Video SWG Minutes during SA4#123e

## 9.1 Opening of the session

Mr. Gilles Teniou (Tencent, Chairman of Video SWG) opens the Video SWG on April 17, 2023 at 17:00 CEST.

E-mail discussion started already on 4/17/2023 8:22:42.

| Gilles Teniou | [Start of SA4#123-e meeting - VIDEO SWG](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a0ee1eb6.2304c) | 4/17/2023 8:22:42 | Dear all,  I hope you’re doing well.  Welcome to the VIDEO SWG during this SA4#123-e meeting.  The proposed agenda with Tdoc allocation is available here:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/Agenda/Proposed%20meeting%20agenda%20for%20VIDEO%20SWG%20during%20SA4%23123-e.docx  Given the short e-meeting, I will very soon trigger email agreements for  all documents.  Here is a quick reminder the of schedule  Milestone/session  Date  CEST  PDT  KST  Start of SA4 e-meeting (Email)  14th Apr  9am  midnight  4pm  Start of Block A [...] |
| --- | --- | --- | --- |
| Gilles Teniou | [Start of SA4#123-e meeting - VIDEO SWG](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e6e27998.2304c) | 4/17/2023 8:34:51 | Apologies,  I forgot to include FS\_ARMRQoE study in the per session schedule:  Indicative schedule per session:  \* Slot1: MeCAR  \* Slot2: FS\_AI4media  \* Slot3: FS\_XRTraffic / New Work / FS\_ARMRQoE / Washup  Gilles  De : "teniou(TeniouGilles)" <teniou@tencent.com>  Date : lundi 17 avril 2023 à 10:22  À : 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Objet : Start of SA4#123-e meeting - VIDEO SWG  Dear all,  I hope you’re doing well.  Welcome to the VIDEO SWG during this SA4#123-e meeting. [...] |

Mr. Thomas Stockhammer (Qualcomm) is assigned as scribe.

The minutes are shared [Video SWG Minutes during SA4#123-e](https://docs.google.com/document/d/1u0Kpud29ke-d2Rjw2Fz9PWXYp3qdNl4DMiblPbwfCR8/edit?usp=sharing).

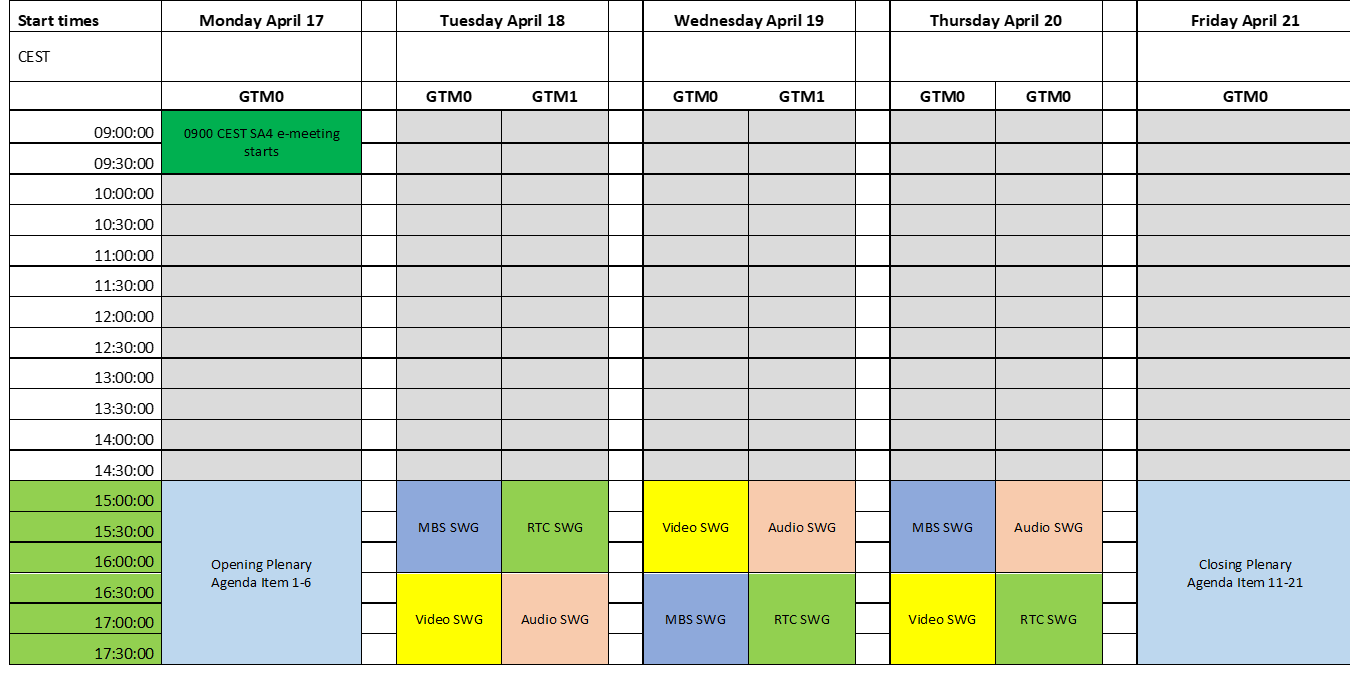
Attendees are listed [here](#53atppdqs1pe), please tickle the box next to your name.

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

* https://list.etsi.org/scripts/wa.exe?A1=ind2304C&L=3GPP\_TSG\_SA\_WG4\_VIDEO

The latest timestamp for e-mail is here: 2023-04-20T22:04:23+02:00

**SA4 Schedule:**



**Video Schedule**

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The agenda and the registration of documents are approved.

## 9.2 Registration of documents

### 9.2.1 Initially registered documents

| TDoc | Title | Source | Agenda item |
| --- | --- | --- | --- |
| [S4-230489](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230489.zip) | Colour Conversion Module for Image Processing | China Mobile Com. Corporation | 9.5 |
| [S4-230527](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230527.zip) | [MeCAR] Addition of gaze point to interaction metadata | Samsung Electronics Co., Ltd | 9.5 |
| [S4-230540](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230540.zip) | [MeCAR] TS 26.119 - Specification Framework | Qualcomm incorporated | 9.5 |
| [S4-230541](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230541.zip) | [MeCAR] Metrics Framework | Qualcomm incorporated | 9.5 |
| [S4-230549](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230549.zip) | [MeCAR] Capabilities Profile for Pixel Streaming | Qualcomm CDMA Technologies | 9.5 |
| [S4-230571](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230571.zip) | [MeCAR] proposed update on the definitions | Tencent Cloud | 9.5 |
| [S4-230576](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230576.zip) | [MeCAR] Volumetric video operation points | Nokia Corporation , Interdigital, Sony Group Corporation, Intel | 9.5 |
| [S4-230577](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230577.zip) | [MeCAR] Signaling available visual space | Tencent Cloud | 9.5 |
| [S4-230580](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230580.zip) | Initial transfer from Permanent Document | Xiaomi Communications | 9.5 |
| [S4-230581](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230581.zip) | [MeCAR] User interaction QoE | InterDigital Finland Oy | 9.5 |
| [S4-230582](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230582.zip) | [MeCAR] Pose information QoE | InterDigital Finland Oy | 9.5 |
| [S4-230591](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230591.zip) | [MeCAR] Proposed updated on the architecture | Tencent Cloud | 9.5 |
| [S4-230621](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230621.zip) | RGBD content format and proposed device supports | Xiaomi Communications | 9.5 |
| [S4-230622](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230622.zip) | [MeCAR] MeCAR Permanent Document v6.0 | Xiaomi Communications | 9.5 |
| [S4-230623](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230623.zip) | [MeCAR] V3C Streaming Technologies and Considerations for MeCAR | InterDigital Communications | 9.5 |
| S4-230625 | MeCAR Work Plan | Xiaomi Communications | 9.5 |
| S4-230538 | [FS\_XRTraffic] Proposed Updates to TR 26.926 | Qualcomm incorporated | 9.6 |
| [S4-230539](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230539.zip) | [FS\_XRTraffic] Proposed Updated Time Plan | Qualcomm incorporated | 9.6 |
| [S4-230508](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230508.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics France SA | 9.7 |
| [S4-230509](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230509.zip) | [FS\_AI4Media] Scenario Template for Evaluation Framework | Samsung Electronics France SA | 9.7 |
| [S4-230510](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230510.zip) | [FS\_AI4Media] Scenario for split inferenced human pose estimation | Samsung Electronics France SA | 9.7 |
| [S4-230511](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230511.zip) | [FS\_AI4Media] Updates on procedure for Split AI/ML operation | Samsung Electronics France SA | 9.7 |
| [S4-230553](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230553.zip) | [FS\_AI4Media] Proposal for Evaluation Framework for AI/ML | Qualcomm CDMA Technologies | 9.7 |
| [S4-230565](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230565.zip) | [FS\_AI4Media] Scenario for transmission of AI/ML model data | Fraunhofer HHI | 9.7 |
| [S4-230583](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230583.zip) | [FS\_AI4Media] Template for clause 7 AI/ML framework evaluation | InterDigital Finland Oy | 9.7 |
| [S4-230584](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230584.zip) | [FS\_AI4Media] Frameworks for evaluation | InterDigital Finland Oy | 9.7 |
| [S4-230585](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230585.zip) | [FS\_AI4Media] Models for evaluation | InterDigital Finland Oy | 9.7 |
| [S4-230587](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230587.zip) | [FS\_AI4Media] Intermediate data testbed architecture | InterDigital Finland Oy | 9.7 |
| [S4-230588](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230588.zip) | [FS\_AI4Media] Intermediate data testbed implementation example | InterDigital Finland Oy | 9.7 |
| [S4-230589](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230589.zip) | [FS\_AI4Media] Intermediate data scenarios for evaluation | InterDigital Finland Oy | 9.7 |
| [S4-230592](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230592.zip) | AI/ML model format: TensorFlow | Tencent | 9.7 |
| [S4-230593](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230593.zip) | AI/ML model format: PyTorch | Tencent | 9.7 |
| [S4-230502](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230502.zip) | Discussion on the typical procedure for ARMR QoE metric identification | Huawei, HiSilicon | 9.8 |
| [S4-230515](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230515.zip) | Discussion on the Observation Points Monitoring | China Unicom | 9.8 |
| [S4-230493](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230493.zip) | Discussion on new HEVC profiles and operating points | Apple, Dolby Laboratories Inc., Fraunhofer HHI | 9.9 |
| [S4-230494](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230494.zip) | New WID on new HEVC profiles and operating points | Apple, Dolby Laboratories Inc., Fraunhofer HHI | 9.9 |

### 9.2.2 Additional documents during week

| **TDoc** | **Title** | **Source** | **Agenda item** |
| --- | --- | --- | --- |
| [**S4-230635**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230635.zip) | [MeCAR] Volumetric video operation points | Nokia Corporation , Interdigital, Sony Group Corporation, Intel, Phillips, Samsung | 9.5 |
| [**S4-230640**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230640.zip) | [MeCAR] V3C Streaming Technologies and Considerations for MeCAR | InterDigital Communications | 9.5 |
| [S4-230643](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230643.zip) | MeCAR Permanent Document v7.0 | Xiaomi Communications | 9.5 |
| [S4-230669](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230669.zip) | [MeCAR] Capabilities Profile for Pixel Streaming | Qualcomm CDMA Technologies | 9.5 |
| [S4-230698](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230698.zip) | [MeCAR] Addition of gaze point to interaction metadata | Samsung Electronics Co., Ltd | 9.5 |
| [S4-230701](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230701.zip) | [MeCAR] Volumetric video operation points | Nokia Corporation , Interdigital, Sony Group Corporation, Intel, Phillips, Samsung | 9.5 |
| [**S4-230706**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230706.zip) | [MeCAR] User interaction QoE | InterDigital Finland Oy | 9.5 |
| [S4-230707](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230707.zip) | Colour Conversion Module for Image Processing | China Mobile Com. Corporation | 9.5 |
| [**S4-230708**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230708.zip) | [MeCAR] Pose information QoE | InterDigital Finland Oy | 9.5 |
| [S4-230716](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230716.zip) | [MeCAR] Signaling available visual space | Tencent Cloud | 9.5 |
| [S4-230723](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230723.zip) | RGBD content format and proposed device supports | Xiaomi Communications | 9.5 |
| [S4-230729](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230729.zip) | [MeCAR] Merged Draft Specification | Qualcomm incorporated, Xiaomi, Tencent | 9.5 |
| [S4-230647](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230647.zip) | [FS\_AI4Media] Unified Evaluation Framework | Samsung Electronics France SA, Qualcomm Inc., Interdigital Finland Oy, Fraunhofer HHI, Tencent | 9.7 |
| [S4-230648](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230648.zip) | [FS\_AI4Media] Permanent Document v0.7 | Samsung Electronics France SA | 9.7 |
| [S4-230673](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230673.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics France SA | 9.7 |
| [S4-230682](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230682.zip) | [FS\_AI4Media] Updates on procedure for Split AI/ML operation | Samsung Electronics France SA, Interdigital Finland Oy | 9.7 |
| [S4-230712](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230712.zip) | AI/ML model format: TensorFlow | Tencent | 9.7 |
| [S4-230714](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230714.zip) | AI/ML model format: PyTorch | Tencent | 9.7 |
| [S4-230692](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230692.zip) | Discussion on the typical procedure for ARMR QoE metric identification | Huawei, HiSilicon | 9.8 |
| [S4-230696](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230696.zip) | Discussion on the Observation Points Monitoring | China Unicom, Qualcomm Incorporated | 9.8 |
| [S4-230663](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230663.zip) | New SID on new HEVC profiles and operating points | Apple, Dolby Laboratories Inc., Fraunhofer HHI | 9.9 |
| [S4-230699](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230699.zip) | Draft TR 26.812 QoE metrics for AR/MR services v0.4.0 | China Unicom (Rapporteur) | 9.8 |
| [S4-230700](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230700.zip) | [FS\_ARMR\_QoE] Proposed Updated Time Plan | China Unicom | 9.8 |

## 9.3 Reports and liaisons from other groups

none

## 9.4 CRs to Features in Release 17 and earlier

No input

## 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’*

| [S4-230489](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230489.zip) | Colour Conversion Module for Image Processing | China Mobile Com. Corporation | Jiayi Xu |
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**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b6b9387f.2304c) | 4/17/2023 9:02:32 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230489<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230489.zip>  Colour Conversion Module for Image Processing  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Thomas Stockhammer | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;6e411637.2304c) | 4/17/2023 12:16:25 | Colleagues,  Thanks. We are a bit unclear if this aspect addresses the conversion of  generated data from RGB to YUV or YUV to RGB.  On the latter, we agree that in a split rendering concept when using  regular video codecs, typically a conversion from YUV to RGB needs to be  done to support the rendering on a run-time. [...] |
| Xu Jiayi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;47246bbd.2304c) | 4/17/2023 14:40:14 | Dear Thomas,  Thank you for your feedback. Please see my responses inline.  Jiayi  ----邮件原文----发件人：Thomas Stockhammer  <tsto@QTI.QUALCOMM.COM>收件人：3GPP\_TSG\_SA\_WG4\_VIDEO  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>抄 送: (无)发送时间：2023-04-17 20:16:25主题：Re:  [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image  Processing  Colleagues,  Thanks. We are a bit unclear if this aspect addresses the conversion of  generated data from RGB to YUV or YUV to RGB.  [Jiayi] We think both RGB->YUV and YUV->RGB conversion need to be  supported. We agree to add the YUV->RGB conversion function into the  document. [...] |
| Serhan Guel | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9d4b4cfb.2304c) | 4/17/2023 16:14:01 | Hi Jiayi,  Thanks for the contribution. I have two comments:  \* The more correct term to use for the color storage format is YCbCr. On  the other hand, frameworks like FFmpeg also use the term YUV to indicate  different YCbCr formats; so there might be some ambiguity. We should at  least note the distinction.  \* The conversion formula depends on the used color space. For example,  there are differences between BT.601 and BT.709. Either this should be  taken into account for the conversion formula, or the formula should not be  given. [...] |
| Xu Jiayi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;eae696cf.2304c) | 4/18/2023 1:38:06 | Hi Serhan,  Thanks for the feedback. Please find my responses inline.  The more correct term to use for the color storage format is YCbCr. On the  other hand, frameworks like FFmpeg also use the term YUV to indicate  different YCbCr formats so there might be some ambiguity. We should at  least note the distinction. [...] |
| Imed Bouazizi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;ef1f91b8.2304c) | 4/18/2023 4:27:30 | Thanks China Mobile colleagues for the updated contribution. On top of what  Thomas mentioned, I would like to invite the authors and experts to  consider the different color gamuts and corresponding conversion formulas,  rather than suggesting a single conversion formula.  Vulkan API, as an example, supports the following YCbCr to RGB conversions:  [...] |
| Xu Jiayi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4d1a4f14.2304c) | 4/18/2023 5:29:36 | Hi Imed,  Thank you for the comments. We agree not to specify the conversion formula  and instead refer to ITU-R BT601, BT709, and BT2020 as references. However,  we believe that mentioning a specific API is not necessary, as there are  many ways to perform the conversion, such as acceleration frameworks.  We use the NV21 format as an example because it is the default format for  Camera preview images on Android devices. However, the colour conversion  procedure we proposed is applicable for other YCbCr formats as well. The  only difference is how the Y, U, V values are stored. [...] |
| Xu Jiayi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4b92352c.2304c) | 4/19/2023 2:33:02 | Dear all,  A revision of S4-230490\_R1 is uploaded:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230489\_R1.docx |
| Xu Jiayi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module forImage Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f75720b4.2304c) | 4/20/2023 10:27:54 | Dear all,  A revision of S4-230489 is uploaded:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230489\_R2.docx |
| Thomas Stockhammer | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for Image Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;75c42f03.2304c) | 4/20/2023 13:48:48 | Xu,  I still have some corrections and comments:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230489\_R1\_QCOM.docx  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Xu Jiayi  Sent: Wednesday, April 19, 2023 4:33 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module for  Image Processing  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros. [...] |
| Xu Jiayi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module forImage Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;727bfc6a.2304c) | 4/20/2023 14:54:10 | Hi Thomas,  Thank you for your comment. We appreciate your revisions and generally  agree with them. In regards to the runtime, please find our response below.  [Thomas] This is unclear. Why does the runtime send a rendered frame. It  sends a captured frame, does it not?  [Jiayi] In MeCAR permenate document, it states that: [...] |
| Xu Jiayi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion ModuleforImage Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;1009a3c1.2304c) | 4/20/2023 14:57:13 | Hi Thomas,  Thank you for your comment. We appreciate your revisions and generally  agree with them. In regards to the runtime, please find our response below.  [Thomas] This is unclear. Why does the runtime send a rendered frame. It  sends a captured frame, does it not?  [Jiayi] In MeCAR permenate document, it states that: [...] |
| Thomas Stockhammer | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module forImage Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;dd3adae3.2304c) | 4/20/2023 15:03:00 | There seems to be a misunderstanding. The frame sent to the display stays  on the device.  If you have a camera that captures data, this may be sent to the network.  /T  From: Xu Jiayi <xujiayi@chinamobile.com>  Sent: Thursday, April 20, 2023 4:54 PM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>; 3GPP\_TSG\_SA\_WG4\_VIDE  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Subject: Re:RE: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion Module  forImage Processing [...] |
| Xu Jiayi | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion ModuleforImage Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;cc67c596.2304c) | 4/20/2023 15:21:54 | The frame can stay on the device for local presentation, and simultaneously  sends a copy of the rendered frames to the color conversion module. |
| Thomas Stockhammer | [Re: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion ModuleforImage Processing](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9fa00bda.2304c) | 4/20/2023 15:24:15 | But once sent to display, it will not stay. I am unclear  From: Xu Jiayi <xujiayi@chinamobile.com>  Sent: Thursday, April 20, 2023 5:22 PM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>; 3GPP\_TSG\_SA\_WG4\_VIDE  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Subject: Re:RE: Re:RE: [MeCAR, 489, 18th Apr 1200CEST] Colour Conversion  ModuleforImage Processing  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros. [...] |

**Revisions**:

* [S4-230489\_R1.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230489_R1.docx)
* [S4-230489\_R1\_QCOM.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230489_R1_QCOM.docx)
* [S4-230489\_R2.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230489_R2.docx)

**Presenter**: Jiayi Xu

**Online Discussion**:

* April 18, 2023: Gilles summarizes the discussion
  + Jiayi proposes to have an update, but needs to be uploaded.
  + Gilles encourages to provide the details where the colour conversion would happen
* April 20, 2023: Jiayi presents to [r01\_QCOM](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230489_R1_QCOM.docx)
  + Thomas: still unclear what sending from the XR Runtime means. If at all, it is the output from the renderer that is than grabbed instead of being sent to the runtime.
    - Jiayi explains that this is the case
    - XR Runtime changed to XR Application

**Decision**:

* April 18, 2023: update expected to address the above comments
* April 20, 2023: revision [r01\_QCOM](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230489_R1_QCOM.docx) with above comments is agreed. Revision expected

[**S4-230489**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230489.zip) is **revised** to [S4-230707](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230707.zip).

| [S4-230707](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230707.zip) | Colour Conversion Module for Image Processing | China Mobile Com. Corporation | Jiayi Xu |
| --- | --- | --- | --- |

[S4-230707](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230707.zip) is **agreed**.

| [S4-230527](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230527.zip) | [MeCAR] Addition of gaze point to interaction metadata | Samsung Electronics Co., Ltd | Sungryeul Rhyu |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Serhan Guel | [Re: [MeCAR, 527, 18th Apr 1200CEST] Addition of gaze point to interaction metadata](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a0a5ac39.2304c) | 4/17/2023 16:57:17 | Hi Sungryeul,  Thanks. I'm generally fine with the information but have a minor concern.  Gaze point and gaze distance are not eye gaze per se; rather they are  constructs derived in the XR engine from the eye gaze. For example, a ray  cast starting from the gaze origin in the gaze direction gives the gaze  point, and the gaze distance can be calculated based on the gaze point.  Other things can be derived as well such as the 2D projection of the gaze  point. [...] |
| --- | --- | --- | --- |
| Sungryeul Rhyu | [Re: (2) [MeCAR, 527, 18th Apr 1200CEST] Addition of gaze point to interaction metadata](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7049c57e.2304c) | 4/18/2023 2:54:50 | Full message available at: Re: (2) [MeCAR, 527, 18th Apr 1200CEST] Addition  of gaze point to interaction metadata |
| Thomas Stockhammer | [Re: [MeCAR, 527, 18th Apr 1200CEST] Addition of gaze point to interaction metadata](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4e425342.2304c) | 4/18/2023 9:16:31 | Thanks colleagues for the contribution.  We are currently unclear how this distance would be measured and obtained  in an existing run time. As an example, OpenXR has 2 extension for eye  gaze, one for interaction and one for tracking. None of them supports  getting a distance.  The FB return struct is:  https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html#XrEyeGazeFB  [...] |
| Sungryeul Rhyu | [Re: (2) [MeCAR, 527, 18th Apr 1200CEST] Addition of gaze point to interaction metadata](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8f99b50d.2304c) | 4/18/2023 11:48:34 | Full message available at: Re: (2) [MeCAR, 527, 18th Apr 1200CEST] Addition  of gaze point to interaction metadata |
| Sungryeul Rhyu | [Re: (2) [MeCAR, 527, 18th Apr 1200CEST] Addition of gaze point to interaction metadata](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e0da6014.2304c) | 4/19/2023 5:24:21 | Dear all,  Revision of the 527 is available at:  https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230527\_r01.docx  Best regards,  SR  > On Apr 18, 2023, at 20:48, Sungryeul Rhyu <suzz.rhyu@samsung.com> wrote:  >  > Dear Thomas,  >  > Thanks for your comment.  > We can find some reference - Eyes under XRModule in Unity:  https://docs.unity3d.com/ScriptReference/XR.Eyes.html  > TryGetFixationPoint() function provides the point represents the  convergence of the line of sight for both eyes - proposed as gaze point in  527.  > The distance can be get between gaze origin and gaze point.  >  > We can see some examples using the distance:  https://docs.unity3d.com/Packages/com.unity.xr.interaction.toolkit@2.3/api/UnityEngine.XR.Interaction.Toolkit.XRGazeInteractor.html  > XR Interaction toolkit from Unity [...] |

**Revisions**:

* [S4-230527\_r01.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230527_r01.docx)

**Presenter**: Sungryeul Rhyu

**Online Discussion**:

* 2023/04/18:
  + Gilles summarizes the discussion
  + Emmanuel: good to know the information
  + Imed: OpenXR is the reference and does not support the functionality
    - SR: provided pointers to Unity
    - Thomas: prefers to really ensure that such metadata is defined externally and be captured and derived. If no standard is available it would be good that there is a process to be established.
    - SR: no plans for any submission
  + Dimitri: Focus on OpenXR may be too significant. We do not need it.
    - Gilles: repeats the agreement from the Toulouse meeting
    - Dimitri: believe that we should focus more and not be all over the place
    - Thomas: Please bring contribution, if you have any concerns.
  + Imed: on OpenXR shortcoming, Unity has migrated to OpenXR. Unity is doing some try and get, but if not supported the method will fail. It is not a shortcoming of OpenXR.
  + SR will update the contribution and provide a revision in r01.
* 2023/04/20: SR presents [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230527_r01.docx)
  + No comments
  + agreed

**Decision**:

* 2023/04/18: Decision to create a revision based on the above comments.
* 2023/04/20: [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230527_r01.docx) is agreed - revised to 698.

[**S4-230527**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230527.zip) is **revised** to [**S4-230698**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230698.zip).

| [S4-230698](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230698.zip) | [MeCAR] Addition of gaze point to interaction metadata | Samsung Electronics Co., Ltd | Sungryeul Rhyu |
| --- | --- | --- | --- |

[S4-230698](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230698.zip) is **agreed**.

| [S4-230540](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230540.zip) | [MeCAR] TS 26.119 - Specification Framework | Qualcomm incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a195a515.2304c) | 4/17/2023 9:01:34 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230540<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230540.zip>  [MeCAR] TS 26.119 - Specification Framework  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Emmanuel Thomas | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;391db5e2.2304c) | 4/17/2023 14:01:28 | Dear Thomas,  Thanks for this contribution, there is good material to populate a first TS  version in this.  However, the main change brought up here is to change MeCAR to MeCXR. We  can use XR devices for the purpose of MeCAR and AR applications, e.g. the  new device type for smartphones we introduced last time. But it doesn’t  mean, I believe, that we should automatically extend the scope of MeCAR to  all XR in terms of applications. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3cb67714.2304c) | 4/17/2023 14:26:46 | Emmanuel,  I believe it is tricky to reduce to AR only. Why? Because we have no SA4  specs that handle XR. If we strictly reduce to AR, we miss anything of 3D  media presentation, etc. I believe narrowing to AR is not good as it is not  addressing the more general use cases. [...] |
| Su Huanyu | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;ded4ebc9.2304c) | 4/18/2023 1:19:03 | Dear all,  We are also concerned that changing to XR is not supported by the agreement  reached on the MeCAR WID.  Best regards,  Huan-yu Su  Huawei  Please click  here<http://r.huaweistatic.com/s/esddp/agreement/v1/app\_000000035837/PSTA/20201109/Windows/en\_US.html>  to see Huawei GDPR privacy statement.  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: Monday, April 17, 2023 22:27  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework [...] |
| Thomas Stockhammer | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4643a339.2304c) | 4/18/2023 9:37:12 | All,  I have a severe issue that we have no XR capabilities in 3GPP SA4. We got  side tracked with STAR, but XR and 3D signal processing is needed in 3GPP  and hence, we do not see why we would not exploit the abilities of XR media  in a single capability spec. [...] |
| Saba Ahsan | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;eaf4f470.2304c) | 4/18/2023 10:10:42 | Hi Thomas,  Thanks for providing this contribution.  I am not entirely sure what the intention with sections 4.1.2-4.1.5 is. Do  you think it may be sufficient to have a more concise description with a  pointer to OpenXR where needed.  Note that in our contribution 576, we think that we also need to define  rendering metadata operation point. This can be part of clause 6 on Visual  functions and capabilities. The metadata operation point can be used for  defining atlas data handling capabilities for V3C, but also other types of  rendering metadata can be defined here. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;2e1d98a0.2304c) | 4/18/2023 10:23:24 | Inline  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Saba Ahsan (Nokia)  Sent: Tuesday, April 18, 2023 12:11 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Hi Thomas,  Thanks for providing this contribution.  I am not entirely sure what the intention with sections 4.1.2-4.1.5 is. Do  you think it may be sufficient to have a more concise description with a  pointer to OpenXR where needed.  [[TS]] The intention is to provide the exact assumptions of what we [...] |
| Thomas Stockhammer | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;df105bf5.2304c) | 4/18/2023 21:49:34 | All,  A revision is uploaded after the offline:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230540r01.zip  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: Tuesday, April 18, 2023 12:23 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Inline [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9e7629b8.2304c) | 4/20/2023 1:12:13 | Hello everyone, Thomas,  I have spent a couple hours reviewing this document and I have not reached  the end of it. I am highlighting here a few comments only.  There are quite some typos, and editorial issues, that I can send later in  a revised document. All those can be fixed. Just pointing to a few major  ones: [...] |
| Thomas Stockhammer | [Re: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8c2b27e4.2304c) | 4/20/2023 6:47:16 | Gaelle,  Thanks  inline  Thomas  From: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>  Sent: Thursday, April 20, 2023 3:12 AM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 540, 18th Apr 1200CEST] Specification Framework  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Hello everyone, Thomas,  I have spent a couple hours reviewing this document and I have not reached  the end of it. I am highlighting here a few comments only. [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230540r01.zip

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* April 18, 2023: deferred to offline
* April 20, 2023: merged into 729 and sent to plenary

**Decision**:

* Merged to 729 and sent to plenary

[**S4-230540**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230540.zip) is **merged** to [S4-230729](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230729.zip).

| [S4-230729](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230729.zip) | [MeCAR] Merged Draft Specification | Qualcomm incorporated, Xiaomi, Tencent | Thomas Stockhammer |
| --- | --- | --- | --- |

[S4-230729](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230729.zip) is **sent to SA4 plenary.**

| [S4-230541](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230541.zip) | [MeCAR] Metrics Framework | Qualcomm incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 541, 18th Apr 1200CEST] Metrics Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7cbee183.2304c) | 4/17/2023 9:00:37 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230541<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230541.zip>  [MeCAR] Metrics Framework  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Su Huanyu | [Re: [MeCAR, 541, 18th Apr 1200CEST] Metrics Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;90ce5fd6.2304c) | 4/18/2023 1:24:40 | Dear Thomas, all,  Thank you for your contribution.  One simple comment: there might be a risk of double definition of rendering  loop with 230540.  Best regards,  Huan-yu Su  Huawei  Please click  here<http://r.huaweistatic.com/s/esddp/agreement/v1/app\_000000035837/PSTA/20201109/Windows/en\_US.html>  to see Huawei GDPR privacy statement.  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: Monday, April 17, 2023 17:01  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [MeCAR, 541, 18th Apr 1200CEST] Metrics Framework [...] |
| Thomas Stockhammer | [Re: [MeCAR, 541, 18th Apr 1200CEST] Metrics Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;37570962.2304c) | 4/18/2023 9:35:19 | 541 just brings the relevant discussion for metrics from 540.  So no risk. 541 is for PD, 540 for TS.  /T  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Su Huanyu  Sent: Tuesday, April 18, 2023 3:25 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 541, 18th Apr 1200CEST] Metrics Framework  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Dear Thomas, all, [...] |
| Stephane Onno | [Re: [MeCAR, 541, 18th Apr 1200CEST] Metrics Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;51158fcc.2304c) | 4/18/2023 9:51:11 | Dear Thomas, Colleagues  Thank you for your contribution.  We have a comment on the “Figure X Rendering loop for visual data”. The  actions should be processed by the scene graph handler before rendering the  scene. Therefore, the actions arrow starting from the XR runtime should  reach the scene graph handler missing from the figure. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 541, 18th Apr 1200CEST] Metrics Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c6c78f97.2304c) | 4/18/2023 10:03:47 | Stephane,  We want to make the spec accessible to someone who is not in our  discussion. When speaking with internal colleagues in XR Business Unit,  basically everything except the XR Runtime is an application. Now we are  splitting off certain components for which we want to define media  capabilities (codecs, rendering and so on). [...] |

**Revisions**: none

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* 2023/04/18: Thomas and Gilles summarize the discussion
  + Emmanuel: support addition.
  + On scene description, can be handled as a note

**Decision**:

* Agreed for PD

[**S4-230541**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230541.zip) is **agreed**.

| [S4-230549](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230549.zip) | [MeCAR] Capabilities Profile for Pixel Streaming | Qualcomm CDMA Technologies | Imed Bouazizi |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Emmanuel Thomas | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c8d90f96.2304c) | 4/17/2023 14:24:38 | Dear Qualcomm colleagues,  Thanks for the contributions.  I haven’t followed closely enough, is this Pixel Streaming profile related  to existing technologies e.g. Overview of Pixel Streaming in Unreal Engine  | Unreal Engine 5.1  Documentation<https://docs.unrealengine.com/5.1/en-US/overview-of-pixel-streaming-in-unreal-engine/>?  Or is jut a naming coincidence?  Best regards,  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: 17 April 2023 11:02  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel  Streaming [...] |
| --- | --- | --- | --- |
| Iraj Sodagar | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;322c03d.2304c) | 4/17/2023 19:54:01 | Dear Imed,  As I said in the call, it would be good to do an actual comparison between  the pixel streaming profile and the MeCAR baseline profile and see the  major differences in their media capabilities. Ideally, the MeCAR baseline  profile will support the media capability requirements of Pixel streaming  profile. [...] |
| Bruhn, Stefan | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5fc00ea6.2304c) | 4/17/2023 20:33:04 | Dear Imed,  I would also like to take the opportunity to make my request for a  justification of your audio codec proposal a bit more precise:  I would like to understand what kind of requirements you have assumed in  terms of delay, complexity, bit rates, performance. Further, how strict  would be these requirements? For example, EVS or IVAS might have a delay of  32ms or somewhat more. Would this be a problem and if yes, why? [...] |
| Emmanuel Thomas | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3b54eb1f.2304c) | 4/18/2023 13:53:42 | Dear Imed,  I made revision to illustrate the approach for splitting between MeCAR and  SR\_MSE spec:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230549\_pixel\_streaming\_profile\_rXM.docx  In short, I believe that the Pixel Streaming profile could be defined in  26.565 with the yellow parts (see revision above) being replaced by  references to clear interop point in 26.119. For instance, those normative  statement “The Split Rendering Client that complies with the Pixel  Streaming profile shall support the simultaneous decoding of two bitstreams  that comply with the previously state profile and level requirements.”  should be replaced with something like “The Split Rendering Client that  complies with the Pixel Streaming profile shall [...] |
| Imed Bouazizi | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;bb496303.2304c) | 4/19/2023 0:55:12 | Thanks Stefan for the comments.  On 1: the main criteria behind this choice were: 1) low algorithmic delay  to keep up with a motion to render to sound delay of < 50ms. 2) a codec  that is readily supported on the main platforms and mobile operating  systems. EVS with an algorithmic delay of 32ms is about twice as high as  what AAC-ELD can give but if the experts think it fulfills the 2 criteria  than we’re happy to add EVS or ever replace AAC-ELD. [...] |
| Imed Bouazizi | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;1950b53c.2304c) | 4/19/2023 1:04:15 | Thanks Iraj for the comment. If such a profile is defined by MeCAR, we’re  happy to just reference it from TS26.565.  I think the latest agreement was to reference specific capabilities in the  MeCAR spec.  Br, Imed  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Iraj Sodagar  Sent: Monday, April 17, 2023 2:54 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel  Streaming [...] |
| Imed Bouazizi | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9019a5cf.2304c) | 4/19/2023 1:28:49 | Hi Dimitri,  Please see inline for my answers.  Br, Imed  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Dimitri Podborski  Sent: Monday, April 17, 2023 9:28 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel  Streaming  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros. [...] |
| Imed Bouazizi | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b87a238f.2304c) | 4/19/2023 1:33:41 | Thanks Emmanuel for raising the point about the name. Our understanding is  that Pixel Streaming is the common terminology for this configuration of  split rendering.  That said, we haven’t checked if that name is copyrighted and we should  rename it if it might cause problems.  Br, Imed  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Emmanuel Thomas  Sent: Monday, April 17, 2023 9:25 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel  Streaming [...] |
| Thomas Stockhammer | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9ba41b4f.2304c) | 4/19/2023 7:36:56 | In TR 26.928 I believe we refer to raster-based streaming in case this  helps.  Also, with the terminology introduced in TS 26.119 we may consider to refer  to projection-streaming as we provide the projected buffers to the device.  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Imed Bouazizi  Sent: Wednesday, April 19, 2023 3:34 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel  Streaming [...] |
| Stefan Döhla | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b5af2b14.2304c) | 4/19/2023 7:59:35 | Thanks Imed for the contribution. Regardless of the name, such a profile  indeed seems to be the basic SR scheme, where there is remote rendering  and the projected/rendered/flat/... media will be transmitted to the  lightweight UE using low-delay coding. To keep the motion-to-X latencies  low it is however not just the one way downstream delay (including  algorithmic codec delays) but also the upstream delay. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7e6ff1c1.2304c) | 4/19/2023 15:57:31 | Stefan,  I believe it would be good to have an audio solution that does not add  delay beyond what you would get from a video codec, because this would  cause that you would have to optimize the system for a media type that is  not the prime one. Assuming the lowest frame rate that you would use for  video is 60 fps, we have delays of <17ms for video. [...] |
| Imed Bouazizi | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;996f7ee5.2304c) | 4/20/2023 6:23:00 | Dear colleagues,  I uploaded a revision of the media capabilities for pixel streaming to the  inbox. This version addresses the comments that were brought up and  includes the suggestions that Emmanuel made.  The document is available in the inbox under  S4-230669<ftp://bouaziziim@ftp.3gpp.org/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/S4-230669.zip>.  Br, Imed  From: Emmanuel Thomas <thomase@xiaomi.com>  Sent: Tuesday, April 18, 2023 8:54 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG; Imed Bouazizi  <BOUAZIZI@qti.qualcomm.com>  Subject: RE: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel  Streaming [...] |
| Emmanuel Thomas | [Re: [MeCAR, 549, 18th Apr 1200CEST] Capabilities Profile for Pixel Streaming](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;af08dae2.2304c) | 4/20/2023 15:09:02 | Dear Imed,  Thank you for this revision which defines clear media capabilities in MeCAR  to be referenced by external specifications.  I haven’t time though to check if they would duplicate or overlap with the  ones currently in the PD. But from my point of view, this can be refined at  a later stage if needed. [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230549\_pixel\_streaming\_profile\_rXM.docx

**Presenter**: Imed Bouazizi

**Online Discussion**:

* April 17, 2023:
  + Emmanuel: not everything should be in MeCAR, need to decide where
    - Imed: ok, we can discuss further
  + Serhan: Where does the 5ms come from?
    - Imed: derived from the frame rate
  + Iraj: Agree on not everything needs to be put into the MeCAR
  + Stefan B: Where does the AAC-LD come from? Did you consider EVS, IVAS etc?
    - Imed: Only audio codec that fulfills low latency of 15ms and below. IVAS does not exist today, this was also a criteria to be used
* April 18, 2023:
  + Review of revision from xiaomi
  + Thomas: disagree to make this a “Profile”, but list the capabilities. The mapping to MeCAR devices is a separate story. MeCAR does not need to define a profile per se.

**Decision**:

* April 18, 2023: More discussion needed on the above details.

[**S4-230549**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230549.zip) is **revised** to [S4-230669](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230669.zip).

| [S4-230669](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230669.zip) | [MeCAR] Capabilities Profile for Pixel Streaming | Qualcomm CDMA Technologies | Imed Bouazizi |
| --- | --- | --- | --- |

**E-mail Discussion**: none

**Revisions**: none

**Presenter**: Imed Bouazizi

**Online Discussion**:

* April 20, 2023: Thomas presents
  + Stephan: Eventually add IVAS considerations
  + Agreed for PD

**Decision**:

* April 20, 2023: agreed for PD

[S4-230669](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230669.zip) is **agreed**.

| [S4-230571](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230571.zip) | [MeCAR] proposed update on the definitions | Tencent Cloud | Iraj Sodagar |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;18e43d1b.2304c) | 4/17/2023 9:00:23 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230571<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230571.zip>  [MeCAR] proposed update on the definitions  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Thomas Stockhammer | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c22adcdf.2304c) | 4/17/2023 9:21:08 | Colleagues,  We see no benefit in this update. The function manages the sources  originating from the XR Runtime, i.e. the XR Sources. So XR Source  management in our opinion is much more instructive as the new proposed  definition.  Thanks  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: Monday, April 17, 2023 11:00 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions  [...] |
| Emmanuel Thomas | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7e63efda.2304c) | 4/17/2023 13:10:10 | Dear colleagues,  I agree that the term management in XR Source Management could be improved  but I believe that the proposed term relay is driving us further away from  what this block actually does. Relay would imply it is a pass through but  this block is expected to also do some computations, time average, binary  serialisation etc, to make it ready for the MAF input format. [...] |
| Iraj Sodagar | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;fbcd6dd1.2304c) | 4/19/2023 17:01:49 | Thanks Emmanuel.  I like the term “XR Data Publisher”. Any other suggestions?  As we discussed it in conf call yesterday, any comment on the definition  text?  BR  Iraj  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Emmanuel Thomas  Sent: Monday, April 17, 2023 6:10 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the  definitions  Dear colleagues, [...] |
| Thomas Stockhammer | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b0798e37.2304c) | 4/19/2023 17:34:33 | This sounds very wrong for me  The piece manages the XR Source Data collected from the run-time. We have a  scene manager, so why not having a XR Source Manager?  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Iraj Sodagar  Sent: Wednesday, April 19, 2023 7:02 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the  definitions [...] |
| Iraj Sodagar | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;bbad9137.2304c) | 4/19/2023 23:51:17 | The scene manager is an entity that manages the scene.  XR Source Manager sounds like an entity that manages the XR Sources.  “XR Source Data Manager” is more aligned with scene manager, but then quite  long.  BR  Iraj  From: Thomas Stockhammer <tsto@qti.qualcomm.com>  Sent: Wednesday, April 19, 2023 10:35 AM  To: Iraj Sodagar <irajs@LIVE.COM>; 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the  definitions [...] |
| Gilles Teniou | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5147c017.2304c) | 4/20/2023 8:50:35 | Iraj,  Please make a revision so that we can easily dispose of the document during  the last VIDEO SWG session.  Thanks,  Gilles  De : 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> au nom de  Iraj Sodagar <irajs@LIVE.COM>  Répondre à : Iraj Sodagar <irajs@LIVE.COM>  Date : jeudi 20 avril 2023 à 01:52  À : "3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG"  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Objet : [Internet]Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on  the definitions [...] |
| Iraj Sodagar | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b4b2ef46.2304c) | 4/20/2023 13:44:36 | Please take a look at:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230571-r01.docx  Seems we are converging on this one, hopefully!  BR  Iraj  From: teniou(TeniouGilles) <teniou@tencent.com>  Sent: Thursday, April 20, 2023 1:51 AM  To: Iraj Sodagar <irajs@LIVE.COM>; 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the  definitions  Iraj,  Please make a revision so that we can easily dispose of the document during  the last VIDEO SWG session.  Thanks, [...] |
| Emmanuel Thomas | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;d2dc50f2.2304c) | 4/20/2023 14:06:52 | Hi Iraj,  Thanks. Minor comments, I think XR Data Source Manager reads better than XR  Source Data Manager.  Do you agree?  Emmanuel  From: Iraj Sodagar <irajs@live.com>  Sent: 20 April 2023 15:45  To: teniou(TeniouGilles) <teniou@tencent.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG; Emmanuel Thomas <thomase@xiaomi.com>  Subject: RE: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the  definitions  Please take a look at:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230571-r01.docx  Seems we are converging on this one, hopefully! [...] |
| Thomas Stockhammer | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;91398fba.2304c) | 4/20/2023 14:11:16 | No it is data from the XR Source that is managed.  /T  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Emmanuel Thomas  Sent: Thursday, April 20, 2023 4:07 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the  definitions  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Hi Iraj, [...] |
| Emmanuel Thomas | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8479d44f.2304c) | 4/20/2023 14:33:01 | I am not sure I understand what a XR Source is, source of what?, but maybe  this is linguistic…  Emmanuel  From: Thomas Stockhammer <tsto@qti.qualcomm.com>  Sent: 20 April 2023 16:11  To: Emmanuel Thomas <thomase@xiaomi.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the  definitions  No it is data from the XR Source that is managed. [...] |
| Iraj Sodagar | [Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the definitions](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;cfe52642.2304c) | 4/20/2023 18:15:07 | How about XR Input Data Manager?  (To me the word “Source” is too vague too.)  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Emmanuel Thomas  Sent: Thursday, April 20, 2023 7:33 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 571, 18th Apr 1200CEST] proposed update on the  definitions  I am not sure I understand what a XR Source is, source of what?, but maybe  this is linguistic… [...] |

* **Revisions**: https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230571-r01.docx

**Presenter**: Iraj Sodagar

**Online Discussion**:

* 2023/04/18:
  + Iraj summarizes the contribution and discussion
  + Thomas: do not see the value of the updates, maybe ok, but not the term
  + Gilles: can we agree based on the discussion
    - Emmanuel: need more time
  + Continue to do some work offline
* 2023/04/20:
  + Gilles presents update
    - Emmanuel: order of words is important
    - Thomas: would have not done the changes, but would add a new definition of an XR Source.

**Decision**:

* 2023/04/18: expect revision to address the discussion
* 2023/04/20: more discussion needed - noted

[**S4-230571**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230571.zip) is **noted**.

| [S4-230576](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230576.zip) | [MeCAR] Volumetric video operation points | Nokia Corporation , Interdigital, Sony Group Corporation, Intel | Saba Ahsan |
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**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;2f25079a.2304c) | 4/17/2023 9:02:54 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230576<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230576.zip>  [MeCAR] Volumetric video operation points  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Thomas Stockhammer | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b49a4599.2304c) | 4/17/2023 12:27:43 | Colleagues,  Thanks for the submission. We checked internally again with our colleagues  on Point-Cloud based distribution and we were asked, what use cases would  be addressed. While dense point clouds had been of some interest a few  years ago, it seems that we are lacking a use case for V-PCC in the  AR/MeCAR context that would warrant to add a specific format to the  capability requirements. [...] |
| Emmanuel Thomas | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;70d3c55d.2304c) | 4/17/2023 13:00:27 | Dear colleagues,  I concur with the comments below for the simple reason that I have no idea  what a “V3C decoder” is or could be in practice but it is very clear to me  what a video decoder is and video decoders are used in the diagrams. So  let’s be pragmatic and leave aside the theoretical exercise of supporting  V3C decoders. [...] |
| Lukasz Kondrad | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a10c6ce8.2304c) | 4/17/2023 13:20:26 | Dear Thomas and Emmanuel,  thank you for your feedback.  I would like to point that the document does not propose to adopt V3C. The  intention of the document is to specify operation points that can be later  utilised when defining the Media Profiles of MeCAR.  The intention is to clearly separate the video coding operation point from  the metadata used to render volumetric content. [...] |
| Ahmed Hamza | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c501e4fc.2304c) | 4/18/2023 1:37:15 | Dear colleagues,  To add to what Lukasz has mentioned, we have clearly established and  documented use cases for volumetric videos that were documented in the  FS\_XR5G (TR 26.928) and FS\_5GSTAR (TR 26.998) from which the MeCAR work  item was established. These include, for example, Use Case 18 (Streaming of  volumetric video for glass-type MR devices) and Use Case 19 (AR  conferencing). We see V3C a strong candidate for providing support for  these use cases. And both V-PCC and MIV could be used to target different  applications. [...] |
| Sungryeul Rhyu | [Re: (2) [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;676fe92c.2304c) | 4/18/2023 1:52:22 | Full message available at: Re: (2) [MeCAR, 576, 18th Apr 1200CEST]  Volumetric video operation points |
| Thomas Stockhammer | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;32a814b4.2304c) | 4/18/2023 9:31:31 | Ahmed,  I am sorry, I can not recall any use cases that are relevant for V3C. The  ones you mention below in our opinion would nowadays not be solved using  point cloud.  3GPP has no need to rubber-stamp MPEG.  The issue of multiple decoders etc is in our opinion not solved by V3C.  Multiple decoders are commonly available in mobile platforms today, but V3C  is not. So we rather work from ground than saying V3C is the solution. [...] |
| Champel MaryLuc | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;2bcd04ab.2304c) | 4/18/2023 10:28:46 | Dear colleagues,  I’m afraid the assertion that “V3C enables multiple parallel decoders” is  at least inaccurate and the truth is rather: V3C requires multiple parallel  decoders.  Assuming that MeCAR devices will support multiple parallel video decoding  seems quite presumptuous at the moment and we don’t believe any feasibility  study on this has been done yet. How to enable efficient multiple parallel  decoders on lightweight devices is definitely a challenge that should not  be underestimated.  Sure there are a couple of V3C/V-PCC implementations proofs on smartphones  and glasses tethered to a PC available and demonstrated at some of our  previous 3GPP [...] |
| Saba Ahsan | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7fb8f6a1.2304c) | 4/18/2023 11:26:55 | Hi Thomas, MaryLuc,  The proposal here is that we need to define a rendering metadata operation  point for defining volumetric media. To clearly separate video coding from  any metadata that can be used to render the AR content. We use V3C as a way  to motivate this. However, we do not propose to define V3C as a solution at  this point. Scene description can be used as well, for instance, or SEI  messages (e.g., the region-wise packing, the equirectangular projection SEI  message). We are open to other proposals on providing solutions to these  use cases that were highlighted by Ahmed. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;dfd95dec.2304c) | 4/18/2023 11:42:51 | Saba,  1. I believe it is very confusing to propose V3C and then say, we do not  propose V3C. When you refer to volumetric media, what exactly is it? Is  there a definition? Is it an object in a scene? Can it be a mesh?  2. We do not see volumetric media rendering on a device as an important  initial requirement.  3. You are referring to use cases. We never consider that the use cases in  the TRs are expected to be addressed by the technical solutions in MeCAR.  The use cases are to some extent far fetched and stretched.  [...] |
| Saba Ahsan | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4acb1441.2304c) | 4/18/2023 12:40:20 | Dear all,  Please find here an update to the contribution. Samsung and Phillips were  included as cosignors and some editorial fixes were added:  https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230635.zip  Regards,  Saba  From: Thomas Stockhammer <tsto@qti.qualcomm.com>  Sent: Tuesday, April 18, 2023 4:43 PM  To: Saba Ahsan (Nokia) <saba.ahsan@nokia.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  CAUTION: This is an external email. Please be very careful when clicking  links or opening attachments. See the URL nok.it/ext for additional  information. [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9df41b4c.2304c) | 4/18/2023 14:11:53 | Hello everyone,  Jumping in 😊  \* The statement below that V3C requires multiple parallel decoders is  incorrect. For instance, in its simplest expression, an MIV profile with  frame packing allows for a single encoder/decoder and bitstream. Quite a  few devices are able to deal with multiple parallel decoders, though that  may not be for all MeCar device types.  \* On “I don’t know what is a V3C decoder”: it would be clearer to elaborate  on a MIV decoder or a V-PCC decoder. Basically the capability to parse and  deal with Atlas data, and the underlying components which differs for MIV  [...] |
| Saba Ahsan | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c16f902f.2304c) | 4/18/2023 19:47:27 | Hi all,  Thanks Gaelle, for this clarification.  I think we can clarify this further in an offline as was suggested during  the SWG session. My proposal is to have this at 2PM CEST tomorrow.  I’ll send an invite shortly on the reflector. Let me know if you want to  propose a different time. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;609e16ce.2304c) | 4/18/2023 22:01:45 | Gaelle,  Inline  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Gaëlle Martin-Cocher  Sent: Tuesday, April 18, 2023 4:12 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Hello everyone,  Jumping in 😊  \* The statement below that V3C requires multiple parallel decoders is  incorrect. For instance, in its simplest expression, an MIV profile with  frame packing allows for a single encoder/decoder and bitstream. Quite a  few devices are able to deal with multiple parallel decoders, [...] |
| Champel MaryLuc | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8487e02e.2304c) | 4/18/2023 22:02:34 | Thanks Gaelle,  see my responses inline.  ML  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Gaëlle Martin-Cocher  Sent: Tuesday, 18 April 2023 4:12 pm  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  Hello everyone,  Jumping in 😊  \* The statement below that V3C requires multiple parallel decoders is  incorrect. For instance, in its simplest expression, an MIV profile with  frame packing allows for a single encoder/decoder and bitstream. Quite a  few devices are able to deal with multiple parallel decoders, though that  may not be for all MeCar device types.  [ML] exhibiting one case where a single [...] |
| Saba Ahsan | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;394745aa.2304c) | 4/20/2023 9:54:33 | Sending again:  Dear all,  Thanks for the good discussion during the offline. The updated contribution  is now available in the drafts folder:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230635\_V3C\_operation\_point\_r01.docx  Regards,  Saba  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Champel MaryLuc  Sent: Wednesday, April 19, 2023 3:03 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  Thanks Gaelle,  see my responses inline.  ML  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Gaëlle Martin-Cocher  Sent: Tuesday, 18 April 2023 4:12 pm  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points [...] |
| Thomas Stockhammer | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5326f123.2304c) | 4/20/2023 11:06:19 | Saba,  We still believe that clause 6.7 is not suitable, it can stay in clause 10  or 9 now (external activities).  It is very unclear what is meant by “V3C media capabilities”. Without any  definition this is not making any sense as it makes the media capabilities  codec capabilities. We still have a disconnect here. [...] |
| Emmanuel Thomas | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f0fff7a9.2304c) | 4/20/2023 13:29:05 | Dear Saba, Thomas,  Please find my proposed edits for this document:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230635\_V3C\_operation\_point\_r01\_QCOM\_rXM.docx  My main concern when editing was to make fit in the PD and in the concept  of media capabilities in MeCAR.  Regards,  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: 20 April 2023 13:06  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8737a203.2304c) | 4/20/2023 13:32:38 | Dear all,  Thanks Thomas for the suggestions.  I have uploaded an R2 that simplifies it further.  https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230635\_V3C\_operation\_point\_r02.docx  Cheers,  Gaëlle  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: jeudi 20 avril 2023 07:06  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  Saba, We still believe that clause 6.7 is not suitable, it can stay in  clause 10 or 9 now (external activities). It is very unclear what is meant  by “V3C media capabilities”. Without any definition this is not making any  sense as it makes the media capabilities codec capabilities ‌ ‌ ‌ ‌ ‌ [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;ae661eaf.2304c) | 4/20/2023 13:38:53 | 😊 email crossed.  Maybe these editorial aspects can be minuted and handover to the editor  (you 😊) or do you prefer a revision 3?  I think the operation points are not in 9. From a first glance the other  edits seems good.  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Emmanuel Thomas  Sent: jeudi 20 avril 2023 09:29  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points [...] |
| Thomas Stockhammer | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;40378ae9.2304c) | 4/20/2023 13:56:13 | I am still concerned about any capabilities in clause 6 that we do not  understand.  What are V3C capabilities? We need a definition and probably it is about 3D  rendering?  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Gaëlle Martin-Cocher  Sent: Thursday, April 20, 2023 3:39 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a9a894bf.2304c) | 4/20/2023 14:03:28 | There is not such a thing in the text of the revised version?  The first change goes to section 9.  From: Thomas Stockhammer <tsto@qti.qualcomm.com>  Sent: jeudi 20 avril 2023 09:56  To: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  I am still concerned about any capabilities in clause 6 that we do not  understand. What are V3C capabilities? We need a definition and probably it  is about 3D rendering? Thomas From: 3GPP\_TSG\_SA\_WG4\_VIDEO  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>On Behalf Of Gaëlle Martin-Coche ‌ ‌ ‌  ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Thomas Stockhammer | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;328bea9.2304c) | 4/20/2023 14:06:32 | Ok, so everything to clause 9?  /T  From: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>  Sent: Thursday, April 20, 2023 4:03 PM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  There is not such a thing in the text of the revised version?  The first change goes to section 9. [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5ee8f7d7.2304c) | 4/20/2023 14:08:41 | The changes you proposed relate to operating points in general:  \* Video decoding capabilities: needed by all three cases  \* Rendering capabilities: needed by 2 and 3  \* Scene composition capabilities: needed by 3  So change 2 is not in section 9.  From: Thomas Stockhammer <tsto@qti.qualcomm.com>  Sent: jeudi 20 avril 2023 10:07  To: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points [...] |
| Emmanuel Thomas | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;ec901fea.2304c) | 4/20/2023 14:10:15 | Hi Gaelle,  Thanks for the r2. Too bad indeed that our version crossed. I invite you to  look at my revision though, I would not call all my edits “editorial”  whatever it means in our current context.  Regards  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Gaëlle Martin-Cocher  Sent: 20 April 2023 16:03  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points [...] |
| Thomas Stockhammer | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;20d82843.2304c) | 4/20/2023 14:10:26 | Operation points is X.X – unsure where – but Operation Points is ok to ho  anywhere  /T  From: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>  Sent: Thursday, April 20, 2023 4:09 PM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  The changes you proposed relate to operating points in general: [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a1249a38.2304c) | 4/20/2023 14:15:15 | Ok, thanks.  From: Thomas Stockhammer <tsto@qti.qualcomm.com>  Sent: jeudi 20 avril 2023 10:10  To: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  Operation points is X.X – unsure where – but Operation Points is ok to ho  anywhere /T From: Gaëlle Martin-Cocher >Sent: Thursday, April 20, 2023 4:09  PMTo: Thomas Stockhammer >; 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETS ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌  ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a6b6b3da.2304c) | 4/20/2023 14:21:28 | Hi Emmanuel,  Based on the other emails:  Change 2 goes somewhere in 6 or elsewhere.  Change 1 goes to section 9.X --> this is not reflected in your proposed  edit but I assume you are ok with that?  Title of the section of the change 2, I think this needs to be as it was  proposed as per the intend to generalize it.  Removing the introductory part of the first sentence in the section 2: ok  Adding the “may” / “may required”: ok. [...] |
| Gilles Teniou | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;81924839.2304c) | 4/20/2023 14:22:44 | If not too late I would prefer a revision agreeable as is.  Thanks  Gilles  De : 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> au nom de  Gaëlle Martin-Cocher <00000622c68462be-dmarc-request@LIST.ETSI.ORG>  Répondre à : Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@INTERDIGITAL.COM>  Date : jeudi 20 avril 2023 à 15:40  À : "3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG"  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Objet : [Internet]Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video  operation points  😊 email crossed.  Maybe these editorial aspects can be minuted and handover to the editor  (you 😊) or do you prefer a revision 3?  I think the operation points are not in 9. From a first glance the other  edits seems good. [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;da260d0b.2304c) | 4/20/2023 14:27:52 | Ok, working on R3.  From: teniou(TeniouGilles) <teniou@tencent.com>  Sent: jeudi 20 avril 2023 10:23  To: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  If not too late I would prefer a revision agreeable as is.ThanksGilles De :  3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> au nom de  Gaëlle Martin-Cocher <00000622c68462be-dmarc-request@LIST.ETSI.ORG>Répondre  à : Gaëlle Martin-Cocher <Gaelle.Martin-Coc ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌  ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a6d234e0.2304c) | 4/20/2023 14:30:22 | Ok. Working on r3  From: teniou(TeniouGilles) <teniou@tencent.com>  Sent: jeudi 20 avril 2023 10:23  To: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  If not too late I would prefer a revision agreeable as is.ThanksGilles De :  3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> au nom de  Gaëlle Martin-Cocher <00000622c68462be-dmarc-request@LIST.ETSI.ORG>Répondre  à : Gaëlle Martin-Cocher <Gaelle.Martin-Coc ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌  ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f3d15cb6.2304c) | 4/20/2023 14:32:07 | https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230635\_V3C\_operation\_point\_r03.docx  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Gaëlle Martin-Cocher  Sent: jeudi 20 avril 2023 10:30  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points  Ok. Working on r3 From: teniou(TeniouGilles) >Sent: jeudi 20 avril 2023  10:23To: Gaëlle Martin-Cocher >;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORGSubject: Re: [MeCAR, 576, 18th Apr  1200CEST] Volumetric video operation ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌  ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Emmanuel Thomas | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8a101fc0.2304c) | 4/20/2023 15:02:55 | Dear Gaelle,  Thanks for the r03. I made a revision on top of r03.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230635\_V3C\_operation\_point\_r03\_RXM.docx  Since those changes would go in clause 9 (Relevant activities in external  organizations), based on my reading on this thread, I edited less than in  r02. For me clause X.X has the same nature but I see proponents didn’t  consider where it would fit so I made it explicit now. [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;161c3b75.2304c) | 4/20/2023 15:30:49 | Hi Emmanuel,  Let me clarify: the proponent agreed that the change 2 goes into the  section 9 and did consider where the change 3 would go: aka not in section  9.  Gaëlle  From: Emmanuel Thomas <thomase@xiaomi.com>  Sent: jeudi 20 avril 2023 11:03  To: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 576, 18th Apr 1200CEST] Volumetric video operation  points [...] |

**Revisions**: none

**Presenter**: Saba Ahsan

**Online Discussion**:

**Decision**:

[**S4-230576**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230576.zip) is **noted/agreed/revised**.

| [**S4-230635**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230635.zip) | [MeCAR] Volumetric video operation points | Nokia Corporation , Interdigital, Sony Group Corporation, Intel, Phillips, Samsung | Saba Ahsan |
| --- | --- | --- | --- |

**E-mail Discussion**: none

**Revisions**:

| [S4-230635\_V3C\_operation\_point\_r01.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230635_V3C_operation_point_r01.docx) |
| --- |
| [S4-230635\_V3C\_operation\_point\_r01\_QCOM.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230635_V3C_operation_point_r01_QCOM.docx) |
| [S4-230635\_V3C\_operation\_point\_r01\_QCOM\_rXM.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230635_V3C_operation_point_r01_QCOM_rXM.docx) |
| [S4-230635\_V3C\_operation\_point\_r02.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230635_V3C_operation_point_r02.docx) |
| [S4-230635\_V3C\_operation\_point\_r03.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230635_V3C_operation_point_r03.docx) |

**Presenter**: Saba Ahsan

**Online Discussion**:

* April 20, 2023: Gaelle presents
  + Emmanuel wants to know where and how to doc
  + Change to Working Assumptions for Operation Points

**Decision**:

* April 20, 2023: online revision agreed - add to PD. revised to 701

[S4-230635](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230635.zip) is **revised** to [S4-230701](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230701.zip).

| [S4-230701](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230701.zip) | [MeCAR] Volumetric video operation points | Nokia Corporation , Interdigital, Sony Group Corporation, Intel, Phillips, Samsung | Saba Ahsan |
| --- | --- | --- | --- |

[S4-230701](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230701.zip) is **agreed**.

| [S4-230577](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230577.zip) | [MeCAR] Signaling available visual space | Tencent Cloud | Iraj Sodagar |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [MeCAR, 577, 18th Apr 1200CEST] Signaling available visual space | 4/17/2023 9:00:11 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230577<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230577.zip>  [MeCAR] Signaling available visual space  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Thomas Stockhammer | Re: [MeCAR, 577, 18th Apr 1200CEST] Signaling available visual space | 4/17/2023 9:19:02 | Colleagues,  Thanks. Interesting contribution.  What may be considered is that the signaling capability is provided by the  XR Runtime. OpenXR as an example provides this in an extension  https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html#XR\_FB\_scene,  using xrGetSpaceBoundary2DFB or xrGetSpaceBoundingBox3DFB. It would be good  to understand if this functionality addresses the needed.  Similarly, ARCore API has a Plane.getExtent function, which provides this  information. [...] |
| Saba Ahsan | Re: [MeCAR, 577, 18th Apr 1200CEST] Signaling available visual space | 4/18/2023 5:25:04 | Hi Iraj,  Thanks for this contribution. I’ve added an update on possible actions that  the server can take with this information.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230577-MeCAR-VisualSpace-NO.docx  Regards,  Saba  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: Monday, April 17, 2023 2:19 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 577, 18th Apr 1200CEST] Signaling available visual  space  Colleagues,  Thanks. Interesting contribution.  What may be considered is that the signaling capability is provided by the  XR Runtime. OpenXR as an example provides this in an extension  https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html#XR\_FB\_scene,  using xrGetSpaceBoundary2DFB or xrGetSpaceBoundingBox3DFB. It would be good  to understand if this functionality addresses the needed. [...] |
| Emmanuel Thomas | [Re: [MeCAR, 577, 18th Apr 1200CEST] Signaling available visual space](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;84f16a45.2304c) | 4/18/2023 10:45:57 | Dear colleague,  Thanks for this contribution, the concept of available visual space as  presented is indeed interesting.  Here are some questions and comments:  \* The distance unit seems quite essential to realise the solution. The size  of the scene, the objects and this visualisation space needs are key to  make it work. It would be good to study more what are the requirements to  make it work, availability of the size, the unit, etc... For instance, I am  not sure that all 3D objects have real word unit, haven’t they?  \* The way it is presented now seem to be [...] |
| Gilles Teniou | [Re: [MeCAR, 577, 18th Apr 1200CEST] Signaling available visual space](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;31e32b24.2304c) | 4/20/2023 8:46:52 | Dear all,  (on behalf of Tencent)  Rev1 is available in the Draft folder addressing comments made during the  1st session and including Nokia addition.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230577-MeCAR-VisualSpace-rev1.docx  Best regards,  Gilles  De : 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> au nom de  Emmanuel Thomas <000003f01af4035c-dmarc-request@LIST.ETSI.ORG>  Répondre à : Emmanuel Thomas <thomase@XIAOMI.COM>  Date : mardi 18 avril 2023 à 12:47  À : "3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG"  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Objet : [Internet]Re: [MeCAR, 577, 18th Apr 1200CEST] Signaling available  visual space [...] |
| Emmanuel Thomas | [Re: [MeCAR, 577, 18th Apr 1200CEST] Signaling available visual space](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;75ebf190.2304c) | 4/20/2023 14:37:33 | Dear Gilles,  For PD integration, I would suggest a new sub clause of clause 8 Sensor and  user environment data types for this text, if agreed by the group.  Regards,  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: 20 April 2023 10:47  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 577, 18th Apr 1200CEST] Signaling available visual  space  Dear all, [...] |

**Revisions**:

* <https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230577-MeCAR-VisualSpace-NO.docx>
* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230577-MeCAR-VisualSpace-rev1.docx

**Presenter**: Iraj Sodagar

**Online Discussion**:

* 2023/04/18:
  + Gilles summarizes the discussion and shows [Nokia revision](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230577-MeCAR-VisualSpace-NO.docx)
  + Saba explains the Nokia addition
  + Emmanuel:
    - There are some good ideas, but still very conceptual
    - Lot’s of details are missing, such as the units, is the space/box following the user
    - Iraj: specific cases are to be addressed
    - Emmanuel: Ok to PD, but again we should document the open issues
  + Thomas: prefer again to make it implementable with existing OpenXR extensions, even if it is simpler. If not implementable.
    - Iraj: agree to work on this topic
  + Gilles summarizes that a revision can be provided to address the comments
* 2023/04/20: Gilles presents [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230577-MeCAR-VisualSpace-rev1.docx)
  + Emmanuel: unclear were to add? Suggest new subclause 8.

**Decision**:

* 2023/04/18: Revision is expected based on the comments uploaded under r01.
* 2023/04/20: revision 1 agreed to be added to PD under new sub clause 8 - revised

[**S4-230577**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230577.zip) is **revised** to [S4-230716](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230716.zip).

| [S4-230716](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230716.zip) | [MeCAR] Signaling available visual space | Tencent Cloud | Gilles Teniou |
| --- | --- | --- | --- |

[S4-230716](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230716.zip) is **agreed**.

| [S4-230580](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230580.zip) | Initial transfer from Permanent Document | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 580, 18th Apr 1200CEST] Initial transfer from Permanent Document](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;86b770f0.2304c) | 4/17/2023 9:01:48 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230580<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230580.zip>  Initial transfer from Permanent Document  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Thomas Stockhammer | [Re: [MeCAR, 580, 18th Apr 1200CEST] Initial transfer from Permanent Document](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;32884e0c.2304c) | 4/17/2023 10:43:07 | Colleagues,  Thanks for the document. It is a reasonable starting point and we can agree  to some extent to add the baseline client, but much more context is needed.  Document 540 attempts to provide more context in the intro and should be  preceding this information.  We are ok to port metadata formats, but again this needs to be brought into  context and combined with 540. [...] |
| Emmanuel Thomas | [Re: [MeCAR, 580, 18th Apr 1200CEST] Initial transfer from Permanent Document](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7b1574c7.2304c) | 4/17/2023 12:21:02 | Dear Thomas,  Thanks for the review. Please see further comments inline.  Best regards,  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: 17 April 2023 12:43  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 580, 18th Apr 1200CEST] Initial transfer from  Permanent Document  Colleagues,  Thanks for the document. It is a reasonable starting point and we can agree  to some extent to add the baseline client, but much more context is needed.  Document 540 attempts to provide more context in the intro and should be  preceding this information. [...] |
| Saba Ahsan | [Re: [MeCAR, 580, 18th Apr 1200CEST] Initial transfer from Permanent Document](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;6d8faac3.2304c) | 4/18/2023 5:40:28 | Hi Emmanuel,  Thanks for this document. Using json for pose metadata is verbose as was  pointed out during discussions in the last meeting. The proponents said  that the group can decide between the binary and the json method. However,  we haven’t yet evaluated the binary method in Mecar afair. I would propose  not to import this section for now. Our preference would be a more  optimized format. [...] |
| Emmanuel Thomas | [Re: [MeCAR, 580, 18th Apr 1200CEST] Initial transfer from Permanent Document](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;fd75803b.2304c) | 4/18/2023 14:00:57 | Dear Saba,  Thank you for your review. I remember the discussion and your comment makes  sense to me.  To be concrete, when you say “I would propose not to import this section  for now.” do you mean the entire clause 5 or just the clause 5.1.4 JSON  Schema? I would say not importing clause 5.1.4 would address your comment  but I prefer to be sure. [...] |

**Revisions**: none

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* April 18, 2023: deferred to offline
* April 20, 2023: merged into 729 and sent to plenary

**Decision**:

* Merged to 729 and sent to plenary

[**S4-230580**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230580.zip) is **merged** to [S4-230729](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230729.zip).

| [S4-230581](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230581.zip) | [MeCAR] User interaction QoE | InterDigital Finland Oy | Stephane Onno |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 581, 18th Apr 1200CEST] User interaction QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3923505d.2304c) | 4/17/2023 9:00:50 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230581<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230581.zip>  [MeCAR] User interaction QoE  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Thomas Stockhammer | [Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;fc11b169.2304c) | 4/17/2023 10:05:12 | Colleagues,  Thanks for the contribution. The contribution is generally good and  interesting. At the same time, the QoE immediately points to some split  rendering actions and edge processing, which is unnecessary initially. We  only want to measure a metric in the device, so it needs to be addressed  from a device measurement only. [...] |
| Stephane Onno | [Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4ccce3d2.2304c) | 4/17/2023 13:02:43 | Dear Colleague,  Thanks for the feedback, I am trying first to answer on each points for  clarifying I hope, this is below  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: lundi 17 avril 2023 12:05  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE  Colleagues, Thanks for the contribution. The contribution is generally good  and interesting. At the same time, the QoE immediately points to some split  rendering actions and edge processing, which is unnecessary initially. We  only want to measure a metric in the device, so it nee ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Serhan Guel | [Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;937315c4.2304c) | 4/17/2023 16:20:31 | Hi Stéphane,  Thanks for the contribution. I have two questions:  \* On the interactiviy delay metrics: Why are these based on the timing of  actions and not pose? I think those metrics should be based on the sending  time of pose, not actions, because they would apply even if there were no  change in the action state. For example; user interaction delay, age of  content and round-trip interaction delay are relevant regardless of whether  an action state change occurs or not.  \* What is the value of adding the time at which the MAF transmits the  action? Is there any [...] |
| Stephane Onno | [Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a67781ab.2304c) | 4/18/2023 8:01:52 | Dear colleagues, Serhan  Thanks for the comments, please see my comments are inline.  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG<mailto:3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>>  On Behalf Of Serhan Guel (Nokia)  Sent: lundi 17 avril 2023 18:21  To:  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG<mailto:3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Subject: Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE  HiStéphane, Thanks for the contribution. I have two questions:On the  interactiviy delay metrics: Why are these based on the timing of actions  and not pose?I think those metrics should be based on the sending time of  pose, not actions, because they would apply even if there were n ‌ ‌ ‌ ‌ ‌  ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Stephane Onno | [Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;25f1d509.2304c) | 4/19/2023 17:25:23 | Dear colleagues,  Please find in the draft folder a revision of 581  https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230581%20%5BMeCAR%5D%20User%20interaction%20QoE.Rev01.docx  Regards,  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Stephane Onno  Sent: mardi 18 avril 2023 10:02  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE  Dear colleagues, Serhan Thanks for the comments, please see my comments are  inline. Stéphane From: 3GPP\_TSG\_SA\_WG4\_VIDEO  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>On Behalf Of Serhan Guel (Nokia)Sent:  lundi 17 avril 2023 18:21To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORGSubject:  Re: [ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Thomas Stockhammer | [Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f43f16c4.2304c) | 4/20/2023 13:52:02 | This one is somehow ok, despite the call flow is still way to complex in my  opinion.  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Stephane Onno  Sent: Wednesday, April 19, 2023 7:25 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 581, 18th Apr 1200CEST] User interaction QoE  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Dear colleagues, [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230581%20%5BMeCAR%5D%20User%20interaction%20QoE.Rev01.docx

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/04/18: Gilles summarizes the discussion.
  + Serhan: How much time takes it between sending the action?
  + Stephane: No idea, not progressing the signaling of this information.
  + Thomas: the call flow is again unnecessarily complex and adds processing that is unneeded.
  + Gilles:
    - Remove the signaling
    - Simplify
* 2023/04/20: Stephane provides [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230581%20%5BMeCAR%5D%20User%20interaction%20QoE.Rev01.docx)
  + Thomas: this is still just an example and some high-level idea of a definition
  + Gilles: can we agree? => no-one objects.

**Decision**:

* 2023/04/18: Revision to be provided
* 2023/04/20: Revision 1 agreed to be added to the PD => revised to 706

[**S4-230581**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230581.zip) is **revised** to [S4-230706](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230706.zip).

| [S4-230706](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230706.zip) | [MeCAR] User interaction QoE | InterDigital Finland Oy | Stephane Onno |
| --- | --- | --- | --- |

[S4-230706](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230706.zip) is **agreed**.

| [S4-230582](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230582.zip) | [MeCAR] Pose information QoE | InterDigital Finland Oy | Stephane Onno |
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**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 582, 18th Apr 1200CEST] Pose information QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4c5e3291.2304c) | 4/17/2023 9:01:04 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230582<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230582.zip>  [MeCAR] Pose information QoE  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
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| Thomas Stockhammer | [Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;abc98027.2304c) | 4/17/2023 10:26:34 | Colleagues,  Similar comments as for 581.  1. Generally a good step to analyse  2. Definition of the metric independent of the delivery is needed  3. Measurement with an actual implementation/runtime such as OpenXR unclear  4. Addition of timing information not agreeable.  5. Combination with 541 encouraged.  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: Monday, April 17, 2023 11:01 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE [...] |
| Stephane Onno | [Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;84852673.2304c) | 4/17/2023 13:02:58 | Dear colleague,  Thanks for the feedback, Could you clarify point 3) if it is about adding  time Info in the pose prediction format clause §7.2  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: lundi 17 avril 2023 12:27  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE  Colleagues, Similar comments as for 581. Generally a good step to  analyseDefinition of the metric independent of the delivery is  neededMeasurement with an actual implementation/runtime such as OpenXR  unclearAddition of timing information not agreeable.Combination with 541  encoura ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Serhan Guel | [Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5ce20162.2304c) | 4/17/2023 16:27:20 | Hi Stéphane,  Thanks for the interesting analysis. I have some concerns on the proposed  timing information. Although it is not shown in the given timeInfo struct,  I understand from Step 9 in the procedure that you propose also to add a  renderedFrameTxTime to the timing info. I think it is fine to mark this  time at the server to measure the processing delay. However, it is not  necessary to transmit this to the UE, because the UE is affected only by  the total delay and has no use for this information. [...] |
| Stephane Onno | [Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b5994c6c.2304c) | 4/18/2023 7:59:34 | Dear colleagues, Serhan  Thanks for the comments  In the case the device measures the QoE metrics, the device needs to  collect the relevant timestamps information from the server, such as the  renderedFrameTxTime to measure the server processing delay  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Serhan Guel (Nokia)  Sent: lundi 17 avril 2023 18:27  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE [...] |
| Stephane Onno | [Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f401f015.2304c) | 4/19/2023 17:25:25 | Dear colleagues,  Please find in the draft folder a revision of 582  https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230582%20%5BMeCAR%5D%20Pose%20information%20QoE.Rev1.docx  Regards,  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Stephane Onno  Sent: mardi 18 avril 2023 10:00  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE  Dear colleagues, Serhan Thanks for the comments In the case the device  measures the QoE metrics, the deviceneeds to collect the relevant  timestamps information from the server, such as the renderedFrameTxTime to  measure the server processing delay Stéphane From: 3GPP\_TSG\_SA\_WG4\_V ‌ ‌ ‌  ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |
| Thomas Stockhammer | [Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8612a896.2304c) | 4/20/2023 13:37:24 | Stephane,  I am really unsure on these two  \* motion-to-photon = T2.actual – T4  \* server-processing-delay = T5 – T3  I would prefer to remove this, it seems not well defined.  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Stephane Onno  Sent: Wednesday, April 19, 2023 7:25 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 582, 18th Apr 1200CEST] Pose information QoE [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230582%20%5BMeCAR%5D%20Pose%20information%20QoE.Rev1.docx

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/04/18: Stephane presents and summarizes the discussion
  + Serhan: how is the time used in the UE to compute the timing of the processing time on the server.
    - Stephane: it would be good to know the processing time on the server.
    - Thomas: this seems to overload the problem by adding the network. It would be be better to first measure and than address the network issue.
    - Stephane: we only add the renderedFrameTxTime
    - Thomas: unclear what exactly this value is, and how it is defined. Is it on the modem, the gNB, the UPF, the server
  + Emmanuel: the figure seems to be a replacement, but adds more operation points
    - Stephane: can revert to original figure
    - Liangping: prefer shorter names T1
* 2023/04/20: Stephane presents [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230582%20%5BMeCAR%5D%20Pose%20information%20QoE.Rev1.docx)
  + Thomas: still not good on motion-to-photon and server processing
    - M2p is runtime internal and not measurable
    - Server delay is outside of mecar scope
  + Remove those two

**Decision**:

* 2023/04/18: revision is expected to address the comments.
* 2023/04/20: revision 1 with comments of removal of m2p and server delay agreed => revised to 708

[**S4-230582**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230582.zip) is **revised** to [**S4-230708**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230708.zip).

| [**S4-230708**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230708.zip) | [MeCAR] Pose information QoE | InterDigital Finland Oy | Stephane Onno |
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[S4-230708](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230708.zip) is **agreed**.

| [S4-230591](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230591.zip) | [MeCAR] Proposed updated on the architecture | Tencent Cloud | Iraj Sodagar |
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**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 591, 18th Apr 1200CEST] Proposed updates on the architecture](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f85aa9f7.2304c) | 4/17/2023 9:02:09 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230591<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230591.zip>  [MeCAR] Proposed updated on the architecture  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
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| Thomas Stockhammer | [Re: [MeCAR, 591, 18th Apr 1200CEST] Proposed updates on the architecture](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;6164865e.2304c) | 4/17/2023 10:35:35 | Colleagues,  Thanks for the contribution. There are some worthwhile aspects in the  diagram, and ok to update some. Generally the focus should be to not do  more surgery on the architecture until we really identify a bug.  Specification drafting is encouraged as well.  Some very concrete comments (in case we really want to change) [...] |
| Gilles Teniou | [Re: [MeCAR, 591, 18th Apr 1200CEST] Proposed updates on the architecture](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c51d537f.2304c) | 4/17/2023 18:09:33 | Thank you Thomas,  (On behalf of Tencent).  The idea is not to define anything new but rather to present the device  architecture in a more consistent way with other architectures (link  between functional boxes + API when they need to be defined).  I took inspiration from the 5GMS architecture. Hopefully this new version  goes into the right direction. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 591, 18th Apr 1200CEST] Proposed updates on the architecture](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c3faf9b8.2304c) | 4/17/2023 18:44:07 | Inline  From: teniou(TeniouGilles) <teniou@tencent.com>  Sent: Monday, April 17, 2023 8:10 PM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 591, 18th Apr 1200CEST] Proposed updates on the  architecture  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Thank you Thomas,  (On behalf of Tencent).  The idea is not to define anything new but rather to present the device  architecture in a more consistent way with other architectures (link  between functional boxes + API when they need to be defined). [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230591r01-MeCAR-architecture.docx

**Presenter**: Iraj Sodagar

**Online Discussion**:

* April 18, 2023: deferred to offline
* April 20, 2023: merged into 729 and sent to plenary

**Decision**:

* Merged to 729 and sent to plenary

[**S4-230591**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230591.zip) is **merged** to [S4-230729](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230729.zip).

| [S4-230621](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230621.zip) | RGBD content format and proposed device supports | Xiaomi Communications | Emmanuel Thomas |
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**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c57fc055.2304c) | 4/17/2023 9:02:41 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230621<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230621.zip>  RGBD content format and proposed device supports  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Thomas Stockhammer | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e749e3d6.2304c) | 4/17/2023 12:11:33 | Colleagues,  Thanks for the contribution. We agree that depth is an important aspect to  be considered at least in certain environments.  The addition of depth in the rendering is something that is not supported  by XR Runtime, so we need to be careful mandating depth, but agreed that it  is important. Important is the addition as a capability on the XR Runtime  first and again, as we use OpenXR as the reference, everything should be  based on what is provided here:  https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html#XR\_KHR\_composition\_layer\_depth.  So clause 6.6.1 needs to be based on this extensions. [...] |
| Emmanuel Thomas | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;976b2409.2304c) | 4/17/2023 12:42:32 | Hi Thomas  Thanks for the review. Please see further comments inline.  Best regards,  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: 17 April 2023 14:12  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and  proposed device supports  Colleagues,  Thanks for the contribution. We agree that depth is an important aspect to  be considered at least in certain environments. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;74197b47.2304c) | 4/17/2023 12:54:20 | Inline:  From: Emmanuel Thomas <thomase@xiaomi.com>  Sent: Monday, April 17, 2023 2:43 PM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and  proposed device supports  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Hi Thomas  Thanks for the review. Please see further comments inline. [...] |
| Ahmed Hamza | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5bd7f7f8.2304c) | 4/18/2023 6:24:25 | Hi Emmanuel,  Thank you for the contribution. I’m trying to understand the use cases that  this is targeting. If the intention is to use the depth information to  generate other views, I believe RGB+D would be very limited in what it can  achieve as the quality would quickly degrade as the target view becomes  further from the reference due the missing information on the occluded  parts. Which would result in an unsatisfactory experience. Similar argument  can be made for generating a stereoscopic image (and we also already have  stereoscopic formats). For view synthesis, one would need multiple views to  achieve [...] |
| Serhan Guel | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;cdf937f2.2304c) | 4/18/2023 7:09:30 | Hi Emmanuel,  Thanks for the contribution. We would like to understand why this work  should be done in SA4 and not in MPEG. Especially, the file format related  aspects hardly belong here. We also think that V3C already supports  everything intended in this contribution.  It seems that the figure in the section 2.2.3 is misinterpreted in the  contribution. The RGBD content is not streamed; the cameras are part of the  device. [...] |
| Emmanuel Thomas | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;daba0a5f.2304c) | 4/18/2023 8:31:32 | Hi Ahmed,  Thanks for your review. Please see inline.  Best regards,  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Ahmed Hamza  Sent: 18 April 2023 08:24  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and  proposed device supports  Hi Emmanuel,  Thank you for the contribution. I’m trying to understand the use cases that  this is targeting.If the intention is to use the depth information to  generate other views, I believe RGB+D would be very limited in what it can  achieve as the quality would quickly degrade as the target view becomes  further from the reference due the [...] |
| Emmanuel Thomas | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;2a1ae486.2304c) | 4/18/2023 8:49:17 | Hi Serhan,  Thanks for your questions. Please see inline.  Best regards,  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Serhan Guel (Nokia)  Sent: 18 April 2023 09:10  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and  proposed device supports  Hi Emmanuel,  Thanks for the contribution. We would like to understand why this work  should be done in SA4 and not in MPEG. Especially, the file format related  aspects hardly belong here.  [ET] Without denying that 3GPP file format exist, we agree that fundamental  work if needed should be done in MPEG when it comes to file format [...] |
| Thomas Stockhammer | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3be40b1b.2304c) | 4/18/2023 9:26:04 | All,  We agree with Xiaomi that saying, V3C supports everything is a completely  missing the reality.  As we did for VR Stream, we should build up simple things do what we need  in SA4.  Thanks  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Emmanuel Thomas  Sent: Tuesday, April 18, 2023 10:49 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and  proposed device supports [...] |
| Emmanuel Thomas | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c07b492b.2304c) | 4/18/2023 12:59:18 | All,  Please find in the draft folder a revision of 621 based on the comments  received.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230621\_r01.docx  Best regards,  Emmanuel  From: Thomas Stockhammer <tsto@qti.qualcomm.com>  Sent: 18 April 2023 11:26  To: Emmanuel Thomas <thomase@xiaomi.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and  proposed device supports  All,  We agree with Xiaomi that saying, V3C supports everything is a completely  missing the reality. [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7e507f5f.2304c) | 4/20/2023 13:49:08 | Dear all, Emmanuel,  Thanks for the update. However I don’t think the justifications are  corrects, whether for the live/on-demand scenario or by using the V3C  figure to justify carrying upstream RGB-D data. And it would be actually  good to have proper justifications.  A few aspects need further discussions:  - The openXR extension is a multi-vendor extensions, I had no time to check  it. We would need to make sure it is a stable one or that khronos is not  folding in its core spec an equivalent functionality any time soon.  - the contribution seems to imply that every device and [...] |
| Emmanuel Thomas | [Re: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and proposed device supports](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7eba582.2304c) | 4/20/2023 14:29:06 | Hi Gaelle,  Please see inline and r02 here:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230621\_r02.docx  Regards,  Emmanuel  From: Gaëlle Martin-Cocher <Gaelle.Martin-Cocher@InterDigital.com>  Sent: 20 April 2023 15:49  To: Emmanuel Thomas <thomase@xiaomi.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [MeCAR, 621, 18th Apr 1200CEST] RGBD content format and  proposed device supports  Dear all, Emmanuel,  Thanks for the update. However I don’t think the justifications are  corrects, whether for the live/on-demand scenario or by using the V3C  figure to justify carrying upstream RGB-D data.  [ET] Upstream is mentioned only once and based on our interpretation of the  figure. We have been told than those RGB-D cameras on the left are on the  device [...] |

**Revisions**:

* <https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230621_r01.docx>
* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230621\_r02.docx

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* April 18, 2023: Emmanuel summarizes the discussion and provides a summary of the revision addressing the comments from e-mails
  + More discussion is needed.
* April 20, 2023: Emmanuel presents revision 2
  + Gaelle: no problem with change 1, but the shall support on RTP Streams and uncompressed data.
  + Emmanuel: ok to not add the change 2, 3, and 4
  + Thomas: agree with Gaelle

**Decision**:

* April 18, 2023: revision expected
* April 20, 2023: revision 2 with change 1 is included to PD => revised to 723

[**S4-230621**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230621.zip) is **revised** to [S4-230723](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230723.zip).

| [S4-230723](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230723.zip) | RGBD content format and proposed device supports | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

[S4-230723](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230723.zip) is **agreed**.

| [S4-230622](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230622.zip) | [MeCAR] MeCAR Permanent Document v6.0 | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 622, 18th Apr 1200CEST] Permanent Document](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;85c81310.2304c) | 4/17/2023 8:59:11 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230622<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230622.zip>  [MeCAR] MeCAR Permanent Document v6.0  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed  as a basis for further work.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com> [...] |
| --- | --- | --- | --- |
| Thomas Stockhammer | [Re: [MeCAR, 622, 18th Apr 1200CEST] Permanent Document](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c3df0af4.2304c) | 4/17/2023 9:10:28 | Dear colleagues,  Thanks for integration. Two small comments:  \* The new table should be auto fit to window  \* It would be better to have a version 5.2 into the meeting such that at  the meeting we issue a new X.0 doc  Both can be fixed in a revision out of this meeting.  Thanks  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: Monday, April 17, 2023 10:59 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [MeCAR, 622, 18th Apr 1200CEST] Permanent Document [...] |
| Su Huanyu | [Re: [MeCAR, 622, 18th Apr 1200CEST] Permanent Document](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;1a4a0ceb.2304c) | 4/18/2023 8:46:32 | Dear Emmanuel, all,  After yesterday’s discussion, we understand the rational behind moving the  clause 9 “AR data transport analysis” to 5G\_RTP. We now just want this  decision be reflected in the Video SWG meeting minutes to make sure the  ball is not dropped along the way.  Best regards,  Huan-yu Su  Huawei  Please click  here<http://r.huaweistatic.com/s/esddp/agreement/v1/app\_000000035837/PSTA/20201109/Windows/en\_US.html>  to see Huawei GDPR privacy statement. [...] |

**Revisions**: none

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* Thomas refers to the email, ok will be addressed

**Decision**:

[S4-230622](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230622.zip) is **agreed**.

| [S4-230643](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230643.zip) | MeCAR Permanent Document v7.0 | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

[S4-230643](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230643.zip) is **sent to SA4 plenary**.

| [S4-230623](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230623.zip) | [MeCAR] V3C Streaming Technologies and Considerations for MeCAR | InterDigital Communications | Ahmed Hamza |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;af71ea8d.2304c) | 4/17/2023 9:03:25 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230623<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230623.zip>  [MeCAR] V3C Streaming Technologies and Considerations for MeCAR  If no comment is received by 18th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Thomas Stockhammer | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e3fc5d95.2304c) | 4/17/2023 12:56:35 | Colleagues,  Similar to the discussion in 576, but even more significant, we lack the  use case of streaming dense point clouds.  We do not see any need to address/prioritize this work at this stage.  Thanks  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: Monday, April 17, 2023 11:03 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and  Considerations for MeCAR [...] |
| Ahmed Hamza | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c60805c7.2304c) | 4/18/2023 1:49:44 | Dear Thomas,  Thank you very much for your feedback. Please see my response regarding the  use cases in the discussion on 576. We have clearly documented use cases  for streaming volumetric video, which point clouds are an example of, in  our previous TRs (e.g., FS\_5GSTAR).  MeCAR is supposed to be defining the device types and capabilities that  would support these use cases. Therefore, I see that this is very relevant  to MeCAR. And without at least basic support for volumetric videos, I don’t  see how can MeCAR fulfill this objective. [...] |
| Thomas Stockhammer | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;99ae5fab.2304c) | 4/18/2023 9:33:03 | Ahmed,  See my other response. We disagree on the bold statements of volumetric  streaming being relevant and is solved by V3C.  We fear that SA4 would endorse an outdated and never implemented technology.  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Ahmed Hamza  Sent: Tuesday, April 18, 2023 3:50 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and  Considerations for MeCAR [...] |
| Ahmed Hamza | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;32815c2d.2304c) | 4/18/2023 14:33:54 | Thank you, Thomas. Just to clarify, there is no claim that volumetric video  is only solved by V3C. Rather, V3C is an existing solution that we believe  should be considered.  I’m also not sure I understand why you believe it is “outdated”. It is a  recent technology that has been recently developed and adopted by a  standards body for which 3GPP has strong collaborations with. [...] |
| Ahmed Hamza | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;94523a96.2304c) | 4/18/2023 15:05:15 | Dear Colleagues,  Please find in the draft folder a revision of 623. Nokia expressed support  and was added as a co-signer to the contribution.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230623\_r01.docx  Best regards,  -Ahmed  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> on behalf  of Ahmed Hamza <000006b1d5726ec9-dmarc-request@LIST.ETSI.ORG>  Date: Tuesday, April 18, 2023 at 7:34 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Subject: Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and  Considerations for MeCAR  Thank you, Thomas. Just to clarify, there is no claim that volumetric video  is only solved by V3C. Rather, V3C is an existing solution that we believe  should be considered. I’m also not sure I understand why you [...] |
| Thomas Stockhammer | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b05db985.2304c) | 4/18/2023 16:15:09 | It would be good to define volumetric video first.  I do not see that we have any mandate in Mecar to specify volumetric video.  Just because MPEG did something (and MPEG does a lot), there is no need to  adopt it in 3GPP unless there is a well-defined objective in the work item.  [...] |
| Emmanuel Thomas | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c6852780.2304c) | 4/20/2023 15:16:22 | Dear colleagues,  Looking at that contribution in isolation from the overall discussion, it  looks to me that clause 2 doesn’t add new information compared to existing  clause 9 in the PD.  Am I missing something?  Regarding clause 3, it seems there is no consensus.  Best regards,  Emmanuel  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Thomas Stockhammer  Sent: 18 April 2023 18:15  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and  Considerations for MeCAR [...] |
| Ahmed Hamza | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;197401ed.2304c) | 4/20/2023 15:41:01 | Dear Emmanuel,  I believe there are some additional high-level information in section 2  that would still be useful to add to what is in subsection 9.1.2.1 in the  PD.  Best regards,  -Ahmed  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> on behalf  of Emmanuel Thomas <000003f01af4035c-dmarc-request@LIST.ETSI.ORG>  Date: Thursday, April 20, 2023 at 8:22 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Subject: Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and  Considerations for MeCAR  Dear colleagues, Looking at that contribution in isolation from the overall  discussion, it looks to me that clause 2 doesn’t add new information  compared to existing clause 9 in the PD. Am I missing [...] |
| Emmanuel Thomas | [Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and Considerations for MeCAR](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8d7c27cc.2304c) | 4/20/2023 15:52:23 | Dear Ahmed,  If this is anyway more details about existing MPEG specifications, does it  bring added value beyond what we have now?  Without a revision, it is hard to see, purely even from an editor point of  view.  Best regards,  Emmanuel  From: Ahmed Hamza <Ahmed.Hamza@InterDigital.com>  Sent: 20 April 2023 17:41  To: Emmanuel Thomas <thomase@xiaomi.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [MeCAR, 623, 18th Apr 1200CEST] V3C Streaming Technologies and  Considerations for MeCAR [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230623\_r01.docx

[S4-230623](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230623.zip) is **revised** to [**S4-230640**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230640.zip).

| [**S4-230640**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230640.zip) | [MeCAR] V3C Streaming Technologies and Considerations for MeCAR | InterDigital Communications, Nokia | Ahmed Hamza |
| --- | --- | --- | --- |

**Revisions**: none

**Presenter**: Ahmed Hamza

**Online Discussion**:

* April 20, 2023: Ahmed presents
  + Ahmed suggest to add to only add clause to clause 9 in PD.
  + Ok,

**Decision**:

* April 20, 2023: clause 2 of the document is agreed

[S4-230640](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230640.zip) is **partially agreed**.

| [S4-230625](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230625.zip) | MeCAR Work Plan | Xiaomi Communications | Emmanuel Thomas |
| --- | --- | --- | --- |

**E-mail Discussion**: none

**Revisions**: none

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* April 20, 2023: Emmanuel presents
  + No comments - agreed

**Decision**:

* April 20, 2023: agreed

[S4-230625](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230625.zip) is **agreed and will be presented to SA4 closing plenary**.

## 9.6 FS\_XRTraffic (Feasibility Study on Typical Traffic Characteristics for XR Services and other Media)

*WID:* [*SP-200054*](https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_87E_Electronic/Docs/SP-200054.zip) *Feasibility Study on Typical Traffic Characteristics for XR Services and other Media*

| [S4-230538](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230538.zip) | [FS\_XRTraffic] Proposed Updates to TR 26.926 | Qualcomm incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

[S4-230538](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230538.zip) is **withdrawn**.

| [S4-230539](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230539.zip) | [FS\_XRTraffic] Proposed Updated Time Plan | Qualcomm incorporated | Thomas Stockhammer |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[FS\_XRTraffic, 539, 20th Apr 1200CEST] Proposed Updated Time Plan](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f19765c0.2304c) | 4/17/2023 9:27:15 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230539<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230539.zip>  [FS\_XRTraffic] Proposed Updated Time Plan  If no comment is received by 20th Apr. 12:00 CEST, the Tdoc will be agreed.  Please note that is contains a telco until the next SA4 meeting in May.  This telco is meant to be a generic VIDEO SWG call covering also MeCAR,  FS\_AI4Media and FS\_ARMRQoE if felt needed by the rapporteurs. [...] |
| --- | --- | --- | --- |
| Gilles Teniou | [Re: [FS\_XRTraffic, 539, 20th Apr 1200CEST] Proposed Updated Time Plan](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;192486fd.2304c) | 4/20/2023 9:28:00 | Dear all,  No comment was received. The workplan of FS\_XRTraffic under S4-230539 is  agreed.  Best regards,  Gilles  De : "teniou(TeniouGilles)" <teniou@tencent.com>  Date : lundi 17 avril 2023 à 11:27  À : 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Objet : [FS\_XRTraffic, 539, 20th Apr 1200CEST] Proposed Updated Time Plan  Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230539<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230539.zip>  [...] |

**Revisions**: none

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* none

**Decision**:

* agreed

[S4-230539](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230539.zip) is **agreed and presented to SA4 plenary**.

## 9.7 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

| [S4-230508](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230508.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics France SA | Eric Yip |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 508, 19th Apr 1200CEST] Proposed Updated Time and Work Plan](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;41f31448.2304c) | 4/17/2023 9:15:07 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230508<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230508.zip>  [FS\_AI4Media] Proposed Updated Time and Work Plan  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed  as the basis for further work. (revision is expected)  Best regards, [...] |
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[S4-230508](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230508.zip) is **revised** to [S4-230673](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230673.zip).

| [S4-230673](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230673.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics France SA | Eric Yip |
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**E-mail Discussion**: none

**Revisions**: none

**Presenter**: Eric Yip

**Online Discussion**:

* No comments

**Decision**:

* agreed

[S4-230673](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230673.zip) is **agreed**.

| [S4-230509](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230509.zip) | [FS\_AI4Media] Scenario Template for Evaluation Framework | Samsung Electronics France SA | Eric Yip |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 509, 19th Apr 1200CEST] Scenario Template for Evaluation Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3f9b726d.2304c) | 4/17/2023 9:15:18 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230509<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230509.zip>  [FS\_AI4Media] Scenario Template for Evaluation Framework  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
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| Stephane Onno | [Re: [FS\_AI4media, 509, 19th Apr 1200CEST] Scenario Template for Evaluation Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;6a82a30a.2304c) | 4/18/2023 12:54:14 | Dear Eric, Colleagues  Thanks for the contribution. We agree to start from this template.  We have a general comment on how to organize things at high level, thus  organization of the section §7  We are not sure that we can group model data and intermediate data  evaluation into a all in one scenario template document as you wrote.  components that may be different [...] |
| Eric Yip | [Re: [FS\_AI4media, 509, 19th Apr 1200CEST] Scenario Template for Evaluation Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b734e1cb.2304c) | 4/18/2023 13:10:07 | Full message available at: Re: [FS\_AI4media, 509, 19th Apr 1200CEST]  Scenario Template for Evaluation Framework |
| Stephane Onno | [Re: [FS\_AI4media, 509, 19th Apr 1200CEST] Scenario Template for Evaluation Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;52423b.2304c) | 4/18/2023 17:32:19 | Dear Eric, Colleagues  As I mentioned in other mail, I suggest to align the template to the clause  §7 we have to define.  According to me, the scenario template must be a high level template that  refer to subsection (metrics/testbed architecture)  I suggest also, to start the meeting on agreement on clause §7 [...] |

**Revisions**: none

**Presenter**: Eric Yip

**Online Discussion**:

* 2023/04/19: Eric presents
  + Stephane: What is the difference between reference and anchor?
    - Eric: consolidation needed
  + Imed: Scenario has to be describing the details with the proposals

**Decision**:

* 2023/04/19: merge to 647

[S4-230509](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230509.zip) is **merged** to **S4-230647**.

| [S4-230510](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230510.zip) | [FS\_AI4Media] Scenario for split inferenced human pose estimation | Samsung Electronics France SA | Eric Yip |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 510, 19th Apr 1200CEST] Scenario for split inferenced human pose estimation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;94876bb4.2304c) | 4/17/2023 9:15:28 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230510<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230510.zip>  [FS\_AI4Media] Scenario for split inferenced human pose estimation  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
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| Stephane Onno | [Re: [FS\_AI4media, 510, 19th Apr 1200CEST] Scenario for split inferenced human pose estimation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f80e42.2304c) | 4/18/2023 17:58:45 | Dear Eric, Colleagues  This is an interesting scenario,  Does it works today or do you intend to work on it ?  What 's happen when the player moves his head, thus the XR glasses too.  Does the glasses still track the pose ?  As comments before, this will need an alignment to the common template  we’ll agree on.  This can be on this meeting or the next one [...] |

**Revisions**: none

**Presenter**: Eric Yip

**Online Discussion**:

* 2023/04/19: Eric presents
  + Gilles: Scenario first to be agreed and use this as one example
    - Eric: Yes. Final version of scenario template expected.

**Decision**:

* 2023/04/19: Agreed to be added to PD

[S4-230510](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230510.zip) is **agreed**.

| [S4-230511](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230511.zip) | [FS\_AI4Media] Updates on procedure for Split AI/ML operation | Samsung Electronics France SA | Eric Yip |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 511, 19th Apr 1200CEST] Updates on procedure for Split AI/ML operation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5d21de0a.2304c) | 4/17/2023 9:17:11 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230511<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230511.zip>  [FS\_AI4Media] Updates on procedure for Split AI/ML operation  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Stephane Onno | [Re: [FS\_AI4media, 511, 19th Apr 1200CEST] Updates on procedure for Split AI/ML operation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e885b8b.2304c) | 4/18/2023 8:58:28 | Dear Eric, Colleagues  Thanks for the contribution, we support it.  We propose some updates to the text in the attached document. If you agree,  Interdigital would like to co-sign it  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: lundi 17 avril 2023 11:17  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [FS\_AI4media, 511, 19th Apr 1200CEST] Updates on procedure for  Split AI/ML operation [...] |
| Eric Yip | [Re: [FS\_AI4media, 511, 19th Apr 1200CEST] Updates on procedure for Split AI/ML operation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4c2f2e61.2304c) | 4/18/2023 12:10:56 | Full message available at: Re: [FS\_AI4media, 511, 19th Apr 1200CEST]  Updates on procedure for Split AI/ML operation |
| Stephane Onno | [Re: [FS\_AI4media, 511, 19th Apr 1200CEST] Updates on procedure for Split AI/ML operation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;ac229443.2304c) | 4/18/2023 14:42:34 | Dear Eric, Colleagues  This is fine for us,  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Eric Yip  Sent: mardi 18 avril 2023 14:11  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [FS\_AI4media, 511, 19th Apr 1200CEST] Updates on procedure for  Split AI/ML operation  Dear Stephane, Thanks for your proposed changes and support!I added a  little to the text in step 14, and also added InterDigital to the source in  the version uploaded here in the drafts  folder:https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230511\_r1%2  ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230511\_r1%20%5BFS\_AI4Media%5D%20Updates%20on%20procedure%20for%20Split%20AIML%20operation.docx

**Presenter**: Eric Yip

**Online Discussion**:

* 2023/04/19:
  + Eric presents [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230511_r1%20%5BFS_AI4Media%5D%20Updates%20on%20procedure%20for%20Split%20AIML%20operation.docx)
  + No comments

**Decision**:

* 2023/04/19: [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230511_r1%20%5BFS_AI4Media%5D%20Updates%20on%20procedure%20for%20Split%20AIML%20operation.docx) agreed

[S4-230511](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230511.zip) is **revised** to **S4-230682**.

| [S4-230682](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230682.zip) | [FS\_AI4Media] Updates on procedure for Split AI/ML operation | Samsung Electronics France SA, Interdigital Finland Oy | Eric Yip |
| --- | --- | --- | --- |

[S4-230682](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230682.zip) is **agreed**.

| [S4-230553](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230553.zip) | [FS\_AI4Media] Proposal for Evaluation Framework for AI/ML | Qualcomm CDMA Technologies | Imed Bouazizi |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 553, 19th Apr 1200CEST] Proposal for Evaluation Framework for AI/ML](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;6c4deb1c.2304c) | 4/17/2023 9:15:42 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230553<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230553.zip>  [FS\_AI4Media] Proposal for Evaluation Framework for AI/ML  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Eric Yip | [Re: [FS\_AI4media, 553, 19th Apr 1200CEST] Proposal for Evaluation Framework for AI/ML](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f150ba98.2304c) | 4/18/2023 2:57:51 | Full message available at: Re: [FS\_AI4media, 553, 19th Apr 1200CEST]  Proposal for Evaluation Framework for AI/ML |
| Serhan Guel | [Re: [FS\_AI4media, 553, 19th Apr 1200CEST] Proposal for Evaluation Framework for AI/ML](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7c599c72.2304c) | 4/18/2023 10:10:19 | Hi Imed,  Thanks for the contribution.  In the contribution, it is said that the precedence should be given to the  following scenarios:  1. AI/ML operation splitting between AI/ML endpoints  2. AI/ML model/data distribution and sharing over 5G system  3. Distributed/Federated Learning over 5G system  Our related questions are:  1. How does the framework fit to each of the above scenarios? This is not  explained anywhere in the document.  2. Which entity has the test data? Is it the server or the UEs?  3. What is the goal of evaluation in the UE? Maybe to ask for a new model  if [...] |

**Revisions**: none

**Presenter**: Imed Bouazizi

**Online Discussion**:

* 2023/04/19: Gilles summarizes the discussion
  + Imed: we believe that not in all cases inference is done on the device, so split inference is not always needed. Imed also shows the details in the slide set
    - Eric: a similar diagram is in Samsung contribution and also Fraunhofer. Do we want one diagram for all scenarios or several?
    - Imed: One may be too overcrowded, if we have too many scenarios.
    - Eric: In some scenarios there may only be one anchor or both
    - Imed: yes agree
    - Stephane: We should have only one diagram somewhere
    - Imed: Can we agree to have the sources of the diagrams to merge them as needed.Work for offline.
  + Gilles suggests to park the document for more details
    - Imed: can do, but would like to have it merged by editor
    - Eric: Stephane did a first, it would be good to a copy and paste the contributions as is, and do a merging offline.
  + Serhan: In some cases evaluation can be done in the UE. Why?
    - Imed: It is an anchor. There will be a penalty to run on the device in terms of complexity. We not agree that you always need to run on the network. My guess is that there are cases were running on network is better, and for others running on UE is better. Documenting facts is the idea.
  + Document is agreed to be added to a merged document.

**Decision**:

* Merged to a joint document

[S4-230553](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230553.zip) is **merged** to **S4-230647**.

| [S4-230647](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230647.zip) | [FS\_AI4Media] Unified Evaluation Framework | Samsung Electronics France SA, Qualcomm Inc., Interdigital Finland Oy, Fraunhofer HHI, Tencent | Eric Yip |
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**E-mail Discussion**: none

**Revisions**:

| [S4-230647\_draft [FS\_AI4Media] Unified Evaluation Framework InterdigitalRev1.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230647_draft%20%5BFS_AI4Media%5D%20Unified%20Evaluation%20Framework%20InterdigitalRev1.docx) |
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| [S4-230647\_draft [FS\_AI4Media] Unified Evaluation Framework.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230647_draft%20%5BFS_AI4Media%5D%20Unified%20Evaluation%20Framework.docx) |
| [S4-230647\_draft [FS\_AI4Media] Unified Evaluation FrameworkInterdigital.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230647_draft%20%5BFS_AI4Media%5D%20Unified%20Evaluation%20FrameworkInterdigital.docx) |

**Presenter**: Eric Yip

**Online Discussion**:

* 2023/04/20
  + Eric presents the document
    - Thomas: encourage for deadlines and timelines. In the Video codec characterization we had a separate PD.
    - Gilles: support to create such a second PD for tracking the timelines

**Decision**:

* Agreed to be added to the PD in 648.

[S4-230647](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230511.zip) is **agreed**.

| [S4-230648](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230648.zip) | [FS\_AI4Media] Permanent Document v0.7 | Samsung Electronics France SA | Eric Yip |
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[S4-230648](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230648.zip) is **sent to SA4 plenary**.

| [S4-230565](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230565.zip) | [FS\_AI4Media] Scenario for transmission of AI/ML model data | Fraunhofer HHI | Gerhard Tech |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 565, 19th Apr 1200CEST] Scenario for transmission of AI/ML model data](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a3b93de1.2304c) | 4/17/2023 9:15:51 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230565<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230565.zip>  [FS\_AI4Media] Scenario for transmission of AI/ML model data  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
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| Eric Yip | [Re: [FS\_AI4media, 565, 19th Apr 1200CEST] Scenario for transmission of AI/ML model data](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;ba1bd3d7.2304c) | 4/18/2023 3:11:44 | Full message available at: Re: [FS\_AI4media, 565, 19th Apr 1200CEST]  Scenario for transmission of AI/ML model data |
| Tech, Gerhard | [AW: [FS\_AI4media, 565, 19th Apr 1200CEST] Scenario for transmission of AI/ML model data](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f3f673f0.2304c) | 4/18/2023 10:00:53 | Dear Eric,  thank you for your comments. Considering the template in 509, I can  restructure the description of the scenario accordingly.  Changing the title to better describe the scenario is a good idea. What  about “transmission of compressed AI/ML model data” or even more specific  “Transmission of compressed AI/ML model data for automatic speech  recognition” ? [...] |
| Eric Yip | [Re: AW: [FS\_AI4media, 565, 19th Apr 1200CEST] Scenario for transmission of AI/ML model data](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9a136d05.2304c) | 4/18/2023 12:17:53 | Full message available at: Re: AW: [FS\_AI4media, 565, 19th Apr 1200CEST]  Scenario for transmission of AI/ML model data |
| Tech, Gerhard | [AW: AW: [FS\_AI4media, 565, 19th Apr 1200CEST] Scenario for transmission of AI/ML model data](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f2d67ec9.2304c) | 4/19/2023 3:27:02 | Dear Eric, all,  Thanks for your suggestions. I created a new revision (r2) of the document,  which includes the changes you suggested (and minor typo fixes). As I am  new to that process, I wonder what would be the best way to share it. Can I  simply upload it to the drafts folder?  Furthermore, I prepared another revision that corresponds to r2, but is  restructured to match the template suggested in S4-230509. We might  consider it when S4-230509 is agreed. Please let me know, if you want me to  also share it before.  Best regards, [...] |

**Revisions**:

* <https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230565_TransmissionScenario_r2.docx>
* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230565\_TransmissionScenario\_r3.docx

**Presenter**: Gerhard Tech

**Online Discussion**:

* 2023/04/19: Gilles summarizes the discussion. Eric presents [revision 3](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230565_TransmissionScenario_r3.docx)
  + Thomas: please inform the audio group
  + Imed: We should follow priority set of SA1. This seems to do some occasional downloads. Is it doing inference on device or are you sending to network
    - Gerhard: inference on the device
    - Imed: are we expecting to have version running on a mobile device or just run what is provided here
  + Stephane: On the matrix, if we compress, it takes less time over the network. Should we include latency of inference, not only quality?
    - Gerhard: depends on use case. In crowd-sourcing, UEs will download at once. It depends
    - Eric: additional thought, here we are testing compression technologies for AI models. Would it be better to have multiple models to which the same compression technology applies. What can we get in terms of results
  + Stephane: unclear for me how we can address compression efficiency.
    - Gilles invites for offline
  + Gilles summarizes the discussion. Invites for re-submission in telco to first define the telco.
    - Eric: proposes to postpone the scenarios after the meeting

**Decision**:

* 2023/04/19: noted. Invited for resubmission at telco

[S4-230565](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230565.zip) is **noted**.

| [S4-230583](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230583.zip) | [FS\_AI4Media] Template for clause 7 AI/ML framework evaluation | InterDigital Finland Oy | Stephane Onno |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 583, 19th Apr 1200CEST] Template for clause 7 AI/ML framework evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;43f0c1c5.2304c) | 4/17/2023 9:16:00 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230583<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230583.zip>  [FS\_AI4Media] Template for clause 7 AI/ML framework evaluation  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
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| Eric Yip | [Re: [FS\_AI4media, 583, 19th Apr 1200CEST] Template for clause 7 AI/ML framework evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e46002dd.2304c) | 4/18/2023 3:18:33 | Full message available at: Re: [FS\_AI4media, 583, 19th Apr 1200CEST]  Template for clause 7 AI/ML framework evaluation |
| Stephane Onno | [Re: [FS\_AI4media, 583, 19th Apr 1200CEST] Template for clause 7 AI/ML framework evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;ca8f3f7d.2304c) | 4/18/2023 13:19:00 | Dear Eric, Colleagues,  I agree for a merge.  We thought that the proponents decide, thus select collaboratively the  models/frameworks and scenarios. That’s why we brought materials for  proponents for the discussion.  I get the point “expectation is that both AI models and AI frameworks are  decided by the scenarios proposed by the proponents”, and we are fine with  this.  The term selection should be removed from the figure if we keep it  accordingly. [...] |
| Eric Yip | [Re: [FS\_AI4media, 583, 19th Apr 1200CEST] Template for clause 7 AI/ML framework evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;47322158.2304c) | 4/18/2023 15:15:49 | Full message available at: Re: [FS\_AI4media, 583, 19th Apr 1200CEST]  Template for clause 7 AI/ML framework evaluation |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230583%20%5BFS\_AI4Media%5D%20Template%20for%20clause%207%20AIML%20framework%20evaluationRev1.docx

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/04/19: Stephane presents [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230583%20%5BFS_AI4Media%5D%20Template%20for%20clause%207%20AIML%20framework%20evaluationRev1.docx)
  + Eric: We can have a common section for metrics and each scenario selects. Again suggest to add this to the structure

**Decision**:

* 2023/04/19: revision 1 merged to 647

[S4-230583](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230583.zip) is **merged** to **S4-230647.**

| [S4-230584](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230584.zip) | [FS\_AI4Media] Frameworks for evaluation | InterDigital Finland Oy | Stephane Onno |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 584, 19th Apr 1200CEST] Frameworks for evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;cbd2999.2304c) | 4/17/2023 9:16:10 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230584<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230584.zip>  [FS\_AI4Media] Frameworks for evaluation  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Eric Yip | [Re: [FS\_AI4media, 584, 19th Apr 1200CEST] Frameworks for evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;18ba62a2.2304c) | 4/18/2023 3:28:10 | Full message available at: Re: [FS\_AI4media, 584, 19th Apr 1200CEST]  Frameworks for evaluation |
| Stephane Onno | [Re: [FS\_AI4media, 584, 19th Apr 1200CEST] Frameworks for evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9797baec.2304c) | 4/18/2023 13:33:36 | Hi Eric,  Thanks for you comments  We are fine with the proposal  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Eric Yip  Sent: mardi 18 avril 2023 05:28  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [FS\_AI4media, 584, 19th Apr 1200CEST] Frameworks for evaluation  Dear Stephane, Similar to my comments on 585, lots of good information on  AI/ML frameworks here. Let's include it in it's own clause in the  evaluation framework, for information (without framework selection  criteria). Best regards,Eric --------- Original Message ---------Sender : ‌  ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ ‌ [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230584%20%20%5BFS\_AI4Media%5D%20Frameworks%20for%20evaluationRev1.docx

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/04/19: Gilles summarizes and Stephane presents [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230584%20%20%5BFS_AI4Media%5D%20Frameworks%20for%20evaluationRev1.docx)
* Will go to merge
* What about excel sheet? Will not be added

**Decision**:

* 2023/04/19: [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230584%20%20%5BFS_AI4Media%5D%20Frameworks%20for%20evaluationRev1.docx) merged to 647

[S4-230584](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230584.zip) is **merged** to **S4-230647**.

| [S4-230585](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230585.zip) | [FS\_AI4Media] Models for evaluation | InterDigital Finland Oy | Stephane Onno |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 585, 19th Apr 1200CEST] Models for evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3311c0a3.2304c) | 4/17/2023 9:16:18 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230585<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230585.zip>  [FS\_AI4Media] Models for evaluation  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Eric Yip | [Re: [FS\_AI4media, 585, 19th Apr 1200CEST] Models for evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;1ed4b71f.2304c) | 4/18/2023 3:25:53 | Full message available at: Re: [FS\_AI4media, 585, 19th Apr 1200CEST] Models  for evaluation |
| Stephane Onno | [Re: [FS\_AI4media, 585, 19th Apr 1200CEST] Models for evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7a3d0ffa.2304c) | 4/18/2023 13:26:22 | Dear Eric, Colleagues,  We are fine to modify the contribution (rewording characteristics ) and to  keep it in the proposed section.  What about the attached excel file. We do not intend to add something else,  this was for information and discussion  Do we want to keep it ?  Stéphane  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Eric Yip  Sent: mardi 18 avril 2023 05:26  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [FS\_AI4media, 585, 19th Apr 1200CEST] Models for evaluation  [...] |
| Eric Yip | [Re: [FS\_AI4media, 585, 19th Apr 1200CEST] Models for evaluation](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;1b6a8d6c.2304c) | 4/18/2023 13:59:25 | Full message available at: Re: [FS\_AI4media, 585, 19th Apr 1200CEST] Models  for evaluation |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230585%20%5BFS\_AI4Media%5D%20Models%20for%20evaluationRev1.docx

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/04/19: Gilles summarizes and Stephane presents [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230585%20%5BFS_AI4Media%5D%20Models%20for%20evaluationRev1.docx)
* Will go to merge

**Decision**:

* 2023/04/19: [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230585%20%5BFS_AI4Media%5D%20Models%20for%20evaluationRev1.docx) merged to 647

[S4-230585](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230585.zip) is **merged** to **S4-230647**.

| [S4-230587](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230587.zip) | [FS\_AI4Media] Intermediate data testbed architecture | InterDigital Finland Oy | Stephane Onno |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 587, 19th Apr 1200CEST] Intermediate data testbed architecture](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;851a1a6f.2304c) | 4/17/2023 9:16:32 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230587<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230587.zip>  [FS\_AI4Media] Intermediate data testbed architecture  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Eric Yip | [Re: [FS\_AI4media, 587, 19th Apr 1200CEST] Intermediate data testbed architecture](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;fa01d490.2304c) | 4/18/2023 3:33:25 | Full message available at: Re: [FS\_AI4media, 587, 19th Apr 1200CEST]  Intermediate data testbed architecture |
| Stephane Onno | [Re: [FS\_AI4media, 587, 19th Apr 1200CEST] Intermediate data testbed architecture](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;7d583013.2304c) | 4/18/2023 18:44:57 | Dear Eric, colleagues  Following previous mails, we suggest to keep a generic testbed architecture  for intermediate data where we can merge 587 and the section of 509 with  split considerations of subsection 8  We provide a new revision S4-230587Rev1 including missing anchoring.  We also move the metrics part to a common metric section which includes  text of 553 as well [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230587%20%5BFS\_AI4Media%5D%20Intermediate%20data%20testbed%20architectureRev1.docx

**Presenter**: Stephane Onno

**Online Discussion**:

* 2023/04/19: Stephane presents [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230587%20%5BFS_AI4Media%5D%20Intermediate%20data%20testbed%20architectureRev1.docx)

**Decision**:

* 2023/04/19: [revision 1](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230587%20%5BFS_AI4Media%5D%20Intermediate%20data%20testbed%20architectureRev1.docx) merged to 647

[S4-230587](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230587.zip) is is **merged** to **S4-230647**.

| [S4-230588](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230588.zip) | [FS\_AI4Media] Intermediate data testbed implementation example | InterDigital Finland Oy | Stephane Onno |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 588, 19th Apr 1200CEST] Intermediate data testbed implementation example](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e449cd82.2304c) | 4/17/2023 9:16:43 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230588<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230588.zip>  [FS\_AI4Media] Intermediate data testbed implementation example  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
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| Eric Yip | [Re: [FS\_AI4media, 588, 19th Apr 1200CEST] Intermediate data testbed implementation example](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c4555a0e.2304c) | 4/18/2023 3:35:09 | Full message available at: Re: [FS\_AI4media, 588, 19th Apr 1200CEST]  Intermediate data testbed implementation example |

**Revisions**: none

**Presenter**: Stephane Onno

**Online Discussion**:

* Stephane asks to note for now

**Decision**: noted

[S4-230588](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230588.zip) is **noted**.

| [S4-230589](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230589.zip) | [FS\_AI4Media] Intermediate data scenarios for evaluation | InterDigital Finland Oy | Stephane Onno |
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**E-mail Discussion**:

| Gilles Teniou | [FS\_AI4media, 589, 19th Apr 1200CEST] Intermediate data scenarios for evaluation | 4/17/2023 9:16:56 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230589<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230589.zip>  [FS\_AI4Media] Intermediate data scenarios for evaluation  If no comment is received by 19th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Eric Yip | Re: [FS\_AI4media, 589, 19th Apr 1200CEST] Intermediate data scenarios for evaluation | 4/18/2023 3:38:30 | Full message available at: Re: [FS\_AI4media, 589, 19th Apr 1200CEST]  Intermediate data scenarios for evaluation |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230589%20%5BFS\_AI4Media%5D%20Intermediate%20data%20scenarios%20for%20evaluationRev1.docx

**Presenter**: Stephane Onno

**Online Discussion**:

* Stephane asks to note for now

**Decision**: noted

[S4-230589](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230589.zip) is **noted**.

| [S4-230592](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230592.zip) | AI/ML model format: TensorFlow | Tencent | Gilles Teniou |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_AI4media, 592&593, 19th Apr 1200CEST] AI/ML model format: TensorFlow & PyTorch](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;1d5dffa5.2304c) | 4/17/2023 9:17:03 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contributions are available here:  S4-230592<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230592.zip>  AI/ML model format: TensorFlow  S4-230593<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230593.zip>  AI/ML model format: PyTorch  If no comment is received by 19th Apr. 12:00 CEST, the Tdocs will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Eric Yip | [Re: [FS\_AI4media, 592&593, 19th Apr 1200CEST] AI/ML model format: TensorFlow & PyTorch](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e8f43d68.2304c) | 4/18/2023 3:41:19 | Full message available at: Re: [FS\_AI4media, 592&593, 19th Apr 1200CEST]  AI/ML model format: TensorFlow & PyTorch |
| Stephane Onno | [Re: [FS\_AI4media, 592&593, 19th Apr 1200CEST] AI/ML model format: TensorFlow & PyTorch](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;898bcf4a.2304c) | 4/18/2023 18:34:48 | Dear Gilles, Eric, Colleagues,  Thanks for the contribution which gives a very good and useful description  of Pytorch and TensorFlow  You mention  It is proposed to list TensorFlow/Pytorch as part of the available formats  for AI/ML model distribution in the Permanent document under clause 6.5.  For a better understanding can you clarify if it is about the distribution  of trained model or something else?  What component of TensorFlow/Pytorch you want to propose as an available  exchange format ? [...] |

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230592-r01%20TensorFlow.docx

**Presenter**: Gilles Teniou

**Online Discussion**:

* See discussion at 593.

**Decision**:

* 2023/04/19: revision needed to integrate a note
* 2023/04/20: revision r01 agreed - revised to 712

[S4-230592](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230592.zip) is **revised** to [S4-230712](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230712.zip).

| [S4-230712](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230712.zip) | AI/ML model format: TensorFlow | Tencent | Gilles Teniou |
| --- | --- | --- | --- |

[S4-230712](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230712.zip) is **agreed**.

| [S4-230593](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230593.zip) | AI/ML model format: PyTorch | Tencent | Gilles Teniou |
| --- | --- | --- | --- |

**E-mail Discussion**: see 592

**Revisions**:

* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230593-r01%20PyTorch.docx

**Presenter**: Gilles Teniou

**Online Discussion**:

* 2023/04/19: Gilles summarizes the discussion on e-mail
  + Stephane: I suggest to be more precise
  + Imed: Can agree to use models such as PyTorch and TensorFlow, but conversion to ONNX should be ensured
    - Gilles: ONNX is one format, but not the only one for interchange.
    - Stephane: Text is good, but for example some models are not available through ONNX.
  + Gilles proposes to document this jointly in the PD.
  + Imed: Serialization is platform specific. On device you need to run the same framework. ONNX resolves the problem, but PyTorch and TensorFlow is continuously developed, but not ONNX. Do we want device inference to run the same framework as the network inference. Impacts model selection. Interoperability with UE should be addressed.
  + Imed asks the general question whether interoperability is to be supported or not. The node should address this.
* 2023/04/20: Gilles presents revision r01
  + No comments
  + Revision agreed

**Decision**:

* 2023/04/19: revision needed to integrate a note
* 2023/04/20: revision r01 agreed - revised to 714

[S4-230593](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230593.zip) is **revised** to [S4-230714](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230714.zip).

| [S4-230714](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230714.zip) | AI/ML model format: PyTorch | Tencent | Gilles Teniou |
| --- | --- | --- | --- |

[S4-230714](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230714.zip) is **agreed**.

## 9.8 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

| [S4-230502](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230502.zip) | Discussion on the typical procedure for ARMR QoE metric identification | Huawei, HiSilicon | Qi Pan |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c300e62f.2304c) | 4/17/2023 9:21:19 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230502<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230502.zip>  Discussion on the typical procedure for ARMR QoE metric identification  If no comment is received by 20th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com> [...] |
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| Serhan Guel | [Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;28aeffc7.2304c) | 4/18/2023 6:37:37 | Dear Qi,  Thanks for the contribution. I have a few questions on the defined metrics:  \* On AR object loading latency: How does that differ from  pose-to-render-to-photon latency for a specific time instance at which an  object is requested? Why do we need a separate metric for that?  \* On Tracking consistency: This is an internal device parameter; so, I  believe this cannot be observed in any of the OPs but only be known inside  the device. So why should this be considered for a network-assisted AR/MR  experience? [...] |
| Qi Pan | [Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;b1e75244.2304c) | 4/18/2023 7:22:23 | Dear Sehan,  Thanks for the comments.  Please see my reply in line.  BR,  Qi  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Serhan Guel (Nokia)  Sent: Tuesday, April 18, 2023 2:38 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical  procedure for ARMR QoE metric identification  Dear Qi,  Thanks for the contribution. I have a few questions on the defined metrics:  [...] |
| Qi Pan | [Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e2beb354.2304c) | 4/20/2023 7:21:17 | Dear Serhan and all,  Please find the r01 version considering the constructive comments. Hope  this can be acceptable for you.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230502r01.docx  BR,  Qi  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of panqi (E)  Sent: Tuesday, April 18, 2023 3:22 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical  procedure for ARMR QoE metric identification  Dear Sehan,  Thanks for the comments.  Please see my reply in line. [...] |
| Thomas Stockhammer | [Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;723a83a7.2304c) | 4/20/2023 9:22:03 | Qi, all,  Good starting point. I have added some comments here:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230502r01\_QCOM.docx  Two main comments:  1. The first and second metrics should be defined independent of the  delivery. The delivery may come into place and may impact the metric, but  not in all cases, you involve the network. I am ok to keep a typical call  flow, but I believe the definition of the metric itself is independent of  whether the data is taken from a local storage or from remote  2. On the object loading latency, I believe this needs to be refined.  Initially you load a scene and [...] |
| Qi Pan | [Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;449ac9f9.2304c) | 4/20/2023 12:00:04 | Hi Thomas and all,  Thanks for the constructive comments.  Please find the r02 version. The main changes are as following:  1. Add clarifications that the first and second metrics is not only for the  network assisted AR/MR case. They can be also for local AR/MR service.  2. For object loading latency, only keep the scene startup latency and  leave the interaction latency since the interaction latency is already  covered by the Motion-to-Render-to-Photon latency in MeCAR IMO.  3. For the tracking consistency, after offline check with Shuai, we keep  the tracking position error in 502 and only keep the tracking parameters  [...] |
| Thomas Stockhammer | [Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;46ebe7cb.2304c) | 4/20/2023 12:08:46 | Inline  From: panqi (E) <panqi8@huawei.com>  Sent: Thursday, April 20, 2023 2:00 PM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>;  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical  procedure for ARMR QoE metric identification  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Hi Thomas and all,  Thanks for the constructive comments.  Please find the r02 version. The main changes are as following: [...] |
| Qi Pan | [Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;48c58b3.2304c) | 4/20/2023 12:42:21 | Hi Thomas,  Thanks for the quick feedback.  Regarding to the interaction delay, I agree that’ different. We don’t need  to detect the motion in this case as you mentioned.  Please find the r03 that brings the interaction delay back.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230502r03.docx  BR,  Qi  From: Thomas Stockhammer <tsto@qti.qualcomm.com>  Sent: Thursday, April 20, 2023 8:09 PM  To: panqi (E) <panqi8@huawei.com>; 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: RE: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical  procedure for ARMR QoE metric identification [...] |
| Qi Pan | [Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical procedure for ARMR QoE metric identification](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c2506414.2304c) | 4/20/2023 15:05:45 | Hi all,  Please find the 692 as revision of 502 in the Inbox.  Many thanks for the suggestions.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/S4-230692.zip  BR,  Qi  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of panqi (E)  Sent: Thursday, April 20, 2023 8:42 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [FS\_ARMRQoE, 502, 20th Apr 1200CEST] Discussion on the typical  procedure for ARMR QoE  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/S4-230692.zipmetric  identification  Hi Thomas,  Thanks for the quick feedback.  Regarding to the interaction delay, I agree that’ different. We don’t need  to detect the motion in this case as you mentioned.  Please find the r03 that brings the interaction delay back.  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230502r03.docx  [...] |

**Revisions**:

* <https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230502r01.docx>
* <https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230502r01_QCOM.docx>
* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230502r02.docx
* https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230502r03.docx

**Presenter**: Qi Pan

**Online Discussion**:

* 2023/04/20: Qi presents [r03](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230502r03.docx) and summarizes
  + Thomas: network not needed
    - Qi: agree, will remove in revision

**Decision**:

* 2023/04/20: r03 with comments above agreeable - revised to 692.

[S4-230502](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230502.zip) is **revised** to [S4-230692](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230592.zip)

| [S4-230692](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230692.zip) | Discussion on the typical procedure for ARMR QoE metric identification | Huawei, HiSilicon | Qi Pan |
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[S4-230692](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230692.zip) is **agreed**.

| [S4-230515](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230515.zip) | Discussion on the Observation Points Monitoring | China Unicom | Shuai Gao |
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**E-mail Discussion**:

| Gilles Teniou | [[FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;34b387ae.2304c) | 4/17/2023 9:21:22 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contribution is available here:  S4-230515<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230515.zip>  Discussion on the Observation Points Monitoring  If no comment is received by 20th Apr. 12:00 CEST, the Tdoc will be agreed.  Best regards,  Gilles TENIOU (吉尔)  Technical Standards Director  Mobile: +33689326512  Email: teniou@tencent.com<mailto:teniou@tencent.com>  www.tencent.com<https://tencent.com/en-us/> |
| --- | --- | --- | --- |
| Serhan Guel | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;efcc6767.2304c) | 4/18/2023 6:59:42 | Hi Shuai,  Thanks for the contribution. I would like to understand the motivation here  a bit better. In addition to the ones you listed in the document, there are  other types of metadata in OpenXR extensions (e.g. eye gaze, facial  landmarks). Are we going to list them all, or is the intention here to give  some examples? Then I think this should be clarified. [...] |
| ¸ßË§(ÁªÍ¨¼¯ÍÅÖÐ¹úÁªÍ¨ÑÐ¾¿Ôº-±¾²¿) | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a2539a54.2304c) | 4/20/2023 2:19:49 | Hi all,  It seems that this email is rejected by the mail server. I resend this  email for your attention.  BR,  Shuai |
| ¸ßË§(ÁªÍ¨¼¯ÍÅÖÐ¹úÁªÍ¨ÑÐ¾¿Ôº-±¾²¿) | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5daf324b.2304c) | 4/20/2023 2:47:58 | Hi all,  Add a revision link for  S4-230515\_r01<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230515\_r01.docx>  BR,  Shuai |
| Serhan Guel | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3de6b22f.2304c) | 4/20/2023 7:45:32 | Thanks Shuai, please see inline.  Best regards,  Serhan  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> on behalf  of 高帅(联通集团中国联通研究院-本部) <gaos30@CHINAUNICOM.CN>  Date: Thursday, 20. April 2023 at 04:48  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Subject: Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the  Observation Points Monitoring  Hi all,  Add a revision link for  S4-230515\_r01<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230515\_r01.docx>  BR,  Shuai |
| Thomas Stockhammer | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4ba7289.2304c) | 4/20/2023 8:54:15 | Shuai, colleagues,  This is an excellent contribution. Thank you.  Some proposed updates in here:  https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230515\_r01\_QCOM.docx  We are happy to co-sign a revised version.  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of teniou(TeniouGilles)  Sent: Monday, April 17, 2023 11:21 AM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation  Points Monitoring  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Dear colleagues, [...] |
| ¸ßË§(ÁªÍ¨¼¯ÍÅÖÐ¹úÁªÍ¨ÑÐ¾¿Ôº-±¾²¿) | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;52d0270b.2304c) | 4/20/2023 11:26:19 | Hi Serhan and all,  We are still analyzing some parameters that can be observed in OP1. If  other companies analyze some interesting parameters, you are very welcome  to join in this study item.  If Nokia is interested in eye gaze, facial landmarks parameters, we are  glad if you can provide a revision Tdoc containing these parameters. [...] |
| ¸ßË§(ÁªÍ¨¼¯ÍÅÖÐ¹úÁªÍ¨ÑÐ¾¿Ôº-±¾²¿) | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9f433e00.2304c) | 4/20/2023 11:36:07 | Hi Thomas,  Thanks for your suggestions and support. I updated the Tdoc as  S4-230515\_r02<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230515\_r02.docx>  based on your revised version with considering Nokia's comments.  In details, I modified clause 2.5 to "Tracking position prediction error  parameters" and removed the paragraph on how to calculate the tracking  position prediction error. Hope this is OK for you. [...] |
| Thomas Stockhammer | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;c33cc569.2304c) | 4/20/2023 12:06:34 | OK  From: 高帅(联通集团中国联通研究院-本部) <gaos30@chinaunicom.cn>  Sent: Thursday, April 20, 2023 1:36 PM  To: Thomas Stockhammer <tsto@qti.qualcomm.com>; 3GPP\_TSG\_SA\_WG4\_VIDEO  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Subject: Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the  Observation Points Monitoring  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Hi Thomas,  Thanks for your suggestions and support. I updated the Tdoc as  S4-230515\_r02<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230515\_r02.docx>  based on your revised version with considering Nokia's comments. [...] |
| Serhan Guel | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;9a8d3707.2304c) | 4/20/2023 12:28:18 | Hi Shuai,  Thanks for the revision. Ok, just one thing: the second to last bullet in  the list in Clause 2 should be updated to match the revision in Clause 2.5.  Best regards,  Serhan  From: 高帅(联通集团中国联通研究院-本部) <gaos30@chinaunicom.cn>  Date: Thursday, 20. April 2023 at 13:26  To: Serhan Guel (Nokia) <serhan.guel@nokia.com>, 3GPP\_TSG\_SA\_WG4\_VIDEO  <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Subject: Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the  Observation Points Monitoring [...] |
| Shuai Gao | [Re: [FS\_ARMRQoE, 515, 20th Apr 1200CEST] Discussion on the Observation Points Monitoring](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4a56465a.2304c) | 4/20/2023 13:18:15 | Hi Serhan,  Yes you are right. The list below are FFS in the TR 26.812 v0.3 at the last  meeting. I will update the list in the TR 26.812 if this discussion paper  can be agreed today.  [Editor’s Note: the applicability of these parameters is TBD  - Viewer pose  - Projection parameters  - Camera information  - Gesture  - Body action  - Tracking position prediction error  - Mapping latency for reconstructing the surrounding space] [...] |

**Revisions**:

* [S4-230515\_r01.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230515_r01.docx)
* [S4-230515\_r01\_QCOM.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230515_r01_QCOM.docx)
* [S4-230515\_r02.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230515_r02.docx)

**Presenter**: Shuai Gao

**Online Discussion**:

* 2023/04/20: Shuai presents [r02](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230515_r02.docx) and summarizes
  + Gilles: “can” not to be used -> change to “may”

**Decision**:

* 2023/04/20: Revision r02 with comments above agreed. Revised to 696.

[S4-230515](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230515.zip) is **revised** [S4-230696](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230696.zip).

| [S4-230696](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230696.zip) | Discussion on the Observation Points Monitoring | China Unicom, Qualcomm Incorporated | Shuai Gao |
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[S4-230696](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230696.zip) is **agreed.**

| [S4-230699](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230699.zip) | Draft TR 26.812 QoE metrics for AR/MR services v0.4.0 | China Unicom (Rapporteur) | Shuai Gao |
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[S4-230699](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230699.zip) is **sent to SA4 plenary**.

| [S4-230700](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230700.zip) | [FS\_ARMR\_QoE] Proposed Updated Time Plan | China Unicom | Shuai Gao |
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[S4-230700](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230700.zip) is **sent to SA4 plenary**.

## 9.9 New Work / New Work Items and Study Items

| [S4-230493](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230493.zip) | Discussion on new HEVC profiles and operating points | Apple, Dolby Laboratories Inc., Fraunhofer HHI | Waqar Zia |
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**E-mail Discussion**: none

**Revisions**: none

**Presenter**: Waqar Zia

**Online Discussion**:

**Decision**:

[S4-230493](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230493.zip) is **noted**.

| [S4-230494](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230494.zip) | New WID on new HEVC profiles and operating points | Apple, Dolby Laboratories Inc., Fraunhofer HHI | Waqar Zia |
| --- | --- | --- | --- |

**E-mail Discussion**:

| Gilles Teniou | [[New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3e08c694.2304c) | 4/17/2023 9:21:37 | Dear colleagues,  I declare the email agreement process started on the Tdoc indicated in the  subject line.  The contributions are available here:  S4-230493<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230493.zip>  Discussion on new HEVC profiles and operating points  S4-230494<https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Docs/S4-230494.zip>  New WID on new HEVC profiles and operating points  If no comment is received by 20th Apr. 12:00 CEST, the Tdocs will be agreed.  Best regards, [...] |
| --- | --- | --- | --- |
| Gaëlle Martin-Cocher | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;6d8eba87.2304c) | 4/18/2023 11:35:59 | Dear colleagues,  Thank you for initiating this proposal, it would be good to enhance the  support of HEVC in 3GPP services.  On the justification:  \* I am not sure I fully grasp its entirety, particularly when it comes to  Multiview and how this relates to 26.955. Maybe this is more related to  26.118 (identified in the SID as impacted TS) or to 26.119, can you  elaborate on that?  \* I see quite some value in the other points.  \* Is this WID intended to be limited to the identified profiles/features or  is this open to other HEVC tools?  Friendly amendment [...] |
| Waqar Zia | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;6fd49f59.2304c) | 4/18/2023 12:28:50 | Thanks Gaëlle for your comments, please see inline,  > On 18. Apr 2023, at 13:35, Gaëlle Martin-Cocher  <00000622c68462be-dmarc-request@LIST.ETSI.ORG> wrote:  >  > Dear colleagues,  > Thank you for initiating this proposal, it would be good to enhance the  support of HEVC in 3GPP services.  > On the justification:  > I am not sure I fully grasp its entirety, particularly when it comes to  Multiview and how this relates to 26.955. Maybe this is more related to  26.118 (identified in the SID as impacted TS) or to 26.119, can you  elaborate on that? [...] |
| Champel MaryLuc | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;da99719a.2304c) | 4/18/2023 14:36:32 | Dear colleagues,  While it is well understood that HEVC supports 4:4:4, multiview and  scalable coding and that 3GPP has not developed operation points yet for  these, it is not clear what the motivation is here.  In particular, for each topic:  \* 4:4:4  \* What are the use cases today (or tomorrow) of 4:4:4 content delivery over  3GPP networks?  \* TR 22.827 AVPRO study in SA1 has not looked at this aspect and therefore  did not conclude anything about the need for an HEVC 4:4:4 operating point.  \* Multiview coding  \* What are the use cases today (or tomorrow) for multiview [...] |
| Waqar Zia | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;d902d3ea.2304c) | 4/18/2023 17:21:33 | Hi Mary-Luc,  Thanks for the review and questions. Firstly 2x envelope comments that  apply overall:  Since the proposal is to add new HEVC tools so by this intention, at least  we don’t see any “shall” mandates, rather add new tools with “should” so as  to let adoption catch up.  The use cases we focused are more or less network (3GPP/non-3GPP) agnostic,  or at least do not need any specialised 3GPP network support. [...] |
| Thomas Stockhammer | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;ee02419f.2304c) | 4/18/2023 22:37:56 | Waqar, colleagues,  Thanks for following up on the study and the TR26.955. However, we are a  bit surprised about the profiles that are mentioned with reference to  TR26.955.  To be very clear,  1. We are generally supportive of HEVC being used for more use cases  2. We would be supportive to a study that looks at the benefit of new  profiles of HEVC  3. We are very concerned about the proposed objectives to create a work  item on new profiles that have not been studied and it is unclear what the  benefits would be. Some of the considered profiles are [...] |
| Thomas Stockhammer | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;51cac35f.2304c) | 4/18/2023 22:47:49 | Inline  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Waqar Zia  Sent: Tuesday, April 18, 2023 7:22 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and  operating points  WARNING: This email originated from outside of Qualcomm. Please be wary of  any links or attachments, and do not enable macros.  Hi Mary-Luc,  Thanks for the review and questions. Firstly 2x envelope comments that  apply overall: [...] |
| Waqar Zia | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;81a1548b.2304c) | 4/19/2023 6:26:19 | Thomas,  Please see inline,  > On 19. Apr 2023, at 00:47, Thomas Stockhammer <tsto@QTI.QUALCOMM.COM>  wrote:  >  > Inline  >  > From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  <mailto:3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>> On Behalf Of Waqar Zia  > Sent: Tuesday, April 18, 2023 7:22 PM  > To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  <mailto:3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  > Subject: Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and  operating points  >  > WARNING: This email originated from outside of Qualcomm. Please be wary  of any links or attachments, and do not enable macros.  >  > Hi Mary-Luc,  >  > Thanks for the review and questions. Firstly 2x envelope comments that  apply overall:  >  > [...] |
| Thomas Stockhammer | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;91961679.2304c) | 4/19/2023 7:25:16 | Waqar,  It is claimed that these tools provide benefits. But where do we have  evidence in which technical report?  At the same time, we need to understand the costs of such implementations.  For example  \* 4:4:4 is not just an issue of the codec – as said not even in  professional production environments this is pushed for. We need to study  the implications  \* SHVC for adaptive streaming has not been studied at all. CMAF as an  example has very restrictive SHVC profile that was only added for the  purpose to support ATSC3.0, but this was not tested.  We do [...] |
| Waqar Zia | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;3672ffc0.2304c) | 4/19/2023 7:51:01 | Thomas,  Please see inline,  > On 19. Apr 2023, at 09:25, Thomas Stockhammer <tsto@QTI.QUALCOMM.COM>  wrote:  >  > Waqar,  >  > It is claimed that these tools provide benefits. But where do we have  evidence in which technical report?  >  > At the same time, we need to understand the costs of such implementations.  >  > For example  > 4:4:4 is not just an issue of the codec – as said not even in  professional production environments this is pushed for. We need to study  the implications [...] |
| 王东(Dong Wang) | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;f298e2e1.2304c) | 4/19/2023 10:33:42 | Dear Waqar, Thomas, Mary-Luc, et al,  OPPO has some general comments regarding the potential New Work related to  493&494 – new HEVC profiles and operation points.  OPPO believes the current stage is not the right time, or too early, to  start this new work before sufficient evidence brought onto the table,  especially from mobile terminals vendors point of view, whatever iOS or  Android Camps. All of 4:4:4 (whatever which 444 profile of HEVC standard,  taking Apple ProRes as a professional production example for 4::4:4), SHVC  and/or MVC are quite small market needs (if any), and not massively  deployed and consumed [...] |
| Waqar Zia | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;5df45694.2304c) | 4/19/2023 15:38:54 | Hi all,  Based on the comments received I have revised the draft WID such that the  normative work is precedented by studying and gathering evidence for the  tools, as is being suggested. Our concern is not to go into some very long  study such that by its conclusion the device and codec landscape change  already makes its outcome irrelevant. Please let me know what you think.  [...] |
| Thomas Stockhammer | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8910cc44.2304c) | 4/19/2023 15:49:19 | Waqar,  We would not support a normative work before a study has concluded that  normative work is needed.  We also have discouraged to combine study and normative work.  Thomas  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Waqar Zia  Sent: Wednesday, April 19, 2023 5:39 PM  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and  operating points [...] |
| Waqar Zia | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;348823a.2304c) | 4/19/2023 17:37:04 | Thomas,  I am not able to understand your concern, the draft clearly says normative  work only if study shows improvement, this is what the ask was. No  improvement shown = no normative work done, so I cannot see what is bad  about this formulation? At least this would be a much more productive use  of SA4 resources that we can address normative aspects of a specific tool  if agreement develops on its utility. I would also expect same practice to  be followed for any other codec tools in SA4. [...] |
| Thomas Stockhammer | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;8080bee8.2304c) | 4/19/2023 17:48:04 | Waqar,  We do a study in a study item and if the study item concludes to do  normative work and what work to do, we create a work item.  We (in 3GPP) are strongly discouraged to do feasibility study as part of a  normative phase. I ask the chairs to comment on this, but this practice is  very common. [...] |
| Gilles Teniou | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;282fb7b2.2304c) | 4/19/2023 18:26:54 | 3GPP discourages work items with a study phase and recommends to clearly  separate the study phase (with a study item) from the normative phase (work  item).  If the final objective is to target Release 18, then the associated  timeline of the study item should take into account the remaining time  (until release18 stage3 freezing date) for going into normative work.  “I” 😊 have seen, in the past in SA4, long study items followed by a short  work item (or even in SA1 where it is the normal practice).  Waqar, maybe it would help if you provide (informally in the draft [...] |
| Waqar Zia | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;d9018ceb.2304c) | 4/19/2023 20:12:23 | All,  In the interest of not keep dragging this, I have removed the normative  aspects:  https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230494\_HEVC\_SI\_r3.docx  Thanks,  Waqar.  > On 19. Apr 2023, at 20:26, teniou(TeniouGilles)  <00000702245a917d-dmarc-request@LIST.ETSI.ORG> wrote:  >  > 3GPP discourages work items with a study phase and recommends to clearly  separate the study phase (with a study item) from the normative phase (work  item).  > If the final objective is to target Release 18, then the associated  timeline of the study item should take into account the remaining time  (until release18 stage3 freezing date) for going into normative work.  > “I” 😊 have seen, in the past in [...] |
| Thomas Stockhammer | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;d85d7491.2304c) | 4/19/2023 20:29:07 | This document still says that it is a feature.  2.1 Primary classification  This work item is a …  X  Feature  Building Block  Work Task  Study Item  Beyond this, the justification is not great, but we would not object.  On the objective, we would like to see regular study objectives that include  1. Include motivating use cases and scenarios for new HEVC profiles  2. Document relevant existing HEVC profiles that are not included in 3GPP  today  3. Provide evaluation of the benefits/drawbacks using new profiles for  relevant use cases including performance results, complexity and  implementation aspects, etc.  4. Extend the existing [...] |
| Gilles Teniou | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;84b2615a.2304c) | 4/19/2023 20:36:41 | Hi Waqar,  A few procedural comments :  \* Title : should be "Feasibility Study on…"  \* Acronym: should be FS\_XXXX  \* Clause 2.1: Study Item should be ticked (not a Feature)  \* Clause 4: This clause is on the objectives of the proposed study. There  cannot be any recommendation on follow-up activities.  \* Clause 5: If a new TR is needed, please indicate if it’s an internal TR  (26.8xx series) or a published TR (26.9xx series)  One question on my side on the proposal: [...] |
| 王东(Dong Wang) | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;94b32f7d.2304c) | 4/20/2023 6:12:18 | Hi Waqar, et al,  Thank you very much for forwarding my previous general comments into the  VIDEO reflector when it recovered.  Further suggestion from my side on these potential study items is to  separate 4:4:4, SVC and MVC into different ones in order to provide correct  Acronyms, better justifications, clear objectives and the suitable time  plans for each one.  Mixing them together somehow make it difficult to justify and push forward.  If prioritized and provide the potential time plan responding to the real  market needs, which may be helpful.  Please also consider the real needs from mobile terminals (i.e., over [...] |
| Waqar Zia | [Re: [New Work, 493&494, 20th Apr 1200CEST] new HEVC profiles and operating points](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;cf089a0.2304c) | 4/20/2023 20:04:23 | Hi Gilles, all,  I have taken the following document  (https://www.3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_123-e/Inbox/Drafts/Video/S4-230494\_HEVC\_SI\_r3.docx)  that was presented in the last Video session earlier today, and put it  without any changes (except updated tdoc number) in revision S4-230663  <https://www.3gpp.org/ftp/tsg\_sa/WG4\_CODEC/TSGS4\_123-e/Inbox/S4-230663.zip>  which is available in the Inbox. The purpose is that this document is noted  as such without any changes from r3 that was presented earlier today, and  to avoid any confusions on last minute changes. We would like to then  pursue this document post SA4#123e. [...] |

**Revisions**:

* [S4-230494\_HEVC\_SI\_r3.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230494_HEVC_SI_r3.docx)
* [S4-230494\_HEVC\_WI\_r2.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230494_HEVC_WI_r2.docx)

**Presenter**: Waqar Zia

**Online Discussion**:

* 2023/04/20: Waqar presents [r03](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_123-e/Inbox/Drafts/Video/S4-230494_HEVC_SI_r3.docx).
  + Still some outstanding comments that are not yet addressed

**Decision**:

[S4-230494](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230494.zip) is **revised** to [S4-230663](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230663.zip).

| [S4-230663](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230663.zip) | New SID on new HEVC profiles and operating points | Apple, Dolby Laboratories Inc., Fraunhofer HHI | Waqar Zia |
| --- | --- | --- | --- |

[S4-230663](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230663.zip) is **noted**.

## 9.10 Liaisons and Liaison Responses

none

## 9.11 Any Other Business

### 9.11.1 Report

The report will be made available in [**S4-230721**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_123-e/Docs/S4-230721.zip).

### 9.11.2 Summary from Offline Discussions

| Thomas Stockhammer | [Offline - 3GPP SA4 Video SWG Group](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;eb60c445.2304c) | 4/18/2023 15:47:38 | Dear colleagues,  In order to progress 540, 581, 591, let’s have an offline to converge.  The proposal is to have the offline from 10:30am CEST to 12:00am CEST  tomorrow (19/04).  We will confirm the time during the next Video SWG today, after which I  will send out the invite.  For information, here are the details of those 3 TDocs. [...] |
| --- | --- | --- | --- |

| Emmanuel Thomas | [[MeCAR] Offline for 540, 581 and 591: tentative time 10:30am CEST to 12:00am CEST on 19/04](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;4ffd62a.2304c) | 4/18/2023 10:33:01 | Dear colleagues,  In order to progress 540, 581, 591, let’s have an offline to converge.  The proposal is to have the offline from 10:30am CEST to 12:00am CEST  tomorrow (19/04).  We will confirm the time during the next Video SWG today, after which I  will send out the invite.  For information, here are the details of those 3 TDocs. [...] |
| --- | --- | --- | --- |
| Gilles Teniou | [Re: [MeCAR] Offline for 540, 580 and 591: tentative time 10:30am CEST to 12:00am CEST on 19/04](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;583e99a.2304c) | 4/18/2023 10:47:46 | Thanks Emmanuel,  Just correcting the title o f the email thread and the text below.  It’s 580 instead of 581.  Best regards,  Gilles  De : Emmanuel Thomas <thomase@xiaomi.com>  Date : mardi 18 avril 2023 à 12:33  À : 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>  Cc : "teniou(TeniouGilles)" <teniou@tencent.com>  Objet : [Internet][MeCAR] Offline for 540, 581 and 591: tentative time  10:30am CEST to 12:00am CEST on 19/04 [...] |
| Gaëlle Martin-Cocher | [Re: [MeCAR] Offline for 540, 581 and 591: tentative time 10:30am CEST to 12:00am CEST on 19/04](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;e60daeb8.2304c) | 4/18/2023 15:03:18 | Hello,  Sorry, I joined late, I don’t know if this was discussed;  Can we do a less unfriendly time for NA? That is 4.30am East coast, and  1.30am west coast.  Thanks  Gaëlle  From: 3GPP\_TSG\_SA\_WG4\_VIDEO <3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG> On Behalf  Of Emmanuel Thomas  Sent: mardi 18 avril 2023 06:33  To: 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG  Subject: [MeCAR] Offline for 540, 581 and 591: tentative time 10:30am CEST  to 12:00am CEST on 19/04 [...] |
| Thomas Stockhammer | [Offline - 3GPP SA4 Video SWG Group](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;28ee298f.2304c) | 4/18/2023 11:17:27 | Dear colleagues,  In order to progress 540, 581, 591, let’s have an offline to converge.  The proposal is to have the offline from 10:30am CEST to 12:00am CEST  tomorrow (19/04).  We will confirm the time during the next Video SWG today, after which I  will send out the invite.  For information, here are the details of those 3 TDocs. [...] |

| Saba Ahsan | [[MeCAR] offline for 576 and 623](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;46d2cc24.2304c) | 4/18/2023 20:37:35 | Dear all,  As discussed during the online session, I've scheduled the offline for the  two documents on volumetric video. |
| --- | --- | --- | --- |

| Eric Yip | [[FS\_AI4Media Offline] Evaluation Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;a351c61b.2304c) | 4/19/2023 14:54:12 | Full message available at: [FS\_AI4Media Offline] Evaluation Framework |
| --- | --- | --- | --- |
| Tech, Gerhard | [AW: [FS\_AI4Media Offline] Evaluation Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;d048185a.2304c) | 4/19/2023 15:18:00 | Dear all,  that is also fine for me.  Best regards  Gerhard  Von: Stephane Onno <Stephane.Onno@InterDigital.com>  Gesendet: Wednesday, 19 April 2023 16:57  An: eric.yip@samsung.com; 3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG; BOUAZIZI  <BOUAZIZI@qti.qualcomm.com>; Tech, Gerhard  <gerhard.tech@hhi.fraunhofer.de>; teniou@tencent.com;  ericyip.samsung@gmail.com  Betreff: RE: [FS\_AI4Media Offline] Evaluation Framework  Dear colleagues,  Fine for me  Regards,  Stéphane  From: Eric Yip <eric.yip@samsung.com<mailto:eric.yip@samsung.com>>  Sent: mercredi 19 avril 2023 16:54  To:  3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG<mailto:3GPP\_TSG\_SA\_WG4\_VIDEO@LIST.ETSI.ORG>;  BOUAZIZI <BOUAZIZI@qti.qualcomm.com<mailto:BOUAZIZI@qti.qualcomm.com>>;  Stephane Onno  <Stephane.Onno@InterDigital.com<mailto:Stephane.Onno@InterDigital.com>>;  gerhard.tech@hhi.fraunhofer.de<mailto:gerhard.tech@hhi.fraunhofer.de>;  teniou@tencent.com<mailto:teniou@tencent.com>; Eric Yip  <eric.yip@samsung.com<mailto:eric.yip@samsung.com>>;  ericyip.samsung@gmail.com<mailto:ericyip.samsung@gmail.com>  Subject: [FS\_AI4Media Offline] Evaluation Framework [...] |
| Eric Yip | [[FS\_AI4Media Offline] Evaluation Framework](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_VIDEO;23aa171a.2304c) | 4/19/2023 15:20:16 | Full message available at: [FS\_AI4Media Offline] Evaluation Framework |

### 9.11.3 Output documents

Gilles please add

### 9.11.3 AHG Telcos

| 3GPP SA4 Video SWG Telco (May 9, 2023, 15:00 – 17:00 CEST, Host Qualcomm) |
| --- |

## 9.12 Close of the session

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

The online session was closed on April 20, 2023 at 18:18 (CEST).

No more e-mail approval is pending.

## 9.13 Attendees

| **TITLE** | **Family Name** | **Given Name** | **Employer Organization** | **PRESENCE** |
| --- | --- | --- | --- | --- |
| Dr. | Ahsan | Saba | Nokia Corporation |  |
| Mr. | Ani Simi | Gokul Sani | ORS |  |
| Mr. | Aracena | Mauricio | Ericsson LM |  |
| Mr. | Bae | Jaehyeon | Samsung Electronics Co., Ltd |  |
| Mr. | Baek | Youngkyo | Samsung R&D Institute UK |  |
| Mr. | BASAIER | JIALADE | China Unicom |  |
| Mr. | Baskaran | Dhivagar | CEWiT |  |
| Dr. | Bouazizi | Imed | Qualcomm Incorporated |  |
| Dr. | Bradbury | Richard | BBC |  |
| Mrs. | Brekalo | Andrijana | ETSI |  |
| Dr. | Bruhn | Stefan | Dolby Sweden AB |  |
| Mr. | Burman | Bo | Ericsson LM |  |
| 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 |  |
| Dr. | Chan | Yee Sin | Meta Ireland |  |
| Dr. | CHAOUB | Abdelaali | Nokia France |  |
| Ms. | Chen | Lijuan | ZTE Corporation |  |
| Dr. | Chen | Lulin | MediaTek Inc. |  |
| Mr. | Cheng | Sihan | vivo Mobile Communication Co., |  |
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| Mr. | Choi | Hongjin | Samsung R&D Institute UK |  |
| Mr. | Choi | Hyung-Nam | Motorola Mobility UK Ltd. |  |
| Miss | chong | vivian | VIVO TECH GmbH |  |
| Dr. | Curcio | Igor | Nokia Corporation |  |
| Mr. | Dawes | Peter | VODAFONE Group Plc |  |
| Mr. | Dawkins | Spencer | Tencent |  |
| Mr. | De Bont | Frans | Philips International B.V. |  |
| Mr. | Diaz | Edward | Verizon UK Ltd |  |
| Mr. | Doehla | Stefan | Fraunhofer IIS |  |
| Dr. | Dong | Hao | ZTE Corporation |  |
| Ms. | Dong | Xufei | CITC |  |
| Dr. | Ehara | Hiroyuki | Panasonic Holdings Corporation |  |
| Miss | Eitoku | Haruka | NTT corporation |  |
| Dr. | El Essaili | Ali | Ericsson GmbH, Eurolab |  |
| Mr. | Fontaine | Loic | InterDigital France R&D, SAS | Yes |
| Ing. | Fotopoulou | Eleni | Fraunhofer IIS |  |
| Mr. | Gabin | Frederic | Dolby Laboratories Inc. |  |
| Mr. | Gadhai | Shyam Vijay | IIT Kanpur |  |
| Mr. | Gao | Qian | China Unicom |  |
| Mr. | Gao | Shuai | China Unicom |  |
| Mr. | Gao | Yuan | Huawei Technologies France |  |
| Mr. | Gestraud | Yann | Orange |  |
| Mr. | Gibellino | Diego | TELECOM ITALIA S.p.A. |  |
| Mrs. | Godoy | Gabriela | SDI Squared |  |
| Miss | Gonzalez | Veronica | VODAFONE Group Plc |  |
| Mr. | Gudumasu | Srinivas | InterDigital Communications |  |
| Mr. | Gül | Serhan | Nokia Germany |  |
| Mr. | Gunkel | Simon | TNO |  |
| Mr. | Guo | Peipei | China Mobile Com. Corporation |  |
| Mr. | Guo | Yi | Intel Corporation (UK) Ltd |  |
| Dr. | Hamza | Ahmed | InterDigital Communications |  |
| Dr. | Han | Jaemin | Intel Technology India Pvt Ltd |  |
| Dr. | Harada | Noboru | NTT |  |
| Mr. | Harper | Colby | Pivotal Commware |  |
| Dr. | He | Xuan (Shane) | Nokia Germany |  |
| Dr. | He | Yong | Qualcomm Incorporated |  |
| Mr. | Heikkilä | Gunnar | Ericsson LM |  |
| Dr. | Holub | Jan | Mesaqin.com s.r.o (Ltd.) |  |
| Mr. | Homkar | Ajay | Cadence Design Systems Inc. |  |
| Mr. | Howells | Elfed | Huawei Technologies R&D UK |  |
| Dr. | Hu | James | AT&T GNS Belgium SPRL |  |
| Miss | Hu | Xiaokun | HuaWei Technologies Co., Ltd |  |
| Mr. | Inoue | Yoshihiro | NTT |  |
| Mr. | Jansson Toftgård | Tomas | Ericsson LM |  |
| Dr. | Jelinek | Milan | VoiceAge Corporation |  |
| Dr. | Ji | Zhu | Meta USA |  |
| Mr. | Jin | James | vivo Mobile Communication Co., |  |
| Dr. | Jung | Kyunghun | Meta Ireland |  |
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| Mr. | Kolekar | Abhijeet | Intel Corporation (UK) Ltd |  |
| Dr. | Kondrad | Lukasz | Nokia |  |
| Dr. | Kweon | Kisuk | Samsung Electronics Co., Ltd |  |
| Mr. | Kwon | WooSuk | LG Electronics Inc. | Yes |
| Mr. | Laaksonen | Lasse | Nokia Corporation |  |
| Mr. | Lair | Yannick | Nokia France |  |
| Dr. | Lee | Brian | Dolby Laboratories Inc. | Yes |
| Mr. | Lee | Cheolung | Samsung R&D Institute UK |  |
| Dr. | Lee | Duckey | Samsung R&D Institute UK |  |
| Dr. | Lee | Hakju Ryan | Samsung R&D Institute UK |  |
| Mr. | Lee | Jicheol | Samsung R&D Institute UK |  |
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| Mrs. | li | jing | China Unicom |  |
| Ms. | LI | PEI | China Unicom |  |
| Miss | LI | QIUTING | ZTE Corporation |  |
| Mr. | Li | Zhendong | Nubia Technology Co.,Ltd |  |
| Mr. | Li | Zhijun | ZTE Corporation |  |
| Miss | Liang | Shuang | Nubia Technology Co.,Ltd |  |
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| Mr. | Libunao | Gerardo | Verizon UK Ltd |  |
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| Dr. | Mustapha | Mona | Apple France |  |
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| Mr. | Nangia | Vijay | Motorola Mobility UK Ltd. |  |
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| Mr. | Norvell | Erik | Ericsson LM |  |
| Mr. | Oettl | Martin | Nokia Germany |  |
| Mr. | O'Leary | Edward | Rogers Communications Canada |  |
| Mr. | Onno | Stephane | InterDigital France R&D, SAS |  |
| Mr. | Outters | Jan | ATEME |  |
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| Mr. | Plante | Fabrice | Apple Italia S.R.L. |  |
| Mr. | Podborski | Dimitri | Apple AB |  |
| Mr. | Potetsianakis | Emmanouil | Beijing Xiaomi Mobile Software | yes |
| Mr. | Pousi | Timo | Ericsson LM |  |
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| Mr. | Ragot | Stephane | Orange |  |
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| Mr. | Ren | Chi | China Unicom |  |
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| Dr. | Ridge | Justin | Nokia Corporation |  |
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| Mr. | Ruan | Bangqiu | ZTE Corporation |  |
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| Ms. | Shan | Huaqi | China Mobile Com. Corporation |  |
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| Mr. | Smith | David K. | AT&T GNS Belgium SPRL |  |
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| Mr. | Srikanth | Nagisetty | Panasonic Holdings Corporation |  |
| Mr. | Srinivasan | Suresh | Intel |  |
| Mr. | Steck | Chris | DTS Licensing Limited |  |
| Mr. | Stegenborg-Andersen | Tore | FORCE Technology |  |
| Dr. | Stockhammer | Thomas | Qualcomm CDMA Technologies | yes |
| Dr. | Stoica | Razvan-Andrei | Motorola Mobility Germany GmbH | yes |
| Mr. | Stojanovski | Saso | Intel Deutschland GmbH |  |
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| Mr. | Szucs | Paul | Sony Europe B.V. |  |
| Dr. | Targali | Yousif | Verizon UK Ltd |  |
| Dr. | Tech | Gerhard | Fraunhofer HHI |  |
| Mr. | Teniou | Gilles | Tencent |  |
| Mr. | Thiebaut | Laurent | Nokia France |  |
| Mr. | Thomas | Emmanuel | Beijing Xiaomi Mobile Software | yes |
| Dr. | Tourapis | Alexandros | Apple GmbH |  |
| Mr. | Tsujikawa | Toru | NTT corporation |  |
| Mr. | Vaillancourt | Tommy | VoiceAge Corporation |  |
| Mr. | Varga | Imre | Qualcomm CDMA Technologies |  |
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| Mr. | Xu | Song | China Mobile Com. Corporation |  |
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| Dr. | Yao | Ge | China Unicom |  |
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| Dr. | Yoon | Joonhee | LG Electronics Inc. |  |
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| Mr. | zhang | dejun | Douyin |  |
| Mr. | Zhang | Yizhong | vivo Mobile Communication (S) |  |
| Dr. | ZHANG | Yu | ABS |  |
| Dr. | Zhang | Zhuoyun | Tencent |  |
| Miss | ZHAO | HUAN | China Unicom |  |
| Miss | zhao | lu | China Mobile Com. Corporation |  |
| Dr. | Zhao | Shuai | Intel |  |
| Dr. | Zhou | Lei | New H3C Technologies Co., Ltd. |  |
| Miss | Zhou | Xingyue | ZTE Corporation |  |
| Mr. | Zhu | Jinguo | ZTE Corporation. |  |
| Dr. | Zia | Waqar | Apple Marketing Iberia |  |