viewing experience | Nokia Corporation | Thibaud Biatek |
| --- | --- | --- | --- |

**Presenter**: Thibaud Biatek

**Online Discussion**:

* Waqar: Scenario is pretty complex, compared to previous scenarios. Users need to be close. But also how can you address the dynamic aspects. Also it speaks about pose correction and split rendering. Also what are the substantial bitrate savings. Also on multicast/broadcast savings, does not come not for free. We need a new evaluation mechanism. Many questions need to be addressed
	+ Thibaud: we did some preliminary evaluation, for some realistic scenario we can achieve 17% or 23%
	+ Waqar: can you do pose correction? There is no depth?
	+ Thibaud: You use multiview as trick, as a transmission savings
	+ Waqar: Scenarios should be completed for next meeting.
* Thomas: procedurally we don’t need to complete everything with conclusions in the defined timeline, there can be a phase 2. There are also systems aspects for this scenario, is there any test material available? Where are the test sequences used referenced?
	+ Thibaud: 3D assets are generated by Blender and share details how this setup
* Gilles: prefer to have complete scenarios. At this stage it seems there are questions that need to be addressed in terms of evaluation that need to be completed before adding it.

**Decision**:

* Noted for now, expect updates for telco on more details.

[S4-231790](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231790.zip) is **noted.**

| [S4-231797](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231797.zip) | Layered XR rendering | Nokia Corporation | Thibaud Biatek |
| --- | --- | --- | --- |

**Presenter**: Thibaud Biatek

**Online Discussion**:

* 2023/11/15: Thibaud presents
	+ Waqar: Some confusion on the title. The scenario makes sense.
		- Thomas: To explain, the layering is a rendering issue. We should make a bold statement that layering refers to rendering and not to layered coding.
	+ Rajan: When you have depth, is layering/segmentation needed.
		- Thomas: not necessarily, you can use depth in the ATW to support improved pose correction.
	+ Generally some updates needed to reflect the above
* 2023/11/16: Thibaud presents r01
	+ Gilles: Why highlights?
		- Thibaud: my changes
	+ Thomas: hanging paragraph
		- Waqar: will address

**Decision**:

* 2023/11/15: Generally some updates needed to reflect the above. Expect a revision
* 2023/11/16: r01 is agreed with the comments above - create revision

[S4-231797](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231797.zip) is **revised to** [S4-232040](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232040.zip)**.**

| [S4-232040](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232040.zip) | [FS\_HEVC\_Profiles] Pose correction optimisation | Nokia Corporation | Thibaud Biatek |
| --- | --- | --- | --- |

[S4-232040](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232040.zip) **is agreed.**

| [S4-231818](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231818.zip) | [FS\_HEVC\_Profiles] Updates on HEVC Multiview coding | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* Rajan: Are there any objective results compared side by side or temporal interleaving?
	+ Waqar: this is was documented already at the last meeting - resolution issue
	+ Rajan: Referring to the same resolution.
	+ Waqar: will check
* Rajan: Can results be summarized?
	+ Waqar: right now we only have individual results
	+ Rajan: adding more details would help
* Gilles: The JVET tests are not subjective, they are expert tests. Not comparable to ITU-R BT.500
	+ Waqar: Ok will update
* Gilles: We should avoid ecosystem discussion, just factual talk about CMAF and so on.
	+ Waqar: ok makes sense
* Rajan: We will discuss offline to address my comments, but we can agree to the document.
* Justin: Any issues to references to proprietary web site
	+ Thomas: informative references, so ok. Better to have more information.

**Decision**:

* Agreed. Editor will address the comments above before integrating or address an Editor’s Note to address this later.

[S4-231818](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231818.zip) is **agreed.**

| [S4-231819](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231819.zip) | [FS\_HEVC\_Profiles] Latency sensitive multiview applications | Apple, Qualcomm | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* Rajan: Are there any plans to have objective results.
	+ Waqar: we will need to check this, whether it is possible
* Rajan: What about transport?
	+ Waqar: need to check this
* Alan: Are the delay constraints explicitly documented?
	+ Waqar: this could be added
	+ Thomas: We expect to use a low-delay encoding configuration. Also we have TR 26.955 and TR 26.928 for references on this document.
* Gilles: same comments on above on Expert viewing.

**Decision**:

* Agreed. Editor will address the comments above before integrating or address an Editor’s Note to address this later.

[S4-231819](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231819.zip) is **agreed.**

| [S4-231820](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231820.zip) | [FS\_HEVC\_Profiles] Updates on scalable HEVC coding | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* Alan: what happens if MPEG doesn’t update CMAF?
	+ Waqar: this is just for documentation
* Justin: language needs tidying up
* Gilles: we can always liaise with MPEG
* Emmanuel: there’s also support in MPEG2-TS
	+ Gilles: MPEG2-TS is not existent in 3GPP

**Decision**:

* Agreed with editorial fixes to grammar.

[S4-231820](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231820.zip) is **agreed**

| [S4-231821](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231821.zip) | [FS\_HEVC\_Profiles] Updates on 4:4:4 system level chroma support with HEIF | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* Justin: very early stage in MPEG, we can’t really do anything in 3GPP yet. But we should be careful opening up the non-public discussions in MPEG in 3GPP (which is open).
	+ Dimitri: TuC is public
	+ Justin: the opinion in the introduction is the problem. We should take caution.
* Gilles: still looking for the prosumer use case of 4:4:4, since this was not the main focus. This is an evolution of the original intention at the beginning of the study.

**Decision**:

* Document is noted.

[S4-231821](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231821.zip) is **noted.**

| [S4-231822](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231822.zip) | [FS\_HEVC\_Profiles] Providing scope and background | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* Justin: statement that HEVC provides everything that is needed is a bit misleading
	+ Waqar: we made it vague already
	+ Gilles: this is from the 3GPP TR 26.955
	+ Justin: no concern with the intent, can make it clearer with TR reference
* Mary-Luc: where is renewed interest coming from? Are we talking about moving targets? V3C family of standards is not defined.
* 2023/11/16: Waqar presents r01
	+ No comments

**Decision**:

* 2023/11/14: parked, revision expected according to comments.
* 2023/11/16: r01 agreed. Needs revision

[S4-231822](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231822.zip) is **revised to** [S4-232036](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232036.zip).

|  [S4-232036](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232036.zip) | [FS\_HEVC\_Profiles] Providing scope and background | Apple | Waqar Zia |
| --- | --- | --- | --- |

 [S4-232036](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232036.zip) is **agreed**.

| [S4-231823](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231823.zip) | [FS\_HEVC\_Profiles] Editor's draft TR 26.966 v0.1.1 | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* Justin: Document had diagrams from MPEG which was just a contribution on 4:4:4
	+ Waqar: But this was an initial 3GPP contribution
	+ Justin: OK
* Rajan: 4:4:4 on video - can we add an editor’s note on the scope
	+ Waqar: ok

**Decision**:

* Agreed as baseline.

[S4-231823](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231823.zip) is **agreed.**

| [S4-232006](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232006.zip) | [FS\_HEVC\_Profiles] TR 26.966 v0.2.0 | Apple | Waqar Zia |
| --- | --- | --- | --- |

[S4-232006](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232006.zip) is **presented to SA4 plenary.**

| [S4-231824](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231824.zip) | [FS\_HEVC\_Profiles] Work Plan | Apple | Waqar Zia |
| --- | --- | --- | --- |

[S4-231824](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231824.zip) is **revised** to S4-232005.

| S4-232005 | [FS\_HEVC\_Profiles] Work Plan | Apple | Waqar Zia |
| --- | --- | --- | --- |

S4-232005 is **revised to S4-232026.**

| S4-232026 | [FS\_HEVC\_Profiles] Work Plan | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* Gilles: please add plenaries, please add

**Decision**:

* Revise again

S4-232026 is **revised to** S4-232035**.**

| S4-232035 | [FS\_HEVC\_Profiles] Work Plan | Apple | Waqar Zia |
| --- | --- | --- | --- |

S4-232035 is **presented to SA4 plenary.**

| [S4-231825](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231825.zip) | draft LS on SA4 study on new HEVC profiles and operating points | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* 2023/11/15: Waqar presents
	+ Thomas: We should be clearer on WGs that we want to target. We should also be clearer on the objectives and the actions we would ask MPEG above.
	+ Gilles: Generally reluctant on send a bold LS without any concreteness.
		- Justin: support this view.

**Decision**:

* 2023/11/15: We will revise the LS to address the requests from above.

[S4-231825](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231825.zip) is **to** [S4-232005](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232005.zip)**.**

| [S4-232005](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232005.zip) | draft LS on SA4 study on new HEVC profiles and operating points | Apple | Waqar Zia |
| --- | --- | --- | --- |

**Presenter**: Waqar Zia

**Online Discussion**:

* 2023/11/16: Waqar presents
	+ Gilles: My comment is that I have no comment

**Decision**:

* agreed

[S4-232005](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232005.zip) is **agreed.**

**Documents for plenary:**

* **S4-232006: TR 26.966v0.2.0**

## 9.10 FS\_AVATAR (Feasibility Study on Avatars for Real-Time Communication)

*WID:* [*SP-230544*](https://www.3gpp.org/ftp/TSG_SA/TSG_SA/TSGS_100_Taipei_2023-06/Docs/SP-230544.zip) *New SID on Feasibility Study on Avatars for Real-Time Communication*

| [S4-231650](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231650.zip) | [FS\_AVATAR] Voice driven avatar addition to TR 26.813 | HuaWei Technologies Co., Ltd., China Mobile Com. Corporation | Huan-yu Su |
| --- | --- | --- | --- |

**Presenter**: Huan-yu Su

**Online Discussion**:

* Ahmed: This is more a feature rather than a use case
	+ Huan-yu: use case and feature are tightly linked
	+ Ahmed: more just an explanation on a feature
* Imed: Is it an update to use case 1? Hard to understand what is done. Also are there new requirements?
	+ Huan-yu: Change marks is confusing. Original from Imed. So very confusing.

**Decision**:

* Agreed to the TR.

[S4-231650](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231650.zip) is **agreed.**

| [S4-231651](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231651.zip) | [FS\_AVATAR] On Avatar Reference Architecture | HuaWei Technologies Co., Ltd | Huan-yu Su |
| --- | --- | --- | --- |

**Presenter**: Huan-yu Su

**Online Discussion**:

* 2023/11/15: Huan-yu presents
	+ Imed: We may restrict to functional blocks and implementation. Update
		- Huan-yu: ok
	+ Imed: Also reference architecture from Samsung, we need to merge.

**Decision**:

* 2023/11/15: parked for offline
* 2023/11/16: merged into S4-232033

[S4-231651](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231651.zip) is **merged into** S4-232033.

| [S4-231708](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231708.zip) | [FS\_AVATAR] Social and classroom use cases and requirements | Tencent Cloud | Iraj Sodagar |
| --- | --- | --- | --- |

**Presenter**: Iraj Sodagar

**Online Discussion**:

* 2023/11/15: Iraj presents
	+ Ahmed: Thanks. Understand first use case. The other two are special use cases of the first one.
		- Iraj: It is just an extension to the existing use cases. Just additional requirements for the first use case.
	+ Imed: same question as Ahmed. On use case 1 - we try to have overarching use cases. The virtual classroom, it is a special case of collaborative scenario.
		- Iraj: agree - only additional requirement.
	+ Gaelle: Assuming you would filter the expressions on the device? You want to prevent certain expression to be sent.
		- Iraj: the format should allow this.
		- Gaelle: uncomfortable with the requirements.
* 2023/11/16: Iraj presents r01.
	+ No comments

**Decision**:

* 2023/11/15: No consensus, would need update. Offline - revision expected.
* 2023/11/16: r01 agreed - revision needed

[S4-231708](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231708.zip) is **revised** to [S4-232034](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232034.zip).

| [S4-232034](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232034.zip) | [FS\_AVATAR] Social and classroom use cases and requirements | Tencent Cloud | Iraj Sodagar |
| --- | --- | --- | --- |

[S4-232034](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232034.zip) is **agreed.**

| [S4-231715](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231715.zip) | [FS\_AVATAR] Avatar sharing use case addition to TR26.813 | HUAWEI TECHNOLOGIES Co. Ltd. | Yongjing Zhang |
| --- | --- | --- | --- |

**Presenter**: Yongjing Zhang

**Online Discussion**:

* 2023/11/15: Yongjing Zhang presents
	+ Ahmed: falls under existing use case. It is about authoring and generating an AVATAR.
		- Yongjing: It is about real-time sharing
		- Ahmed: We have a use case for storing and generating AVATAR
		- Yongjing: not found the use case that addresses this, also not the requirements.
	+ Imed: If animation schemes are not generated from user modalities, but from an AI model. We can add this. In favour of minimizing the use. If we can integrate into the existing use case.
		- Yongjing: ok
		- Imed: Check requirements and check what is new compared to existing use cases.
	+ Gilles: not agreed as is, should be provided as a delta to existing use cases.
* 2023/11/16: Yongjing presents r01
	+ No comments

**Decision**:

* 2023/11/15: not agreed as is, should be provided as a delta to existing use cases. Revision expected.
* 2023/11/16: revision r01 is agreed. Revision needed

[S4-231715](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231715.zip) is **revised** to [S4-232024](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232024.zip).

| [S4-232024](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232024.zip) | [FS\_AVATAR] Avatar sharing use case addition to TR26.813 | HUAWEI TECHNOLOGIES Co. Ltd. | Yongjing Zhang |
| --- | --- | --- | --- |

[S4-232024](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232024.zip) is **agreed.**

| [S4-231716](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231716.zip) | [FS\_AVATAR] Updated requirements | Nokia Corporation | Saba Ahsan |
| --- | --- | --- | --- |

**Presenter**: Saba Ahsan

**Online Discussion**:

* 2023/11/15: Saba presents
	+ Imed: What about the word “Digital Twin”? Do we need this?
		- Thomas: Would prefer to not address generic digital twins
		- Saba: ok we remove the generic requirements
	+ Ahmed: we also have some comments and updates on the same clause.

**Decision**:

* Merged with revision of 1876

[S4-231716](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231716.zip) is **merged.**

| [S4-231765](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231765.zip) | [FS\_AVATAR] Analysis on Use Cases for Avatar communication service | Samsung R&D Institute India | Sungryeul Rhyu |
| --- | --- | --- | --- |

**Presenter**: Sungryeul Rhyu

**Online Discussion**:

* 2023/11/15: SR presents r01.
	+ Iraj: Is mapping to 5G System architecture in scope?
		- Imed: it is but not at the initial stage. Mapping to MeCAR eventually, but we more look at the functions.
	+ Imed: On the scene manager points into two scenes? You can present in AR and VR depending on device. And even 2D rendering. Why do we need the scene presentation?
	+ Kurt: Where would the standardization interop happen?
		- SR: details need to be identified.

**Decision**:

* 2023/11/15: added to offline at 6pm in RTC room
* 2023/11/16: merged into S4-232033.

[S4-231765](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231765.zip) is **merged**

| [S4-231766](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231766.zip) | [FS\_AVATAR] pCR on Use Cases analysis for Avatar communication service | Samsung R&D Institute India | Sungryeul Rhyu |
| --- | --- | --- | --- |

**Presenter**: Sungryeul Rhyu

**Online Discussion**:

* Not presented

**Decision**:

* 2023/11/15: added to offline at 6pm in RTC room
* 2023/11/16: merged into S4-232033.

[S4-231766](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231766.zip) is **merged.**

| [S4-231767](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231767.zip) | [FS\_AVATAR] on UE coverage of Avatar Processing Blocks | Samsung R&D Institute India | Sungryeul Rhyu |
| --- | --- | --- | --- |

**Presenter**: Sungryeul Rhyu

**Online Discussion**:

* 2023/11/15: SR presents r01.
	+ Gilles: this seems a work flow related to previous architecture
	+ Kurt: on 1d, the UE sends the animated Avatar. Can it also be the network? There is no network part in the description.
		- SR: explains it on the diagram
	+ Imed: It is a smart way that the functions may happen in different locations. How it is not very intuitive. It may be possible to also present it differently
		- Defer to offline.

**Decision**:

* 2023/11/15: added to offline at 6pm in RTC room
* 2023/11/16: author asks to note - done

[S4-231767](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231767.zip) is **noted.**

| [S4-231768](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231768.zip) | [FS\_AVATAR] pCR on UE coverage of Avatar Processing Blocks | Samsung R&D Institute India | Sungryeul Rhyu |
| --- | --- | --- | --- |

**Presenter**: Sungryeul Rhyu

**Online Discussion**:

* Not presented

**Decision**:

* 2023/11/15: added to offline at 6pm in RTC room
* 2023/11/16: 2023/11/16: author asks to note - done

[S4-231768](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231768.zip) is **noted.**

| [S4-231837](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231837.zip) | Updated AVATAR reference architecture | Qualcomm Germany | Imed Bouazizi |
| --- | --- | --- | --- |

**Presenter**: Imed Bouazizi

**Online Discussion**:

* 2023/11/15: Imed present

**Decision**:

* 2023/11/15: added to offline at 6pm in RTC room
* 2023/11/16: revised based on offline

[S4-231837](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231837.zip) is **revised** to [S4-232033](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232033.zip).

| [S4-23](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231837.zip)2033 | Updated AVATAR reference architecture | Qualcomm Germany | Imed Bouazizi |
| --- | --- | --- | --- |

[S4-232033](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232033.zip) is **agreed**

| [S4-231838](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231838.zip) | Updated TR26.813 0.1.5 | Qualcomm Germany | Imed Bouazizi |
| --- | --- | --- | --- |

**Presenter**: Imed Bouazizi

**Online Discussion**:

* No comments

**Decision**:

* Agreed as basis for further work

[S4-231838](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231838.zip) is **agreed.**

| [S4-231949](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231949.zip) | Updated TR26.813 0.2.0 | Qualcomm Germany | Imed Bouazizi |
| --- | --- | --- | --- |

**Presenter**: Imed Bouazizi

**Online Discussion**:

* No discussion

**Decision**:

* Agreed as basis for further work

[S4-231949](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231949.zip) is **agreed.**

| [S4-231876](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231876.zip) | [FS\_AVATAR] Updates to use cases and requirements | InterDigital Communications | Ahmed Hamza |
| --- | --- | --- | --- |

**Presenter**: Ahmed Hamza

**Online Discussion**:

* 2023/11/15: Ahmed presents
	+ Saba: we can merge this. A clause on consolidated requirements should be added.

**Decision**:

* Will be revised taking into account a merge with 1716.

[S4-231876](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231876.zip) is **revised** to [S4-232020](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232020.zip)**.**

| [S4-232020](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232020.zip) | [FS\_AVATAR] Updates to use cases and requirements | InterDigital Communications, Nokia | Ahmed Hamza |
| --- | --- | --- | --- |

[S4-232020](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-232020.zip) is **agreed**.

| [S4-231877](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231877.zip) | [FS\_AVATAR] A reference 3D humanoid avatar model | InterDigital Communications | Ahmed Hamza |
| --- | --- | --- | --- |

**Presenter**: Ahmed Hamza

**Online Discussion**:

* 2023/11/15: Ahmed presents
	+ Iraj: What is the status in MPEG on the model?
		- Thomas: It is a reference model, but is informative to support it in the rendering, you can have other models.
		- Imed: there is also an AVATAR activity in MPEG.
	+ Imed: All very nice, appreciate that this is donated. Do we really have to add all the details in the document.
	+ Ahmed: there is also a reference paper on Morgan
	+ Thomas: for what purpose are we adding it? Is it referencing for definitions etc?
		- Imed: we have a section on existing representations/work, no intention to do anything with it at the moment, just documentation.

**Decision**:

* Agreed to be added to existing technologies. Additional input welcome in this.

[S4-231877](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231877.zip) is **agreed.**

| [S4-231878](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231878.zip) | [FS\_AVATAR] On Avatar Representation Formats | InterDigital Communications | Ahmed Hamza |
| --- | --- | --- | --- |

**Presenter**: Ahmed Hamza

**Online Discussion**:

* 2023/11/15: Ahmed presents
	+ Thomas: need to update regarding abbreviations and definitions etc
	+ Imed: very broad. For our study we are looking at a very limited space, our scope is very clear.
		- Thomas: but maybe it’s good to add it at the beginning to point to our scope clearly with a note
		- Saba: documenting into the study should be ok
		- Iraj: we can highlight specific rows which point to our scope
		- Gilles: are we excluding video based representations/hybrid etc?
		- Thomas: let’s limit the scope now instead of later
		- Gilles: let’s not make assumptions
		- Saba: we haven’t discussed on scope, we can just document it at this moment

**Decision**:

* Noted

[S4-231877](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231877.zip) is **noted.**

| [S4-231888](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231888.zip) | [FS\_AVATAR] Avatar animation using Morph Target | Tencent | Gilles Teniou |
| --- | --- | --- | --- |

**Decision**:

* Late submission - noted

[S4-231888](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231888.zip) is **noted.**

9.11 Other Rel-18 matters including TEI New Work / New Work Items and Study Items

| [S4-231695](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231695.zip) | Background on Application Layer FEC in Split Rendering | Qualcomm Incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Mauricio: Why do we add FEC? Can you explain
	+ Thomas: It is not to design FEC, it is to document the existence. Benefit is to avoid retransmissions and hence unnecessary or unpredictable latency.
* Chunsan: There is some work on this in SA2
* Gilles: Is this only relevant to RaptorQ?
	+ Thomas: no, just as an example
* Gilles: We invite for more configurations as needed. Contribution driven.

**Decision**:

* CRs are agreeable. So this one is agreed as well.

[S4-231695](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231695.zip) is **agreed.**

| [S4-231696](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231696.zip) | [FS\_XRTraffic] Application Layer FEC Traffic characteristics | Qualcomm Incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Mauricio: Is there conflict with what SA2 wants to do in the application domain?
	+ Thomas: There’s no conflict with SA2 Rel-19 study
* Mauricio: Google Stadia is no longer in service
	+ Thomas: ok, it was. It can be removed
* Chunsan: N-K rating is different for different frames?
	+ Thomas: it is different for every ADU/frame
	+ Chunsan: it is a common metadata for every I/P/B frame?
	+ Thomas: K is sent with every ADU
* A few typos were identified
* Gilles: is there a request to remove commercial references in the TR?
	+ Thomas: anything is ok

**Decision**:

* Needs a revision based on the discussion above.

[S4-231696](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231696.zip) is **revised** to [S4-231896](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231896.zip).

| [S4-231896](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231896.zip) | [FS\_XRTraffic] Application Layer FEC Traffic characteristics | Qualcomm Incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

[S4-231896](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231896.zip) is **presented to SA4 plenary**.

| [S4-231697](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231697.zip) | [FS\_XRTraffic] Application Layer FEC Traffic characteristics | Qualcomm incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Qi: Maybe for RTC we need to think about others like ULP etc
	+ Thomas: idea is not to design an FEC system but to document existing ones.

**Decision**:

* Agreed - will go plenary.

[S4-231697](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231697.zip) is **agreed and is presented to SA plenary.**

9.12 TEI New Work / New Work Items and Study Items

| [S4-231712](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231712.zip) | The Discussion on Glasses-free 3D Real-Time Communication(FS\_G3D) for Release 19 | China Mobile Com. Corporation, HuaWei, ZTE, Lenovo | Jiayi Xu |
| --- | --- | --- | --- |

**Presenter**: Jiayi Xu

**Online Discussion**:

* No online discussion

**Decision**:

* Thanks for the contribution. Noted

[S4-231712](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_126_Chicago/Docs/S4-231712.zip) is **noted.**

## 9.13 Liaisons and Liaison Responses

See 9.3.

## 9.14 Any Other Business

### 9.14.1 Report

The report will be made available in **S4-232037**.

### 9.14.2 Summary from Offline Discussions

Nothing provided in written.

### 9.14.3 Output documents

To be added

### 9.14.4 AHG Telcos

See individual time plans.

## 9.15 Close of the session

The chairman thanked the participants. Thomas Stockhammer thanked the chairman on behalf of the delegates.

The session was closed on November 16, 2023 at 14:39 (local time Chicago).

## 9.16 Attendees

| **TITLE** | **Family Name** | **Given Name** | **Employer Organization** | **On Site** | **Virtual** |
| --- | --- | --- | --- | --- | --- |
| Dr. | Abdelmalek | Yousef | Meta Ireland |  |  |
| Dr. | Abhishek | Rohit | AT&T |  |  |
| Dr. | Adhya | Aneek | IIT, Kharagpur |  |  |
| Dr. | Ahsan | Saba | Nokia Corporation |  |  |
| Mr. | Aracena | Mauricio | Ericsson LM | yes |  |
| Mr. | ARAI | KENJIRO | NTT |  |  |
| Dr. | Awoniyi-Oteri | Olufunmilola | QUALCOMM Europe Inc. - Italy |  |  |
| Mr. | Bae | Jaehyeon | Samsung Electronics Co., Ltd |  |  |
| Mr. | Baek | Youngkyo | Samsung R&D Institute UK |  |  |
| Dr. | Biatek | Thibaud | Nokia France |  | Yes |
| Dr. | Bishnoi | Pritam | TSDSI |  |  |
| Dr. | Bouazizi | Imed | Qualcomm Incorporated |  |  |
| Dr. | Bradbury | Richard | BBC |  |  |
| Mrs. | Brekalo | Andrijana | ETSI |  |  |
| Dr. | Bruhn | Stefan | Dolby Sweden AB |  |  |
| Dr. | Budagavi | Madhukar | Samsung Research America |  |  |
| Mr. | Burckard | Antoine | ETSI |  |  |
| Mr. | Burdinat | Christophe | ATEME |  |  |
| Mr. | Burman | Bo | Ericsson LM |  |  |
| Dr. | Cao | Gen | China Unicom |  |  |
| Dr. | Cetinkaya | Egemen | Verizon UK Ltd |  |  |
| Ms. | CHAKRABARTI | SAMITA | Verizon UK Ltd |  |  |
| Mr. | Chakraborty | Prasenjit | Samsung R&D Institute India |  |  |
| Mr. | Champel | Mary-Luc | Beijing Xiaomi Mobile Software |  |  |
| Mr. | Chen | Ben | BJTU |  |  |
| Dr. | Chen | Lulin | MediaTek Inc. |  |  |
| Mr. | Cheng | Hong | Qualcomm Incorporated |  |  |
| Miss | chong | vivian | VIVO TECH GmbH |  |  |
| Mr. | Coban | Muhammed | Qualcomm Technologies Int |  |  |
| Dr. | Curcio | Igor | Nokia Corporation |  |  |
| Mr. | Dawes | Peter | VODAFONE Group Plc |  |  |
| Mr. | Dawkins | Spencer | Tencent |  |  |
| Mr. | Doehla | Stefan | Fraunhofer IIS |  |  |
| Dr. | Dong | Hao | ZTE Corporation |  |  |
| Ms. | Ebschbach | Linda | umlaut |  |  |
| Dr. | Ehara | Hiroyuki | Panasonic Holdings Corporation |  |  |
| Ms. | Eitoku | Haruka | NTT corporation |  |  |
| Dr. | Featherstone | Walter | Apple France |  |  |
| Mr. | Fontaine | Loic | InterDigital France R&D, SAS |  |  |
| Ing. | Fotopoulou | Eleni | Fraunhofer IIS |  |  |
| Mr. | Gabin | Frederic | Dolby Laboratories Inc. |  |  |
| Mr. | Ganguly | Chittotosh | IIT, Kharagpur |  |  |
| Mrs. | Gao | Fei | China Mobile Com. Corporation |  |  |
| Mr. | Gao | Shuai | China Unicom |  |  |
| Mr. | Gao | Yuan | Huawei Technologies France |  |  |
| Miss | Ge | Cuili | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Ing. | Genovese | Andrea | Qualcomm Technologies Int |  |  |
| Mr. | Gestraud | Yann | Orange |  |  |
| Mr. | Gibellino | Diego | TELECOM ITALIA S.p.A. |  |  |
| Mrs. | Godoy | Gabriela | SDI Squared |  |  |
| Miss | Gonzalez | Veronica | VODAFONE Group Plc |  |  |
| Dr. | Gorley | Paul | BBC |  |  |
| Dr. | Grotz | Joel | SES S.A. |  |  |
| Mr. | Gu | Xiaojun | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Mr. | Gudumasu | Srinivas | InterDigital Communications |  |  |
| Mr. | Gül | Serhan | Nokia Germany | Yes |  |
| Mr. | Gunkel | Simon | TNO |  |  |
| Mr. | Gupta | Naman | Samsung Electronics Czech |  |  |
| Mr. | Gupta | Nishant | Qualcomm Technologies Int |  |  |
| Mr. | Gupta | Vivek | Apple Inc |  |  |
| Dr. | Gutierrez Estevez | David | Samsung R&D Institute UK |  |  |
| Dr. | Hamza | Ahmed | InterDigital Communications | Yes |  |
| Mr. | Harada | Akira | Panasonic Holdings Corporation |  |  |
| Dr. | Harada | Noboru | NTT |  |  |
| Mr. | Harper | Colby | Pivotal Commware |  |  |
| Dr. | Harris | Paul | VIAVI Solutions |  |  |
| Dr. | He | Xuan (Shane) | Nokia Germany |  |  |
| Dr. | Holub | Jan | Mesaqin.com s.r.o (Ltd.) |  |  |
| Mr. | Hong | Seungwoo | ETRI |  |  |
| Dr. | Hu | James | AT&T GNS Belgium SPRL |  |  |
| Miss | Hu | Yajie | HuaWei Technologies Co., Ltd |  |  |
| Mr. | Huang | Chuanzeng | Douyin |  |  |
| Mr. | Huang | Zhenning | China Mobile Com. Corporation |  |  |
| Mr. | Husak | Walt | Dolby Laboratories Inc. |  |  |
| Mr. | Hynonen | Olli | Ericsson LM |  |  |
| Mr. | Illahi | Gazi Karam | Nokia Corporation |  |  |
| Mr. | Inoue | Yoshihiro | NTT |  |  |
| Mr. | Jansson Toftgård | Tomas | Ericsson LM |  |  |
| Dr. | Jelinek | Milan | VoiceAge Corporation |  |  |
| Dr. | Ji | Zhu | Meta USA |  |  |
| Mr. | Jia | Yuhang | Tencent |  |  |
| Dr. | Jiang | Tianji | China Mobile Com. Corporation |  |  |
| Mr. | Jin | James | vivo Mobile Communication Co., |  |  |
| Dr. | Joshi | Rajan | Samsung Research America |  |  |
| Mr. | Kaippallimalil | John | Futurewei Technologies |  |  |
| Dr. | Karampatsis | Dimitrios | Motorola Mobile Com Technology |  |  |
| Miss | ke | xiaowan | vivo Mobile Communication Co., |  |  |
| Dr. | Kiani | Abbas | Futurewei |  |  |
| Dr. | Kim | Hyesung | Samsung R&D Institute UK |  |  |
| Mr. | Kirtan | Kirtan Gopal Panda | IIT, Kharagpur |  |  |
| Mr. | Kiss | Krisztian | Apple Distribution Intl Ltd |  |  |
| Dr. | Kolan | Prakash | Samsung Research America |  |  |
| Mr. | Koo | Junghoe | TTA |  |  |
| Dr. | Koza | Yvette | ZTE FRANCE SASU |  |  |
| Dr. | Kweon | Kisuk | Samsung Electronics Co., Ltd |  |  |
| Mr. | Kwon | WooSuk | LG Electronics Inc. | yes |  |
| Mr. | Laaksonen | Lasse | Nokia Corporation |  |  |
| Ms. | Lam | Maria | Verizon Switzerland AG |  |  |
| Dr. | Lee | Brian | Dolby Laboratories Inc. |  |  |
| Dr. | Lee | Hakju Ryan | Samsung R&D Institute UK |  |  |
| Ms. | Lee | Hoyeon | Samsung R&D Institute UK |  |  |
| Mr. | Lee | Jay | Verizon UK Ltd |  |  |
| Mr. | Lee | Jicheol | Samsung R&D Institute UK |  |  |
| Mr. | Lee | Juho | Samsung Electronics Co., Ltd |  |  |
| Dr. | Lehtiniemi | Arto | Nokia Corporation |  |  |
| Dr. | Lei | Ao | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Mr. | Lemotheux | Julien | Orange |  | Yes |
| Mr. | Leung | Nikolai | Qualcomm Germany |  |  |
| Mrs. | li | jing | China Unicom |  |  |
| Dr. | Li | Meng | HuaWei Technologies Co., Ltd |  |  |
| Ms. | LI | PEI | China Unicom |  |  |
| Miss | LI | QIUTING | ZTE Corporation |  |  |
| Mr. | LI | Xiaoqiang | Cybercore |  |  |
| Dr. | Li | Yunlong | China Telecom Corporation Ltd. |  |  |
| Mr. | Li | Zhendong | Nubia Technology Co.,Ltd |  |  |
| Dr. | Li | Zhidu | CQUPT |  |  |
| Dr. | Liangping | Ma | Qualcomm Austria RFFE GmbH |  |  |
| Mr. | Libunao | Gerardo | Verizon UK Ltd |  |  |
| Mr. | Lim | Suhwan | Meta Ireland |  |  |
| Mr. | Lintervo | Arvi | Nokia Corporation |  |  |
| Dr. | Litwic | Lukasz | Ericsson LM |  |  |
| Mr. | Liu | Yue | China Mobile Com. Corporation |  |  |
| Dr. | Lohmar | Thorsten | Ericsson LM |  |  |
| Mr. | Luetzenkirchen | Thomas | Intel Deutschland GmbH |  |  |
| Mr. | Lyu | Huazhang | vivo Mobile Communication Co., |  |  |
| Mr. | M Vamanan | Sudeep | Apple Benelux B.V. |  |  |
| Mr. | Mangion | Mathieu | ETSI |  |  |
| Mr. | MAO | Yuxin | Beijing Xiaomi Mobile Software |  |  |
| Mrs. | Martin-Cocher | Gaelle | InterDigital, Europe, Ltd. |  |  |
| Dr. | Mate | Sujeet | Nokia Corporation |  |  |
| Mr. | Mayer | Georg | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Dr. | Mccarthy | Sean | Dolby Laboratories Inc. |  |  |
| Dr. | Mekuria | Rufail | Huawei Technologies France |  |  |
| Dr. | Moon | Sang-Jun | Samsung Electronics Co., Ltd |  |  |
| Dr. | Moriya | Takehiro | NTT |  |  |
| Mr. | Multrus | Markus | Fraunhofer IIS |  |  |
| Dr. | Mustapha | Mona | Apple France |  |  |
| Mr. | NAKAMURA | Kazuo | NICT |  |  |
| Mr. | Nangia | Vijay | Motorola Mobility UK Ltd. |  |  |
| Mr. | Nayak | Ashok Kumar | Samsung R&D Institute India |  |  |
| Dr. | Ni | Hui | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Mr. | Norvell | Erik | Ericsson LM |  |  |
| Mr. | O'Leary | Edward | Rogers Communications Canada |  |  |
| Mr. | Onno | Stephane | InterDigital France R&D, SAS |  |  |
| Mr. | Outters | Jan | ATEME |  |  |
| Dr. | Pan | Qi | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Dr. | Park | Jungshin | Samsung Electronics Co., Ltd |  |  |
| Mr. | Pica | Francesco | Qualcomm Incorporated |  |  |
| Mr. | Plante | Fabrice | Apple (UK) Limited |  |  |
| Mr. | Podborski | Dimitri | Apple Benelux B.V. - Belgium |  |  |
| Mr. | Potetsianakis | Emmanouil | Beijing Xiaomi Mobile Software |  |  |
| Mr. | Pozo | Sergio | VODAFONE Group Plc |  |  |
| Mr. | Pudney | Chris | VODAFONE Group Plc |  |  |
| Mr. | Puvogel | Timothy | U.S. Department of Defense |  |  |
| Mr. | Ragot | Stephane | Orange |  |  |
| Miss | Ramazanirend | Elmira | VODAFONE Group Plc |  |  |
| Mr. | Rämö | Anssi | Nokia Corporation |  |  |
| Mr. | Reimes | Jan | HEAD acoustics GmbH |  |  |
| Dr. | Rhyu | Sungryeul | Samsung Electronics Co., Ltd | Yes |  |
| Dr. | Ridge | Justin | Nokia Corporation |  |  |
| Mr. | Riedmiller | Jeffrey | Dolby Laboratories Inc. |  |  |
| Ms. | Romaguera | Cristina | VODAFONE Group Plc |  |  |
| Ms. | Sabater | Susana | VODAFONE Group Plc |  |  |
| Mr. | Sällberg | Krister | Ericsson LM |  |  |
| Mr. | Sanchez de la Fuente | Yago | Fraunhofer HHI |  |  |
| Dr. | Schäfer | Magnus | HEAD acoustics GmbH |  |  |
| Mr. | Schevciw | Andre | Qualcomm Technologies Int |  |  |
| Mr. | Seed | Dale | Convida Wireless |  |  |
| Mr. | Shah | Sapan | Samsung R&D Institute India |  |  |
| Mr. | Sharp | Iain | ATIS |  |  |
| Mrs. | SHI | Susan | HUAWEI Technologies Japan K.K. |  |  |
| Ms. | Shi | Xiaonan | China Mobile Com. Corporation |  |  |
| Mr. | Smith | David | CableLabs |  |  |
| Dr. | Sodagar | Iraj | Tencent |  |  |
| Mr. | Soloway | Alan | Qualcomm Technologies Int |  |  |
| Mr. | Son | Jangwoo | Fraunhofer HHI |  |  |
| Dr. | Song | Jaeyeon | Samsung Electronics Co., Ltd |  |  |
| Mr. | Song | Yue | China Mobile Com. Corporation |  |  |
| Mr. | Srikanth | Nagisetty | Panasonic Holdings Corporation |  |  |
| Mr. | Steck | Chris | DTS Licensing Limited |  |  |
| Mr. | Stegenborg-Andersen | Tore | FORCE Technology |  |  |
| Mr. | Stein | Alan | InterDigital, Europe, Ltd. | yes |  |
| Dr. | Stockhammer | Thomas | Qualcomm Germany | yes |  |
| Dr. | Stoica | Razvan-Andrei | Motorola Mobility Germany GmbH | yes |  |
| Dr. | Su | Huan-yu | HuaWei Technologies Co., Ltd |  |  |
| Dr. | Suh | Dongeun | Samsung R&D Institute UK |  |  |
| Mr. | Sun | Haiyang | HuaWei Technologies Co., Ltd |  |  |
| Dr. | Sun | Tao | China Mobile M2M Company Ltd. |  |  |
| Ms. | Sun | Xiaowen | vivo Mobile Communication Co., |  |  |
| Mr. | sun | zhao | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Dr. | Szczerba | Marek | Philips International B.V. |  |  |
| Mr. | Szucs | Paul | Sony Europe B.V. |  |  |
| Dr. | Tech | Gerhard | Fraunhofer HHI |  |  |
| Mr. | Teniou | Gilles | Tencent |  |  |
| Mr. | Thomas | Emmanuel | Beijing Xiaomi Mobile Software |  |  |
| Dr. | Tourapis | Alexandros | Apple GmbH |  |  |
| Mr. | Varga | Imre | Qualcomm Germany |  |  |
| Mr. | Velev | Genadi | Motorola Mobility Germany GmbH |  |  |
| Dr. | Venkatraman | Atti | Apple Benelux B.V. |  |  |
| Dr. | VENMANI | Daniel Philip | Nokia France |  |  |
| Mr. | Wang | Bin | Beijing Xiaomi Mobile Software |  |  |
| Ms. | Wang | Chan | Pengcheng laboratory |  |  |
| Ms. | Wang | Dan | China Mobile Com. Corporation |  |  |
| Mr. | Wang | Dong | Guangdong OPPO Mobile Telecom. |  |  |
| Mr. | Wang | Wen | vivo Mobile Communication Co., |  |  |
| Dr. | Wang | Xin | MediaTek Inc. |  | yes |
| Mr. | Wei | Xinpeng | Huawei Technologies France |  |  |
| Mr. | Wong | Curt | Meta USA |  |  |
| Ms. | WU | Jinhua | Beijing Xiaomi Mobile Software |  |  |
| Mr. | Wu | Nien | Beijing Xiaomi Mobile Software |  |  |
| Mr. | Wüstenhagen | Ulf | Deutsche Telekom AG |  |  |
| Mr. | Xie | Zhenhua | vivo Mobile Communication Co., |  |  |
| Dr. | Xin | Tingyu | Samsung R&D Institute UK |  |  |
| Mr. | Xiong | Chunshan | CICT |  |  |
| Miss | Xu | Jiayi | China Mobile Com. Corporation |  | yes |
| Ms. | Xu | Yishan | Huawei Technologies R&D UK |  |  |
| Mr. | Yamamoto | Hiroshi | NTT |  |  |
| Dr. | Yang | Hyun-Koo | Samsung Electronics Co., Ltd |  |  |
| Mrs. | Yin | Yujian | China Mobile Com. Corporation |  |  |
| Mr. | Yip | Eric | Samsung Electronics Co., Ltd |  |  |
| Dr. | Yoon | Joonhee | LG Electronics Inc. |  |  |
| Ms. | Yu | Grace | Meta Ireland |  |  |
| Mr. | Yu | Hang | vivo Mobile Com. (Chongqing) |  |  |
| Dr. | Zhang | Amy | vivo Japan KK |  |  |
| Mr. | zhang | dejun | Douyin |  |  |
| Dr. | Zhang | Yongjing | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Dr. | Zhao | Shuai | Intel |  |  |
| Mr. | Zhou | Runze | Huawei Technologies France |  |  |
| Mrs. | Zhu | Fangyuan | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Mr. | Zhu | Fenqin | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Mr. | Zhu | Jinguo | ZTE Corporation. |  |  |
| Dr. | Zia | Waqar | Apple Switzerland AG | Yes |  |
| Mr. | Zwingmann | Holger | umlaut |  |  |